34TH CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 135.

REPORT

ON THE

UNITED STATES AND MEXICAN BOUNDARY SURVEY,

MADE UNDER

THE DIRECTION OF THE SECRETARY OF THE INTERIOR,

BY

WILLIAM H. EMORY.

MAJOR FIRST CAVALRY AND UNITED STATES COMMISSIONER.

VOLUME II. — Part 1

Arts [1 + 2 only]

WASHINGTON:
CORNELIUS WENDELL, PRINTER.
1859.

IN THE HOUSE OF REPRESENTATIVES.—MAY 19, 1858.

Resolved, That the resolution of this House of the 15th of August, 1856, which directs the printing of ten thousand extra copies of the Report of Major Emory on the Mexican Boundary Survey, be so far modified as to authorize the printing of three thousand extra copies, for distribution by the members of this House, of the second volume or appendix to said Report.

Attest: J. C. ALLEN, *Clerk.*

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UNITED STATES AND MEXICAN BOUNDARY SURVEY. DEPARTMENT OF THE INTERIOR.

PART I.

BOTANY OF THE BOUNDARY.

WASHINGTON:
1859.

UNITED STATES AND MEXICAN

BOUNDARY SURVEY,

UNDER THE ORDER OF

LIEUT. COL. W. H. EMORY,

MAJOR FIRST CAVALRY, AND UNITED STATES COMMISSIONER.

BOTANY

OF THE BOUNDARY,

BY

JOHN TORREY.

equally spreading (not declined) lobes of the corolla, and the equal stamens with parallel anther-cells. If the published character of *Trichostema*, and of the order were perfectly correct, it would also differ importantly in the amphitropous descending ovule. But in Trichostema, also, the ovules are amphitropous or between that and anatropous. The seed, however, is attached below the middle, whereas in Tetraclea it is attached above the middle; but this is merely a difference of degree. The anthers are not drawn quite right in the plate. They are scarcely emarginate at the upper, but deeply lobed at the lower end, and perfectly opposite or parallel."

TEUCRIUM CANADENSE, *Linn. Benth. in DC. Prodr.* 12, *p.* 581. Santa Cruz Valley Sonora; *Schott, Thurber.* West of Cerralbo; *Gregg.* (No. 1542, *Wright.*)

TEUCRIUM CUBENSE, *Linn.; Benth. l. c. p.* 578. T. laciniatum, *Torr. in Ann. Lyc. N. York,* 2, *p.* 231; *Benth. l. c.* Common in plains and low places throughout western Texas, N. Mexico, Sonora, etc., June—September. (No. 1544, *Wright.*)

BORAGINACEÆ.

CORDIA RODOCEPHALA (n. sp.): ramalis teretibus subcapitatis; foliis ovato-lanceolatis obtusiusculis basi angusto-cuneatis grosse serrato-dentatis utrinque ramulisque scabro-hirsutis; pedunculis axillaribus terminalibusque elongatis erectis; capitulis globosis; calyce ovato strigoso acute 5-dentato. Near San Antonio, Texas; October; also prairies and alluvions of the Rio Grande from the San Pedro to the Pecos; *Schott.* Plains and grassy places, Piedra Pinta, Texas; September—October; *Bigelow.* Near Monterey, Mexico; *Gregg, Dr. Edwards.* (Nos. 456 and 1510, *Wright.*)

Plant 1–2 feet high, nearly simple or moderately branched. Leaves 1–1½ inch long, and 3–5 lines wide; 4–6-toothed on each margin; scabrous on both sides, with short appressed hairs, which commonly arise from an elevated base. Peduncles solitary in the axils, 2–6 inches long. Heads (exclusive of the corolla) about one-third of an inch in diameter; the flowers closely aggregated. Corolla funnel-form, with a short tube, half an inch long and of equal diameter; white or pale rose color; the lobes short and slightly emarginate. Fructiferous calyx somewhat enlarged, the teeth triangular-ovate. Stamens included. Style long and filiform; the apex twice 2-cleft. Ovary 4-celled, the ovules ascending. Drupe about the size of a hempseed (Canabis); pulp very thin; endocarp reticulate-pitted. Cotyledons distinctly plicate longitudinally. Apparently allied to C. patens. An undescribed species of this genus was found by Gregg in the Balson de Mapimi. It may be thus characterized:

CORDIA GREGGII, (n. sp.): ramosissima, scabro-pubescens; foliis obovatis obtusis dentatis plicato-rugosis, basi longe cuneatis; cymis contractis subcapitatis pauciforis; laciniis calycis setaceis tubo campanulato brevioribus; corolla glabra infundibuliformi-campanulata. In the northern part of the Balson de Mapimi, flowering in April. A shrub 5–8 feet high. Leaves scarcely half an inch long, of a pale greenish gray color. Peduncles terminating the leafy branches, an inch long. Cymes 8–12-flowered, the flowers at first in a dense head, but afterwards unfolding a little. The upper part of the 5–6-toothed calyx clothed with short blackish hairs. Corolla more than an inch in diameter, white; the lobes obtuse and entire. Stamens 5–6, scarcely half the length of the corolla. Ovary tapering to a long slender style. Ovules ascending. This species connects the sections Dasycephalæ and Cordiopsis. It is allied to C. parvifolia, but has a much more contracted inflorescence.

CORDIA BOISSIERI (*Alph. DC. Prodr.* 9, *p.* 478,): foliis ovatis utrinque obtusis vel apice acuti-

usculis; interdum serrulato-repandis supra scabriuscule pubescentis subtus velutino-tomentosis; pedunculis corymbosis rufo-tomentosis; calyce cylindraceo-ovato, dentibus subulato-acuminatis; corolla infundibuliformi calyce duplo-longiore glabriuscula. Near Monterey, Mexico; *Dr. Edwards, Gregg.* New Leon; *Thurber.* May. Cretaceous hills around Ringgold Barracks on the Rio Grande; *Schott.* (No. 304, *Berlandier.*) A shrub or small tree, sometimes attaining a height of 15 or 20 feet. Leaves 3–4 inches long, and 2–3 inches wide. Flowers in terminal corymbs. Corolla an inch and a half long, white, with a yellow centre. Stamens 5, shorter than the corolla; filaments slender; anthers oblong. Style twice bifid; the lobes obtuse, flattish. Fruit enclosed in the enlarged calyx, oblong, with a thin pulp. Endocarp thick and bony. Albumen none; cotyledons foliaceous, much plicate and veiny. The Mexicans call this plant Nacahuita. Dr. Gregg says that the fruit is eaten by cattle and hogs, and that a decoction of the leaves is used for pains in the limbs. It is closely allied to C. Sebestena, *Linn.* (C. speciosa, *Willd.*, which grows on Key West); but differs in the soft velvety undersurface of the leaves, the shorter calyx with more pointed teeth, etc.

Ehretia elliptica, *DC. Prodr.* 9, *p.* 503. Texas; *Wright.* Near Corpus Christi; *Major Eaton.* Near Monterey, Mexico to Camargo; *Gregg.* Santa Rosa, Chihuahua; *Bigelow.* Between Ringgold Barracks and the mouth of the Rio Grande; *Schott.* September. (Nos. 233, 236 and 900, *Berlandier.*) A tree 20–30 feet high, and often nearly a foot in diameter, with gnarled branches. Flowers sometimes tetramerous. Fruit the size of a large pea, yellow, with a thin edible pulp.

Ptilocalyx Greggii, *Torr. & Gray, Bot. Pope's Rep. p.* 14, *t.* 8. Rocky places on the Rio Grande, from El Paso to the Presidio. (Nos. 492 and 1583, *Wright.*) A shrub 1–3 feet high, with small oval leaves; remarkable for the spherical clusters of flowers and plumose calyx-segments.

Stegnocarpus canescens, *Torr. & Gray, l. c., p* 13, *t.* 7. Coldenia? (Stegnocarpus) canescens, *DC. Prodr.* 9, *p.* 559. Dry hills near El Paso, etc., March—May. (Nos. 836, 959, 2256, 2389, *Berlandier.*)

Tiquilia brevifolia (*Nutt. herb.*): annua; foliis ovatis, 3–4 veinis; staminibus inclusis. *Torr. in Bot. U. S. Expl. Exped. ined. t.* 12. Desert west of the Colorado, California, March; *Schott.* This plant was found by Major Emory in 1846, in the same desert; but his specimens were collected in the winter, and were too imperfect for determination. T. dichotoma, *Pers.*, (Coldenia? dichotoma *DC.*,) differs in being suffrutescent and in having lanceolate leaves. Late in the season the leaves become rigid and hispid. The remarkable character of the lobed cotyledons in this genus was pointed out to my friend Dr. Gray many years ago. It is fully described in the Botany of the United States Exploring Expedition. Mr. Bentham has noticed it in *Hook. Jour. Bot. & Kew Miscell.* 3, *p.* 296.

