

LIST OF PLANTS COLLECTED BY DR. EDWARD PALMER IN 1890 ON CARMEN ISLAND.¹

By J. N. ROSE.

This island is situated in the lower part of the Gulf of California, two-thirds of the way down the Lower California coast, almost in sight of land. It is 120 miles south of Guaymas. It is made up mostly of low mountains, or hills, which in the north are only about 200 feet high, but in the south rise from 800 to 1,000 feet, and are cut by many deep cañons. The surface is rocky, with very poor or no soil. No trees are found here; a few shrubs, sometimes 15 feet high, give the prominent floral features to the island. On the west side is a great salt bed covering about 640 acres to a depth of 12 feet, estimated to contain about 13,000,000 tons of a very fine quality of salt. This island is owned and controlled by a gentleman at La Paz, and a large quantity of the salt is shipped both to Guaymas and San Francisco, and, when the salt is ground, sells as the very best quality for table use. The source² of this vast salt deposit is said to come from the surrounding hills and mountains. All the creeks and cañons open into this lake and, from experiments made, their waters are found to be charged with chloride of sodium. After the rains have ceased, in about fifteen days, the water evaporates and the work of excavation can go on. The only botanist or collector, so far as I know, who has visited this island is Dr. Edward Palmer. He has made two visits and has very thoroughly collected the plants of the island. His first visit was January 1 and 2, 1870. I have not been able to learn the number of species collected, yet it was not large. No report was published on the plants, although most of them were then new species. One or more of them have been identified from time to time as belonging to new species and published as part of the type. Most of the others have been collected elsewhere by Mr. Brandegec or by Dr. Palmer himself, and published as new, without having seen the Carmen Island forms. Dr. Palmer made a second visit last November and remained a week (No-

¹ Read before Section F, of the A. A. A. S. August 22, 1891.

² In Bulletin No. 84 of the U. S. Hydrographic Office (p. 28) it is stated, however, that although the lake is separated from the ocean by a strip of beach a quarter of a mile wide, over which the sea never flows, yet the water rises and falls with the tide. [September 20, 1892.]

ember 1-7, 1890). He visited all parts of the island and brought back a small but interesting collection. The flora is almost identical with that of the peninsula. Of this collection 49 species are known to be common to the peninsula and island; others will doubtless be found; 29 species are also common to Mexico, and 25 to the United States; of the latter, 9 are grasses; 19 of the species were collected by Dr. Palmer at La Paz in 1890; 7 species are, so far as known, local, 5 of which are here for the first time described. The island was so thoroughly explored that probably very few species will be added to the list, and a few details will not be out of place. The number of genera represented on the island is 60, and of species, 68. Of the species 21 are Polypetalæ, 24 Gamopetalæ, 10 Apetalæ, and 13 Monocotyledons. Of these, more than one-half (37) belong to 4 families, viz: Leguminosæ 7; Compositæ 12; Euphorbiaceæ 6; and Graminæ 12; one family belongs to each of the four groups mentioned above; and over one-third (24) belong to two families, viz: Compositæ and Graminæ. Orchidaceæ and Filices, the third and fourth largest families of Mexico, are not represented on the island.

	Polypetalæ.	Leguminosæ.	Gamopetalæ.	Compositæ.	Apetalæ.	Euphorbiaceæ.	Endogens.	Graminæ.	Total.
Number of species	21	7	24	12	10	6	13	12	68
Number of genera	21	7	21	10	8	4	10	9	60
Indigenous species	3	2	2	0	2	2	0	0	7
New species	3	2	1	0	2	2	0	0	5
Common to Mexico									29
Common to Lower California									49
Common to United States									25
Collected by Palmer at La Paz									19

Drymaria diffusa Rose, n. sp. Stems slender, much branched from a perennial base, somewhat glandular-pubescent throughout: leaves thin, broadly ovate to deltoid, 2 to 4 inches long (on petioles somewhat longer), truncate at base, acute or slightly acuminate at apex: inflorescence few-flowered cymes: pedicels filiform, 5 to 8 lines long: sepals equal, 1 to 1½ lines long, thin, oblong, acutish, delicately 1-nerved, scarious margin: petals twice as long as the sepals, 2-parted to the middle into oblong or spatulate segments: stamens 5, unequal, shorter than the petals: capsule globose, 1½ lines long, short stipitate, about 10-ovuled, 3-seeded.— Grows on the shady side of a cañon in roundish bunches. No. 819.

