ARTICLE VII.

DESCRIPTIONS OF PLANTS COLLECTED ALONG THE ROUTE, BY W. P. BLAKE, AND AT THE MOUTH OF THE GILA.

BY JOHN TORREY.

Mr. Blake, the geologist of the Expedition commanded by Captain Williamson, having requested me to examine and report on the plants that he found in his explorations, as well as those collected near Fort Yuma, by Major Thomas and Lieutenant Du Barry, of the United States army, I have prepared the following list. The drawings for the illustrations were made by Mr. E. Dwight Church, a young artist of this city, and the engraving was executed by Mr. Prestele.

JOHN TORREY.

New York, *May* 1, 1857.

Argemone Mexicana, *Linn.* On the Colorado, and in other parts of California. An extremely hispid white flowered variety, which seems to be the same as A. munita, *Durand & Hilg. Pl. Herm.*

Nasturtium obtusum, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 74. With the last, in wet places. Flowers through the summer.

Sisymbrium deflexum, *Harv.; Torr. in Bot. Whipp. Rep.* Sandy places in the Colorado. Varies greatly in size.

Dithyræa Californica, *Harv. in Hook. Lond. Jour. Bot.* 4, *p.* 77. *t.* 5; *Torr. in Bot. Whipp. Rep.* California desert; March.

Oligomeris glaucescens, *Camb.; Gray, Pl. Wright*, 2, *p.* 16. Dry places between the Colorado and the sea coast; April, June.

Sesuvium portulacastrum, *Linn.; DC. Prodr.* 3, *p.* 453; Var floribus subsessilibus, *Gray, Pl. Wright*, 1, *p.* 13. Flowers on short pedicels. Stamens about 50. Sandy banks of the Colorado.

Fagonia Californica, *Benth. Bot. Sulph. p.* 10. Near Fort Yuma. This species is, as Bentham remarks, closely related to F. Chilensis and F. Cretica; but we think it more closely approaches the former than the latter. (Tab. I.)

Larrea Mexicana, *Moricand; Torr. in Emory's Report, p.* 137, *t.* 0. This is the well known *Creasote-plant* or *Creasote bush.* It grows from four to six feet high. It is very common in the desert west of the Colorado, and in barren spots on the mountains near that river.

Sphæralcea incana, *Torr. in Gray, Pl. Fendl. p.* 23; *Gray, Pl. Wright, p.* 21. River allu-

vions on the Colorado; beginning to flower in January. Resembles the original specimens collected on the Gila by Major Emory.

SIDA HEDERACEA, *Torr. in Pl. Fendl. p.* 23. River bottoms near Fort Yuma, and west to the Pacific; August, September.

HIBISCUS DENUDATUS, *Benth. Bot. Sulph. p.* 7, *t.* 3. California desert, January, May.

DALEA EMORYI, *Gray, Pl. Thurb. p.* 315. Sandy soils on the Colorado and Gila. This and the following species, viz: D. spinosa, *Gray;* D. scoparia, *Gray;* D. frutescens, *Gray;* D. arborescens, *Torr.;* D. Fremontii, *Torr.;* and D. Schottii, *n. sp.*, form a peculiar group, intermediate between Dalea and Psoralea, distinguished from the former by the truly papilionaceous corolla, and by all the petals being inserted at the base of the calyx; from the latter, (at least the North American species,) in habit, in the monadelphous stamens, the upper part of the filaments being distinct, and in other characters. Other remarks on this group will bə made in the botany of the Mexican Boundary Survey. (Tab. II.)

DALEA MOLLIS, *Benth. Pl. Hartw. p.* 306. With the last; a smaller plant than the New Mexican variety.

CERCIDIUM FLORIDUM, *Benth. Mss.; Gray, Pl. Wright, p.* 58, (*adnot.*) On the Colorado, and in the desert west. It is called *Palo verde* by the Mexicans, and *Green Acacia* by the Americans. It sometimes attains the height of 30 feet. (Tab. III.)