Var. plicata: foliis oblongis utrinque 5–7-veniis plicato-rugosis. With the preceding. Leaves remarkably plicate between the veins. Late in the season the stem of this becomes hard and ligneous, so that, without examining the root, the plant might be considered as frutescent.

Eddya hispidissima, *Torr. & Gray, Bot. Pope's Rep. p.* 170, *t.* 9. Gravelly hills near El Paso, New Mexico; March—May. (Nos. 485 and 1557, *Wright.*)

Heliotropium Curassavicum, *Linn.; DC. Prodr.* 9, *p.* 538. Sandy places, especially on the

banks of rivers throughout western Texas and New Mexico, and west of the Pacific; flowering from April to September. Dr. Parry found it in abundance on the beach near San Diego.

HELIOTROPIUM INUNDATUM, *Swartz Fl. Ind. Oc.* 1, *p.* 343; *Gray & Engelm. Plant. Lindheim. p.* 18. Sandy plains, Eagle Pass, September; *Bigelow.* Near the Pecos; *Schott.* Dr. Edwards and Major Eaton found the plant near Monterey, Mexico, and Dr. Gregg at Matamoras. Alexandria, Louisiana; *Dr. Hale.* (Nos. 700, 917 and 2117, *Berlandier.* No. 1550, *Wright.*) All our specimens are evidently annual; but De Candolle has described it as fruticulose. The root does, indeed, as in many other annuals of this dry country, become quite woody late in the season. The nutlets are ovate and villous, and their face marked with 2 small ovate protuberances, but with no foveolæ.

HELIOTROPIUM PHYLLOSTACHYUM (n. sp.): annuum, diffuse ramosum, strigoso-hirsutum; foliis lanceolatis basi in petiolum brevem attenuatis; spicis solitariis interrupte foliaceis; floribus sessilibus; lobis calycis lanceolatis inequalibus; corollæ tubo longitudine calycis extus piloso; antheris superne attenuatis apice puberulis; nuculis subglobosis extus strigulosis intus bifoveolatis. Western Texas, No. 1551, *Wright.* We have the same plant, collected near Monterey, Mexico, by Dr. Edwards and Major Eaton, and from Key West sent by the late Mr. Blodgett. It is also No. 1538 and 3038 of Berlandier, who collected it at San Fernando, Coahuila. Plant more or less branched and diffuse; the branches 3–5 inches long, of a grayish aspect. Leaves 6–8 lines long and 2–2½ lines wide, scabrously hirsute; the hairs arising from a little callous tubercle. Spikes many-flowered; many of the flowers ebracteate, others furnished with a large foliaceous bract which resembles the proper leaves. Flowers small: corolla apparently white, the lobes lanceolate and erect. Stamens inserted at the lower part of the corolla-tube; anthers somewhat hastate. Style very short; stigma conical from a broad base. Nutlets about half a line in diameter, with two deep pits on the face. It belongs to the section *Orthostachys.*

HELIOTROPIUM GREGGII (n. sp.): suffruticosum, e basi ramosum, prostratum; foliis lanceolato-linearibus obtusiusculis pilis brevibus adpressis hirsutis; spicis pauciforis parce foliaceis bracteatis, floribus sessilibus; corolla calyce duplo longiore, limbo plicato, laciniis brevissimis; antheris apice barbulatis; stigmate superne attenuato; nuculis subglobosis hispidis facie bifoveolatis. Sandy places near El Paso, April; *Bigelow.* Near Chihuahua, August; *Thurber.* (No. 487 and 1548, *Wright.*) Valley of Conchos, near Santa Rosalia, May; *Gregg.* Boca Grande, Caracalio, March—April; *Capt. E. K. Smith.* Stems prostrate, 3–8 inches long. Leaves 6–10 lines long, rarely 2 lines wide. Spikes at first distinctly circinate, mostly few-flowered, but sometimes 15–20-flowered, irregularly foliaceous. Flowers on short pedicels, white, odorous. Corolla 3–4 lines in diameter, the limb spreading and strongly plicate; lobes short with intermediate shorter ones in the sinuses. Stamens inserted about the middle of the tube of the corolla; anthers oblong, acute, at first coherent by their villous tips, but at length distinct. Style very short; stigma with a broad truncated base and tapering upward. Carpels hispid with short erect hairs; the face contracted and marked with 2 minute foveoles. Mr. Thurber informs me that the flowers are very fragrant.