This is *D. glandulosa* Watson, Proc. Amer. Acad. xvii, 328, in part. Our plant differs from this species in its leaves not being so broad, and in having long petals: lower stipules wanting or deciduous, not lacerate: sepals smaller and not so strongly nerved.

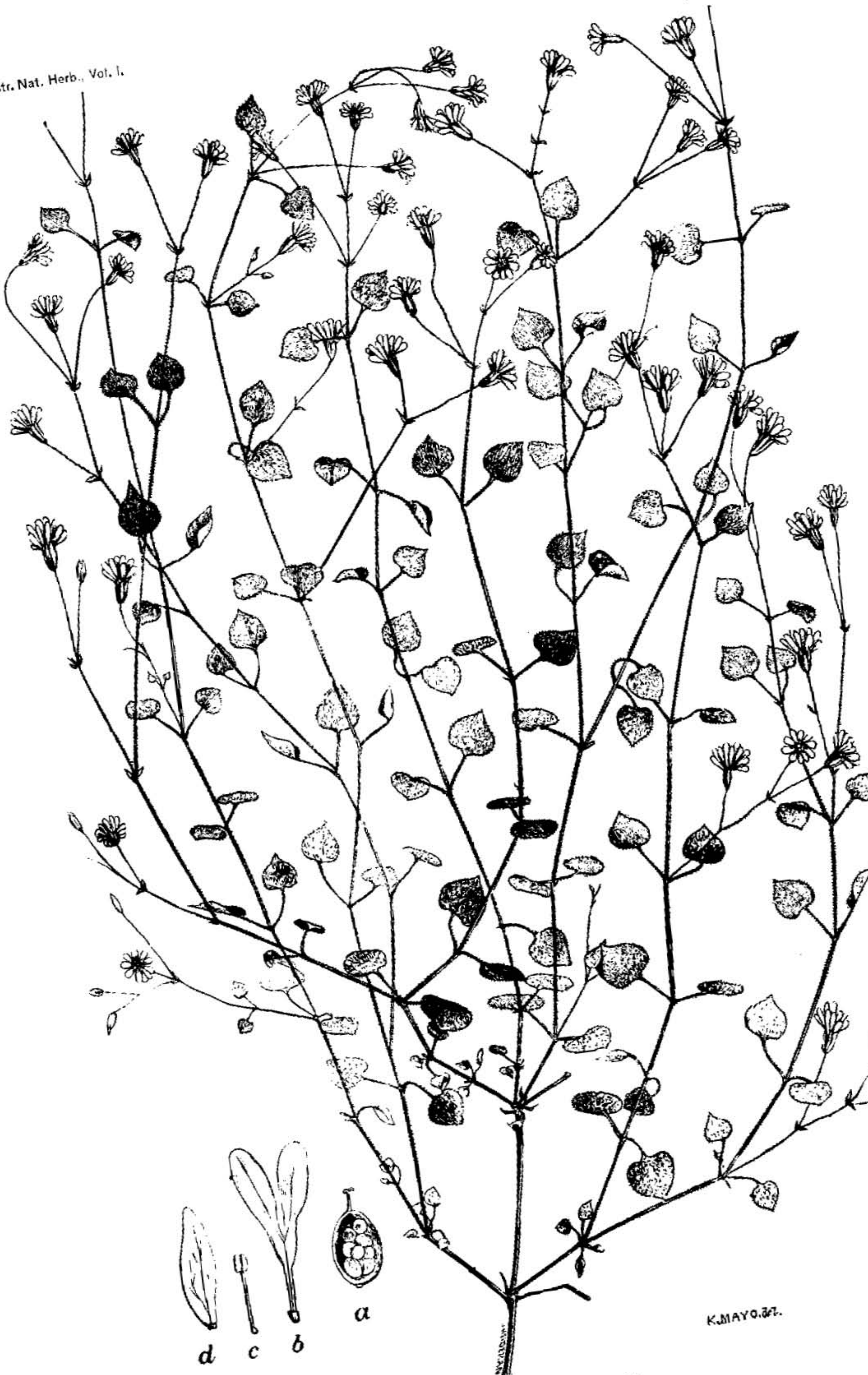
Collected by Palmer in 1870 (No. 4) and distributed as *D. ramossisima*.

EXPLANATION OF PLATE XII.—The plant is shown natural size: *a*, capsule showing seeds and style; *b*, a petal; *c*, a stamen; *d*, a sepal; all somewhat enlarged.

Abutilon Dugesii Watson. Only a few plants seen in a cañon, and in poor condition.