LUPINUS SPARSIFLORUS, *Benth. Pl. Hartw. p.* 303. On the Colorado. Less hairy than the plant described by Bentham.

STROMBOCARPA PUBESCENS, *Gray, Pl. Wright,* 1, *p.* 60. Prosopis (Strombocarpa) pubescens, *Benth. in Lond. Jour. Bot.* 5, *p.* 82. This is the well known *Screw-bean* of travellers in New Mexico and California. It occurs from the Rio Grande to the western slope of the Cordilleras of California. The pods are an important article of food to the Mexicans and Indians, and are also greedily eaten by cattle. (Tab. IV.)

OPUNTIA TESSELLATA, *Engelm. Syn. Cact. p.* 53, *& in Cact. Whippl. Pacif. Railroad Surv. t.* 21. Desert west of the Colorado. A remarkable species; weil described and figured by Engelmann.

MAMMILLARIA PHELLOSPERMA, *Engel. Cact. Mex. Bound. p.* 6, *t.* 7. Common on the Colorado.

MENTZELIA ALBICAULIS, *Torr. & Gray, Fl.* 1, *p.* 534. Sandy soils; from the Gila to San Diego; beginning to flower when scarcely an inch high.

MENTZELIA PUMILA, *Nutt. in Torr. & Gray, Fl.* 1, *c.* On the Colorado; beginning to flower in March. This agrees with Nuttall's original specimens, and with others collected in California by Frémont.

ŒNOTHERA (CHYLISMIA) CLAVÆFORMIS, *Torr. & Frem. in Frem. 2d Rep. p.* 314. With the last. Anthers hairy. We fear that R. brevipes of the Botany of Whipple's Expedition is a state of this species with considerably larger flowers and short pedicels. Intermediate specimens seem to connect them. We have a remarkable variety, collected by Frémont in 1849, (probably on the Lower Gila,) in which the lamina of the leaf is more than six inches long, deeply pinnatifid, the segments very unequal and coarsely toothed, the terminal one scarcely larger than some of the others.

ŒNOTHERA (CHYLISMIA) CARDIOPHYLLA (n. sp.): annua, caule folioso parce ramoso; foliis cordatis repando-dentatis, petiolo nudo; capsulis elongato-cylindricis subsessilibus v. pedicello 3–4-plo longioribus. Near Fort Yuma. Whole plant, when young, clothed with a soft white pubescence, most of which disappears with age. Stem 6-12 inches high. Leaves deeply cordate,

about an inch in diameter, acutely repand-toothed; the petiole usually a little longer than the lamina, and the lower ones sometimes twice as long. Flowers few, in a loose terminal raceme, the lower ones often axillary; upper ones subtended by small foliaceous bracts. Pedicels sometimes very short, but more commonly one-third or one-fourth the length of the ovary. The free portion of the calyx-tube about one-third the length of the ovary. Petals broadly obovate, entire, 4 or 5 lines long, at first yellow, but turning rose-color after flowering. Stigma capitate. Capsule 1 or 1½ inch long, and about a line in diameter; acute at the base. Seeds obovate; testa membranaceous. This species differs from Œ. clavæformis and Œ. brevipes in the cordate leaves and naked petioles. From Œ. scapoidea in the leafy stem, the form of the leaves, the elongated linear capsules, and the shorter pedicels.

AMMANNIA LATIFOLIA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 480. On the Lower Colorado. Resembles the eastern plant, except that the style is shorter.

PHORADENDRON CALIFORNICUM, *Nutt. in Jour. Acad. Phil. n. ser.* 1, *p.* 185. With the last.

PHORADENDRON FLAVESCENS, var. GLABRIUSCULUM, *Engelm. in Gray, Plant. Lindh.* 2, *p.* 212. On the Mesquite, (Algarobia glandulosa); rarely on Cotton-wood.

PECTIS PAPPOSA, *Harv. & Gray, in Gray, Pl. Fendl. p.* 62. California desert. It is called Mansanilla coyote by the Mexicans.

MACHÆRANTHERA CANESCENS, var. LATIFOLIA, *Gray, Pl. Wright*, 2, *p.* 75. Alluvial banks of the Great Colorado; Sept.–Oct. Stem 1-2 feet high.

PALAFOXIA LINEARIS, *Lagasca; DC. Prodr.* 5 *p.* 124. Desert west of the Colorado. Stem 1-2 feet high. Flowers pale purple.

CHENACTIS TENUIFOLIA, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 370. Near Fort Yuma. All the specimens were small and slender. Leaves mostly simply pinnatifid, the few divisions scarcely more than half a line wide. Ray and disk-flowers nearly equal. Pappus of 4 nearly equal ovate-lanceolate acuminate scales.

TRICHOPTILIUM INCISUM, *Gray, in Bot. Mex. Bound. ined.* Psathyrotes incisa, *Gray, Pl. Thurb.* In the Colorado desert, California, where it was first discovered by Mr. Thurber, and afterwards by Lieut. Du Barry and Mr. Schott. We have received the plant from no other station. (Tab. V.)

TESSARIA BOREALIS, *Torr. & Gray, in Emory's Rep. p.* 143; *Torr. in Sitgr. Rep. t.* 5. Cariso creek, and in all wet places, from the Colorado to the mountains east of San Diego.

EREMIASTRUM BELLIOIDES, *Gray, Plant. Thurb. p.* 321. Desert west of the Colorado. Our specimens are much more advanced than those collected by Mr. Thurber, but we have nothing to add to Dr. Gray's description except what may be derived from our figure. (Tab. VI.)

BAILEYA MULTIRADIATA, *Harv. & Gray, Pl. Fendl. p.* 106, *adnot.* Near Fort Yuma. B. pleniradiata seems to be scarcely distinct.

BACCHARIS CÆRULESCENS, *DC. Prodr. p.* 402. Banks of the Colorado; mostly in the vicinity of water-holes, but sometimes in dry places. The plant is often 14 or 15 feet high, and much branched. The leaves vary from entire to acutely dentate-serrate.

BACCHARIS EMORYI, *Gray, in Bot. Whipple's Exped.* With the last. Resembles B. angustifolia.

ENCELIA CONSPERSA, *Benth. Bot. Sulph. p.* 26. With the last.

FRANSERIA HOOKERIANA, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 294. A common weed on the Lower Gila, and west to the Pacific.

HYMENOCLEA MONOGYRA, *Gray.* With the last. In some of the specimens the scales of the involucres are spirally disposed, showing a tendency to pass into H. Salsola, which we suspect may prove to be an abnormal state of H. monogyra.

PERITYSE EMORYI, *Torr. & Gray, in Emory's Rep. p.* 142. On both sides of the Colorado, and west to the mountains. The characters seem to be constant.

ASCLEPIAS (OTARIA) SUBULATA, *Decaisne in DC. Prodr.* 9, *p.* 571. In the desert; not uncommon. It occurs also in Lower California. This is the species which, in the botany of Whipple's expedition, we suspected might be A. subulata. We now possess better specimens, with the leaves, and have scarcely a doubt that it is the species described by Decaisne under that name, notwithstanding the description does not apply in all respects. The stem is erect, 2-4 feet high, straight, simple, or sparingly branched above, either smooth and glaucous, or somewhat pubescent. The leaves are almost filiform, and erect; the lower ones nearly two inches long. Umbels sometimes solitary, but more commonly several in a terminal panicle, 10–20-flowered; peduncles 1–2 inches long, erect; pedicels 6–8 lines long, and like the peduncles, pubescent. Flowers about as large as in A. variegata. Sepals broadly ovate, acute. Petals (apparently white) ovate-oblong, rather acute, reflexed. Hoods of the crown twice as long as the nearly sessile gynostegium, dilated above, slightly toothed at the summit; horn somewhat exserted. Follicles about $4\frac{1}{2}$ inches in length, narrowly oblong, acute at the base, much attenuated above, smooth and even. (Tab. VII.)