No. 840. Nearest the above species, but not very satisfactorily placed there.

Hibiscus denudatus Benth. A very poor specimen obtained, badly infested by an insect (*Eriscoccus*, sp.). Also obtained in 1870 (No. 15). No. 826.



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DRYMARIA DIFFUSA n. sp.



DESMANTHUS FRUTICOSUS n. sp.

Gossypium Harknessii Brandg. Proc. Cal. Acad. ser. 2. ii. 136. A large bush 4 to 6 feet high: leaves very dark green: flowers lemon-color. In cañons, not common. No. 838.

Collected by Mr. T. S. Brandegee on Santa Margarita Island, and by Dr. Palmer from this island in 1870 (No. 3): the latter distributed as *G. Barbadosense*.

Melochia tomentosa L. In cañons, few plants seen. No. 823.

Fagonia Californica Benth. About the mouth of a cañon. Collected in 1870 (No. 13). No. 830.

Bursera microphylla Gray. Commonly called "Torote." Common in the cañons and on mountain sides. No. 884.

Cardiospermum Palmeri Vasey and Rose. Proc. Nat. Mus. ix. 147. Climbs over bushes in cañons. No. 851.

Dalea Parryi Gray. Not very common. No. 824.

Tephrosia Palmeri Watson. Proc. Amer. Acad. xxiv. 46. In cañons. No. 847.

Æschynomene nivea Brandg. Proc. Cal. Acad. ser. 2. ii. 150. Only a few plants seen among rocks in a cañon. No. 818.

Phaseolus filiformis Benth. Few specimens found. Obtained in 1870 (No. 5). No. 876.

Cassia Covesii Gray. Grows in cañons. No. 843.

Desmanthus fruticosus Rose, n. sp. Shrub 5 to 6 feet high or small tree 10 to 12 feet, glabrous with reddish branches: leaves large: rhachis $1\frac{1}{2}$ to 3 inches long; stipules spinescent; pinnae 3 to 4 pairs, 1 to 3 inches long with a concave gland between the lowest pair and often one or more of the upper pairs; leaflets 12 to 20 pairs, oblong, 3 to 5 lines long, $1\frac{1}{2}$ to 2 lines broad, with somewhat eccentric midrib: flowers numerous: calyx 2 lines long: petals slender, one line longer than calyx: stamens 10: pods $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long, 3 lines wide, many seeded: seeds flattened, 2 lines in diameter, the semicircular mark on the side very small.—In bottom of cañons. No. 820.

This is *D. virgatus* Benth. Bot. Sulph. p. 14, and Brandg. Proc. Cal. Acad. ser. 2. ii. 152. Also referred to as above in Proc. Cal. Acad. ser. 2. iii. 152.

This species differs from *D. virgatus* in its shrubby habit, lower leaves, larger and more numerous pods, etc. The marking on the side of the seed referred to by Mr. Brandegee in his notes of this species seems to be a generic character, and as it also varies in shape and size in different species it may be of some use in identification. In *D. virgatus*, although the seed is not half as large as in the above species, the marking is much larger.

EXPLANATION OF PLATE XIII.—A fruiting branch is shown natural size; a, flower with calyx split and petals shown; b, a flower; c, a seed; d, the same much enlarged.

Lysiloma candida Brandg. Proc. Cal. Acad. ser. 2. ii. 153. A large bush, sometimes a small tree. One of the most conspicuous plants of the island. No. 816.

Eucnide cordata Kell. On the beach, but not common. No. 867.

Mentzelia adherens Kell. Common at the mouth of cañons. No. 831.

Passiflora Palmeri Rose, n. sp. Trailing or low-climbing plant, thickly pilose, interspersed with club-shaped glandular hairs throughout: leaves small, about 1 inch long, with 3 obtuse lobes; stipules small, lacerate: tendrils simple, longer than the leaves, pilose: peduncle slender, erect, reflexed in fruit, 1-flowered: involucre bracts 3, small, becoming in fruit a little longer than the stipe, pinnately dissected; segments setaceous, excurrent into a gland: sepals white, 5, broadly linear, $1\frac{1}{2}$ inches long, 3-nerved, the central nerve thickened above, separating below and extending beyond the tip of the sepal: petals 5, 1-nerved, about the length of the sepals: crown in 3 series; outer of short filiform segments a little longer than the tube of the calyx; inner one entire, cup-shaped: staminal tube 8 to 9 lines long, glabrous; free part of filament ribbon-shaped, 5 lines long: ovary very hairy: styles and stigmas 3, glabrous: fruit $1\frac{1}{2}$ inches in diameter, pilose.—Very plentiful on the beach among the loose coral, but rare in the cañons. No. 868.

The plant is called "Sandia de la Passion." The flowers bloom early in the morning and last but a part of the day; the ripe fruit, which has a sweetish taste, is much relished by the children of the island.

This species seems nearest *P. fatida*, some forms of which have very similar foliage, but differs in its larger flowers, smaller crown, longer staminal tube, and the peculiar tip of the sepal.

EXPLANATION OF PLATE XIV.—A branch with flowers and fruit shown; natural size.

Mamillaria Roseana Brandg. Zoe, ii. 19. Common on the hillsides and beach among loose coral rocks. Fruit of a "vermilion color," is edible. Said to be a very handsome species. No. 880.

Cereus gamosus Engelm. Stem 6 feet high, erect; ribs 8 or 9; spines straight and stout; branches numerous, often prostrate upon the ground: mature fruit large, dull red without, bright red within. Not in flower. No. 883.

The fruit is edible; it is used for preserves, jams, etc. It is called "Pitahaya acre."

Vaseyanthus Rosei Cogniaux. Zoe, i. 368. Grows in cañons in shady places and along the beach. No. 837.

This was first collected at La Paz and is No. 102 of Dr. Palmer's collection referred to *Marimowiczia* on p. 70.

Macrosiphonia Berlandieri Gray. About 3 feet high with few branches; only found in fruit. In cañons. No. 841.

Houstonia brevipes Rose. Contr. Nat. Herb. i. 83. In cañons. No. 836.

Houstonia (Ereicotis) fruticosa Rose, n. sp. Upright-growing shrub, 1 to 2 feet high, much-branched, glabrous throughout: leaves linear, 3 to 7 lines long, much fasciated, and with minute stipules: flowers cymose on short pedicels or sessile: corolla 4 to 5 lines long, salver form, the tube much longer than the lobes, "white:" the fruiting calyx 1 line long, with lobes of equal length: capsule a little over 1 line long, free from the calyx at the tip only: seeds oblong.—One of the commonest plants along the beach. No. 885.

Near *H. fasciculata*, but with larger flowers and leaves, and somewhat different in habit.

Hofmeisteria laphamioides Rose. Contr. Nat. Herb. i. 79. Neither in flower nor fruit, but evidently this species. Found on the side of a cañon. No. 850.

Hofmeisteria pubescens Watson. About a foot high with fleshy leaves and pinkish flowers. A compact plant, the numerous branches interlacing form an impenetrable mass. Found on the beach and in the cañons. No. 875.

This plant has somewhat less dissected leaves than the type and approaches near *H. fasciculata*, from which it seems to differ only in being pubescent and in having the leaves more dissected.

Brickellia brachiata Gray, var. **GLABRATA** Rose, n. var. Glabrous throughout, but in other respects similar to the type. This is the glabrous form referred to on page 83, from Santa Rosalia. The finding of this glabrous form a second time indicates that it may be a common form along the Gulf, and being so much out of the range of the type we have thought best to give it a varietal name.—On side of rocky cañons. No. 849.

Aplopappus spinulosus DC. Only a single specimen seen. No. 818.

Bebbia juncea Greene. About 3 feet high. Found on the beach and cañons. No. 844.

Bigelovia diffusa Gray. Commonly called "Yerba del Jasco." Two to three feet high. Grows on the beach. No. 833.

Viguiera deltoidea Gray, var. **PARISHII** Rose. Contr. Nat. Herb. i. 73. Three to 4 feet high. In the cañons of the island, but not common. No. 828.

Alvordia glomerata Brandegee. Proc. Cal. Acad. ser. 2. ii. 174. About three feet high: flowers orange-yellow, with a strong oily odor. In the cañons; not common. No. 827.

Recently found by Mr. Brandegee at two stations not far away on the mainland.



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PASSIFLORA PALMERII n. sp.