SARCOSTEMMA HETEROPHYLLUM (*Engelm. Mss.*): volubile, glabrum; foliis petiolatis inferioribus lineari-lanceolatis hastatis, superioribus linearibus; pedunculis glabris elongatis folia superantibus; pedicellis calycibusque pubescentibus; corolla rotata glabra, margine fimbriata coronæ interioris lobis ovato-globosis gynostegii subbreviores. Near Fort Yuma; August–September. Stem 10–20 feet long. Lower leaves cordate-hastate at the base, 2–3 lines wide, the upper ones merely obtuse at the base, and 1–$1\frac{1}{2}$ line wide. Flowers pale purple. This is 1679 of Wright's New Mexican collection.

LIPPIA NODIFLORA, *Michx, Fl.* 2, *p.* 15. Alluvial banks of the Colorado; flowering through the summer. The leaves vary considerably in form. Some of the specimens show a transition to L. lanceolata.

NAMA BIFLORA, *Choisy in DC. Prodr.* 10, *p.* 183; var. SPATHULATA, *Torr. in Capt. Parke's Rep.* California Desert; flowering through the summer.

NICOTIANA MULTIFLORA, *Nutt. Plant. Gamb.*? On the Colorado and in other parts of California; September. We cannot be sure that this is Nuttall's plant. It is about 2 feet high, minutely pubescent, viscid on the upper part of the stem. The radical leaves are wanting in the specimens; the cauline are 2 inches long, oblong-spatulate entire, clasping and auriculate at the base. Flowers in a loose panicle; the pedicels 2–4 lines long. Calyx campanulate, the 5-cleft segments lanceolate and nearly equal. Corolla tubular, with a small, somewhat spreading border, about 8 lines long, pale dull yellow. Capsule 2-valved, the valves deeply 2-parted. It seems to belong to the section Rustica of Dunal.

PHYSALIS. Three species were found near Fort Yuma by Major Thomas, but we have laid them aside until we make an examination of all the North American species of this puzzling genus.

DATURA THOMASII (n. sp.): annua, caule erecto (humili); foliis ovatis repandis v. sinuato-dentatis glabriusculis; floribus brevi-pedicellatis; corolla calyce pentagono acute dentato duplo longiore; capsula globosa nutante aculeata, aculeis validis pubescentibus. Near Fort Yuma; Sept.–Oct. Stem 12-18 inches high. Flowers nearly one-third smaller than in D. Stramonium. Corolla white, tinged with purple on the inside, near the summit. Fruit, (without the prickles,) about an inch in diameter. Seeds blackish, tuberculate-rugose. This appears to be different

from any Datura described by Dunal. We have received it only from the Great Colorado. Specimens collected by Mr. Schott have the spines less thickly set, and the leaves more strongly toothed.

LYCIUM BARBINODE, *Miers, Ill. South Am. Bot.* 2 *p.* 115, *t.* 68, *E.* Colorado Desert; March.

MOHAVE VISCIDA, *Torr. & Gray, Bot. Whipple's Rep.* With the last. Flowers apparently sulphur-yellow, speckled towards the base with purple. The prominent palate saccate, purple, bearded with yellow hairs. Style cylindrical, nearly as long as the stamens; stigma capitate. The fruit of this remarkable plant is not yet known, but there can now remain little doubt of its having been rightly placed near Martynia.

PHACELIA CILIATA, *Benth. in Trans. Linn. Soc.* 17, *p.* 280. Near Fort Yuma. This species is to us one of the rarest of the genus.

GILIA LINIFLORA, *Benth. l. c. in DC. Prodr.* 9, *p.* 315. San Matio, near San Francisco.

FOUQUIERA SPLENDENS, *Engelm. in Wisliz. Mem. N. Mex. p.* 98 On the Colorado and Lower Gila, westward to the mountains.

ERITRICHIUM ANGUSTIFOLIUM (n. sp.): annuum, pilis patulis hispidissimum; caule e basi ramoso; foliis linearibus; racemis paucifloris; floribus sessilibus, calyce hispido, sepalis lanceolato-linearibus; corolla hypocraterimorpha (alba); nuculis ovatis acutis minutissime granulatis. With the last. Plant 6–12 inches high, slender, the lower branches often prostrate, hispid with white (or, on the inflorescence, yellowish) spreading hairs. Leaves an inch or more in length, and scarcely a line wide. Racemes about half an inch long, the flowers closely approximated. Sepals very hispid. Corolla white, falling early, less than a line long; segments of the limb obovate, very obtuse and entire. Stamens with very short filaments, which are inserted near the base of the tube. Nutlets extremely minute, convex, and minutely papillose on the back, acutely angular on the face, one or more of them often abortive. This species is not rare in California, and I think it occurs also in Oregon. There are specimens of it in the herbarium of the Philadelphia Academy of Natural Sciences, named by Nuttall, "Myosotis (Aphanisma) pygmæa," but the plant is evidently an Eritrichium, as that genus is now characterized. The manuscript specific of Nuttall is changed, because it is not applicable.

PECTOCARYA LINEARIS, *DC. Prodr.* 10, *p.* 120. Near Fort Yuma. The specimens agree with Chilian ones in our herbarium.

HELIOTROPIUM CURASSAVICUM, *Linn.*; *DC. Prodr.* 9, *p.* 538. Common in most places where the soil is saline, from the Colorado to the Pacific.

ACANTHOGONUM RIGIDUM, *Torr. Bot. of Whipple's Rep.* Near Fort Yuma. The specimens are in an early state, and enable us to correct and complete the characters of this genus, as given in the work just quoted. We have also seen a specimen of the plant in a small collection made by A. B. Gray, Esq., while making the survey of a route for a Southern Pacific Railroad, near the parallel of 32°. The plant seems never to attain a greater height than about 3 inches; beginning to flower immediately above the cotyledons. It is furnished with both radical and cauline leaves, which are ovate or obovate, half an inch long, mostly obtuse; the base tapering to a petiole which is about twice the length of the lamina. Involucres in axillary sessile clusters, subtended by long straight subulate and spine-like divaricate bracts. Involucre always 3-cleft; the segments very unequal, one of them sometimes much elongated, straight. Perianth yellow, campanulate-funnelform, hairy at the summit. Stamens 9, included: filaments inserted at the upper part of the tube. Ovary oblong, acute at each end, rough on the angles towards the summit.

ACANTHOGONUM? CORRUGATUM (n. sp.): caule superne trichotome ramoso; bracteis brevibus recurvis; fasciculis involucrorum pedunculatis; involucri laciniis subfoliaceis subæqualibus spinescentibus, apice incurvis, tubo cylindrico corrugato. Near Fort Yuma. This species seems to be almost intermediate between Acanthagonum and Chorizanthe. It has the habit of the former, with the cylindrical tube and incurvate tips of the involucre of the latter. But the involucral segments are never more than three, and the filaments are not inserted near the base of the perianth, as in Chorizanthe, but high up in the tube. Plant only two or three inches high.

CHORIZANTHE FIMBRIATA, *Nutt. Pl. Gamb. in Jour. Acad. Phil.* (*n. ser.*) 1, *p*, 168; *Benth. in DC. Prodr.* 14, *pars* I, *p.* 25. California Desert, and on Pacific coast. (Tab. VIII.) This belongs to a section of the genus Ptilosepala, by Nuttall. A second species discovered by Dr. Antisell, in Parke's expedition, near San Felipe, it will be described and figured in the botany of that expedition, under the name of C. laciniata.