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- Leptosyne dissecta** Gray. A compact bushy plant 1 to 2 feet high: leaves more dissected than in the type. Only seen in one cañon. No. 877.
- Perityle Emoryi** Torr. form. About 2 feet high: leaves very much dissected, rather thick: heads somewhat larger than in type: style-branches with acute tips. Common along the beach and in the cañons. No. 866.
This form was collected on the island by Dr. Palmer in 1890, and made the subject of a short note in Bot. Cal. i. 397, by Dr. Gray. This was also obtained by him last year at La Paz, and by Mr. Brandegee at the same place and time.
- Porophyllum crassifolium** Watson. Proc. Amer. Acad. xxiv. 57. A very common plant along the beach, in the cañons, and on the mountain side. No. 879.
It was first collected on this island. It was distributed as "*P. tridentatum* Benth." and is in Palmer's collection of 1870 (No. 9).
- Porophyllum gracile** Benth. Very common on the beach. No. 834.
It is called "Yerba del Venado" and is much used as a tea. This plant was collected in 1870 (No. 16).
- Phacelia scariosa** Brandegee. Proc. Cal. Acad. ser. 2. ii. 185. Common on the beach. No. 832.
- Bourreria Sonoræ** Watson. Proc. Amer. Acad. xxiv. 62. A shrub about 6 feet high. In cañons. No. 822.
- Krynitzkia racemosa** Greene. In cañons, growing on gravelly soil. No. 846.
- Heliotropium Curassavicum** L. Very common. No. 869.
- Physalis crassifolia** Benth. Probably this species, but only a single poor specimen was found. No. 871.
- Datura alba** Nees. Established in all parts of the island except in the higher parts of the mountains. No. 872.
This seems to be the same as Palmer's Chihuahua plant, referred doubtfully to this species.
- Nicotiana trigonophylla** Dunal. Only a few plants seen in cañons. No. 873.
- Calophanes Californica** Rose. Contr. Nat. Herb. i. 85. A branching shrub 2 feet high: corolla purple, $1\frac{1}{2}$ inches long. Common in cañons. No. 829.
This plant is not so tall, and the calyx and corolla are not so large as in the type, but otherwise they seem to agree. This species was also collected by Dr. Palmer on this island in 1870 (No. 8). The specimens undetermined in Gray Herbarium.
- Salvia platycheilia** Gray. About 3 feet high. Collected in a cañon. No. 878.
This was made the type of a new species in Dr. Palmer's collection of 1870 (No. 7); not since collected until now.
- Boerhaavia Wrightii** Gray. In very poor condition, but probably this species. No. 845.
- Atriplex Barclayana** Dietr. Common plant. No. 874.
- Stignosperma halimifolia** Benth. About 4 feet high. Only a few plants seen. No. 870.
- Phoradendron** sp. No. 882.
- Argithamnia Brandegei** Millsp. Proc. Cal. Acad. ser. 2. ii. 220. It differs from the type in having 10 stamens. No. 839.
- Croton Magdalenæ** Millsp. Proc. Cal. Acad. ser. 2. ii. 220. No. 821.
- Euphorbia polycarpa** Benth, var. *VESTITA* Watson. Very common. No. 835.
- Euphorbia blepharostipula** Millsp. Contr. Nat. Herb. i. 77. Very common on the island. No. 825.
- Euphorbia Carmenensis** Rose, n. sp. A low, compact plant, woody at base, a span high, with many slender interlacing branches, glabrous throughout: leaves opposite, small, 1 to 2 lines long: involucre very small, $\frac{1}{4}$ line long, axillary, sessile: glands 5, naked: seeds reddish, smooth, $\frac{1}{4}$ line long.—In cañons and on mountain sides. No. 842.
A peculiar species. Our plant is abundantly covered with small oblong bodies, appearing like capsules, which are the result of insect work.

Simmondsia Californica Nutt. In cañons, but not common. No. 817.

Called "Jojo baberry."

Sporobolus argutus Kunth. No. 856.

Panicum lachnanthum Vasey and Scribn. No. 855.

Panicum fasciculatum Vasey and Scribn. No. 864.

Muhlenbergia debilis Trin. No. 853.

Setaria setosa Beauv. No. 857.

Aristida dispersa Trin. No. 858.

Bouteloua aristidoides Thurb. No. 859.

Bouteloua polystachya Torr. No. 854.

Bouteloua racemosa Lag. No. 861.

Heterpogon contortus R. and S. No. 860.

Diplachne Brandegei Vasey. No. 862.

Cenchrus Palmeri Vasey. No. 865.

Cyperus. Too young for determination. No. 863.

—— Indeterminable shrub. A shrub 3 feet high, 4 inches in diameter, with numerous horizontal branches: leaves fascicled. Neither in fruit nor flower. Common near the beach. No. 881. It may be *Japtroupha spatulata* Muhl. A *Phoradendron* is parasitic upon it.

—— A long, slender, cactus-like plant. No. 794.