ERIOGONUM THOMASII (n. sp.): annuum foliis radicalibus rosulatis longe petiolatis ovatis supra pubescentibus subtus albo-lanatis; scapo trichotome ramosissimo glaberrimo, ramis capillaribus, involucris longe filiformi-pedunculatis late campanulatis 5-dentatis 8–10-floris, bracteolis cuneato-oblongis obtusis, margine longe pilosis, perigoniis basi extus pubescentibus, laciniis exterioribus subpanduriformibus, interioribus lineari-oblongis. Near Fort Yuma. Also found by Colonel Frémont, probably on the lower part of the Gila, in 1849. Plant about a span high; leaves 6–8 lines long; the petioles varying from half an inch to an inch in length. Branches of the scape widely spreading. Peduncles 4–8 lines long. Involucres scarcely half a line long, deeply 5-toothed. Flowers nearly as large as the involucre, glandularly pubescent at the base, the pedicels articulated close to the perianth. Divisions of the perianth very obtuse; the exterior cordate at the base and reflected at the sides, a little emarginate; the inner about one third longer than the exterior ones. Filaments and ovary glabrous. Fruit not seen. Resembles E. trichopodum, but that species has the flowers strongly hairy on every part, acute and nearly equal segments of the perianth, and narrowly linear bracteoles.

SALICORNIA FRUTICOSA, *Linn.*? Cañada de las Uvas, in saline soils; California. The specimens are not sufficient for accurate determination; but the plant appears to be identical with the common frutescent species.

SCHOBERIA CALCEOLIFORMIS, *Moq. in DC. Prodr.* 13, *pars* I, *p.* 166. With the last. Moquin states that this plant has been found near New York, which must be a mistake.

EUPHORBIA ALBOMARGINATA, *Torr. & Gray, Bot. Pope's Rep. p.* 18. Alluvial soils near the Colorado; September.

EUPHORBIA POLYCARPA, *Benth. Bot. Sulph. p.* 50. With the last.

EUPHORBIA SETILOBA (*Engelm. Mss.*): "prostrata, pilis brevibus patulis sæpe glanduliferis tota puberula; foliis minutis e basi vix obliqua subcordata ovatis obtusis; stipulis minutis deciduis; glomerulis lateralibus; involucris dorso profunde fissis, appendiculis in lacinias 3–4 subulatas divisis; stylis elongatis fere ad basin bifidis, stigmatibus clavellatis divaricatis; capsula hispidula; seminibus ovatis acutatis transverse rugulosis." Near Fort Yuma. Stem 3 inches long. Leaves 1 line long, reddish. Appendages of the glands white, very conspicuous, almost setaceous. There are only about three male flowers in each involucre.

OREODAPHNE CALIFORNICA, *Nees, Syst. Laur. p.* 463. Martinez, California. In that region the plant is scarcely a tree, the height being only from 10 to 20 feet. The inhabitants know it by various names, such as mountain laurel, balm of heaven, spice bush, &c. The Spaniards

are said to use the dried and pulverized leaves as a condiment. The fruit is nearly globose, about the size of an ordinary plum, and when ripe, (which is about the middle of July,) of a dark purple color.

QUERCUS HINDSII, *Benth. Bot. Sulph. p.* 55. Q. longiglanda, *Torr. in Frem. Geogr. Mem.* Q. Ransomi, *Kellogg, in Proceed. Calif. Acad. Nat. Sc., p.* 25 *?* With the next; bearing its long ripe acorns in October.

QUERCUS CRASSIPOCULA (n. sp.): foliis perennantibus coriaceis petiolatis oblongis acutis integerrimis v. parce acuteque dentatis subtus pubescentibus demum glabris; fructibus sessilibus, cupula depresso-hemispherica crassissima, squamis latissimis tomentosis brevi-acuminatis glanda, ovata glabra. (Tab. IX.) Tejon Pass. This handsome evergreen oak is usually but a middle-sized tree. It is certainly very near Q. densiflora, *Hook. & Arn.*, of which I have no good acorns for comparison. That species (judging from the figure of *Hooker, Ic., t.* 380,) has smaller acorns, a thin, hemispherical cup, and narrow scales. The leaves vary in size and form; on young shoots they are often sharply dentate. The cups are sometimes nearly an inch and a half in diameter, and extremely thick, with a rounded margin. The scales are broader than long, and have a small, abrupt point. The lower ones, and sometimes all of them, are more or less thickened and pulvinate, so that they give to the cup a tuberculate appearance. Gland often an inch and three-quarters long, obtuse, only a third or fourth part immersed in the cup.

QUERCUS AGRIFOLIA, *Née, in Ann. Sc. Nat.* 3, *p.* 371. Q. oxyadenia, *Torr. in Sitgr. Rep. t.* 17. Q. acutiglandis, *Kellogg, l. c.* Bear cañon of the Sierra Nevada. We have elsewhere remarked how variable are the leaves and acorns of this species. The acorns collected by Mr. Blake were all elongated, and very acute. The plant generally forms low, scrubby bushes, but is sometimes twenty feet high.

QUERCUS DOUGLASII, *Hook. & Arn. Bot. Beech. p.* 371; *Hook. Ic. t.* 382 *and* 383. Summit of Tejon Pass. This belongs to the group that includes Q. alba.

QUERCUS IMBRICARIA, *Michx. Fl.* 2, 197; *Michx. f. Sylv.* 1, *p.* 65, *t.* 15 *?* Tejon Pass; leaves only. Without the fruit we cannot determine the species with certainty, but the leaves so strongly resemble those of the Laurel-oak, that we would have little doubt as to the identification had the Q. imbricaria ever been found before west of the Rocky Mountains. The late Captain Gunnison collected it on the headwaters of the Arkansas.

POPULUS MONOLIFERA, *Ait. Kew. ed.* 1, 3, *p.* 406; *Michx. f. Sylv.* 1, *t.* 96, *fig.* 2. P. Canadensis, *Michx. l. c. t.* 95. This is the common cottonwood, which has a range from the Atlantic to the Great Colorado, and almost as great an extent of latitude. It is abundant in some places near Fort Yuma.

SALIX LONGIFOLIA, *Muhl.*, var. ?: foliis dense serratis; fructibus glabris. On the Colorado.

EPHEDRA ANTISIPHILITICA, *Moric.* Mountains east of San Diego.

CYPERUS PHYMATODES, *Muhl. Gram. p.* 23. Abundant in the immediate valley of the Gila, ten miles from Fort Yuma; November. Near Kern River, Tule; August.

CYPERUS MICHAUXIANUS, *Schultes; Torr. Cyp. p.* 259. Banks of the Colorado, in moist places; a dwarf form.

SCIRPUS LACUSTRIS, *Linn.; Torr. Cyp. p.* 321. Kern River; August. The specimens are remarkably tall, being more than eight feet high, but the panicle of spikelets is very small.

VILFA UTILIS (n. sp.): glabra culmis prostratis v. assurgentibus ramosissimis tenuibus; foliis (1″–2″) angustis convolutis confertis patulis v. recurvis; panicula (1″) contracta pauciflora; (spiculis $\frac{2}{3}$‴;) glumis subæqualibus lanceolatis acutis paleas æquales acutiusculas dimidio bre-

voribus. Between the Tejon Pass and the Lost Hills of California. This grass is not uncommon in New Mexico and western Texas, where it is used by the natives for stuffing pads for loaded mules, its soft thread-like culms making it admirably fit for this purpose. Mr. Blake's specimens are nearly two feet long, which is twice its usual length. In the young flowers the glumes are scarcely one-third the length of the paleæ, but at maturity, they are commonly one-half their length. It belongs to a group of the genus that includes V. Virginica, *Linn.* and V. Matrella, *Nees.* It is also nearly related to V. humifusa, *Hook.*, but that has unequal glumes, the upper one nearly as long as the paleæ, or sometimes one-third shorter. No. 958, of Fendler's New Mexican collection, and No. 1983, of Wright's, are the same as the Californian plant, differing only in the more rigid leaves, and somewhat more acute paleæ.

Another, and apparently new, Vilfa was found by Mr. Blake, at the head of Tulare Valley, but his specimens are rather imperfect, and we defer giving it a name for the present. It is an erect grass, about six feet high, simple, with narrow, convolute leaves, and scabrous sheaths. The panicle is two feet long, and much contracted. The spikelets are lanceolate, and nearly terete, scabrous under a lens. Glumes equal, rounded on the back, one-fourth shorter than the lanceolate, rather acute paleæ; the inferior paleæ a little hairy at the base. No. 1993, of Wright's collection, is near this species, but it differs in the glabrous flowers, and the paleæ a little shorter than the glumes, without any hairiness at the base.

POLYPOGON MONSPELIENSIS, *Desf.* Var.? MONOLEPIS: palea inferiore setam infra apicem exserente glumis duplo longiorem, superiore nulla. Posé Creek, Walker's Pass; August. Culm terete, simple. Leaves flat, and with the sheaths puberulous; ligule oblong. Panicle oblong, dense and spiciform, somewhat interrupted. Glumes equal, acuminate, and cuspidate; serrulate on the keel. Inferior palea scarcely more than half as long as the glumes, 4-toothed at the summit, with an awn arising above the middle of the back nearly twice the length of the glumes; the upper palea wanting, or extremely minute. If the characters here given prove to be constant, this is probably a distinct species from P. Monspeliensis.

MUHLENBERGIA DIFFUSA, *Schreb. Gram.* 2, *t.* 51. Var. aristis multo longioribus. Tulare Valley. Perhaps a distinct species.

ERIOCOMA CUSPIDATA, *Nutt. Gen.* 1, *p.* 30. Urachne lanata, *Trin. Act. Petrop.* 1834, *p.* 126. "Grows in bunches, on plains; October." Mr. Blake has not recorded the precise station of this grass, but we have never received it before from any part of California.

ARISTIDA HUMBOLDTIANA, *Trin. & Rupr. Stip. p.* 118? Head of Tulare Valley, California; September. Culm apparently tall, glabrous; sheaths smooth, hairy at the throat. Panicle erect, pyramidal, about a foot long, the branches solitary, in pairs, or semiverticillate; the divisions appressed and racemose. Glumes slightly unequal; the lower one about 4 lines long, the upper ½ a line longer, cuspidate. Paleæ a little exceeding the glumes. Lateral setæ as long as the flowers, the central somewhat longer, equally spreading, straight. We are by no means confident that the species is correctly determined.

BOUTELUNA (CHONDROSIUM) POLYSTACHYA, *Benth. Bot. Sulph. p.* 56; *Torr. in Emory's Rep. p.* 153. Hill-sides, on the Colorado, and in the desert west. There are usually 4 or 5 spikes, but sometimes only 3. At each joint of the spikes there are two kinds of spikelets; the lower one 1-flowered; the upper sesquiflorous. The rudimentary flower is sometimes reduced to 3 awns, with a tuft of hairs at their common base. (Tab. X.)

MEGASTACHYA—near M. conferta (Poa conferta, *Ell.*) Kern River, Tule; August. Culm 2–3 feet high. Leaves narrow, convolute when old, glabrous, as is also the sheath. Panicle

elongated, much contracted, and spiciform. Spikelets 8–10-flowered, 3 lines long, and scarcely half a line wide.

FESTUCA. Kern River. This I have not received before, and it is not described as a North American Festuca. It may, however, be a Chilian species, and I regret not having the means of determining it at present. It is a tall grass, with flat smooth glaucous leaves, and a long contracted panicle. The spikelets are about 10-flowered. Glumes very unequal; the upper one much longer, and abruptly mucronate at the tip. Lower palea hairy on the margin toward the base, bifid at the tip, with a short straight bristle between the teeth. Upper palea much smaller.

PHRAGMITES COMMUNIS, *Linn.* Warm Springs, Cohuillas.

ELYMUS ARENARIUS, *Linn.* Posa creek; August. This occurs also in other parts of California, but is not found on the eastern side of the continent.

PANICUM CRUS-GALLI, *Linn.* Var. Setaria Californica, *Kellogg, in Proceed. Calif. Acad. Nat. Sc. p.* 27? Kern River. This is a very tall form. The panicle consists of numerous approximated appressed branches, forming a dense spiciform inflorescence. The flowers are awnless; the inferior glume short and very broad, with a minute abrupt point. Dr. Kellogg's plant was found at the head of the Sacramento Valley.

PANICUM CAPILLARE, *Linn.* With the last. It agrees with the Eastern grass, and it may be an introduced species in California.