HELIOTROPIUM ANGUSTIFOLIUM (n. sp.): suffruticosum, ramosissimum, erectum, adpresso-hirsutum, incanum; foliis linearibus vel lanceolato-linearibus acutis basi angustatis; spicis dichotomis vel solitariis ebracteatis; floribus brevissime pedicellatis post anthesin patulis vel nutantibus; corollæ tubo calycem subæquante; stigmate e basi subgloboso elongato; nuculis subglobosis hispidis intus bifoveolatis. Western Texas and along the Rio Grande, south to Eagle Pass,

March—October. Near Monterey, Mexico; *Dr. Edwards and Major Eaton.* (No. 480 and 1546, *Wright.*) Plant about a foot high; often several stems from one root; branches terete, slender, erect. Leaves 6–10 lines long, half a line to a line in breadth, often crowded. Spikes at first short, but in fruit 2 or 3 inches long, slightly circinate when young. Calyx a little shorter than the tube of the corolla; the lobes lanceolate, equal, erect. Corolla apparently white, about 2 lines long; lobes lanceolate, acute, spreading, or somewhat erect. Stamens inserted in the middle of the tube of the corolla; anthers oblong, smooth at the tip. Stigma elongated and narrow, from a somewhat dilated base; style as long as the ovary. Nutlets often alternately smaller, with a narrow face, which is marked with 2 distinct pits.

Heliotropium limbatum, *Benth. Pl. Hartw. p.* 20, *No.* 154; *DC. Prodr.* 9, *p.* 543. Murin, Mexico; *Thurber.* San Carlos, Mexico; *Berlandier*, No. 3139. Monterey, Mexico; *Dr. Edwards and Major Eaton.* A small prostrate much branched species. Stem suffruticose. Leaves about 3 lines long, cinerous, hispid, patulous. Spikes very short, few-flowered, mixed with leaves at the extremity of the branches. Limb of the corolla much dilated and undulate, angularly 5-lobed. Anthers a little coherent and bearded at the tip. Style 3 times as long as the ovary. Stigma conical from a dilated subglobose base; bifid at the apex. This species seems to be nearly allied to H. humifusum, *H. B. K.*

Heliotropium limbatum, var. confertifolium: caulibus robustioribus, ramulis suberectis; foliis lanceolato-linearibus confertissimis subappressis. Plains near Leon Springs, September; *Bigelow.* San Vincente; *Parry.* Cerralvo, *Gregg.* (No. 481 and 1547, *Wright.*) This is a much stouter and larger plant than Bentham's, and differs strikingly in its narrower, somewhat appressed and crowded leaves. Flowers pale purple (*Gregg*).

Heliotropium tenellum, *Torr. in Marcy Report, t.* 14. Lithospermum tenellum, *Nutt. Fl. Arkans. in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 189. L. angustifolium, *Torr. in Ann. Lyc. N. York*, 2, *p.* 225, *non Michx.* (where the nutlets are incorrectly described as smooth and polished.) High plains near Howard's Springs, and Rio San Pedro, western Texas, October; *Schott.* (No. 1559, *Wright.*) Western Texas; *Marcy.* Prairies near San Augustin, Texas; *Leavenworth.* On the Red river, Louisiana; *Dr. Hale.* Tennessee; *Mr. Curry.* Plant about a foot high, often much branched. Leaves an inch long and 1–1½ line wide. Racemes few-flowered, naked or somewhat leafy; the flowers distant, conpicuously pedicellate. Calyx very unequally 5-parted; the segments lanceolate-linear, in fruit much longer than the nutlets. Corolla white, 2½ lines long; the lobes obovate-oblong and rather obtuse. Anthers oblong, slightly bearded at the tip. Stigma nearly sessile, oblong, tapering upwards, bifid at the summit. Nutlets subglobose, the upper part appressed-pubescent, below the middle (and often also above) reticulated, not verrucose as represented in the figure quoted above, without foveoles on the face.

Heliophytum parviflorum, *DC. Prodr.* 9, *p.* 553. Heliotropium parviflorum, *Linn.* Plains near Eagle Pass, September, (fruit); *Bigelow.* Lower Rio Grande, in various places, April—May; *Schott.* Monterey, Mexico; *Dr Edwards, Gregg.* We have specimens also from Key West, Florida, collected by Blodgett.

Heliophytum (Coeloma) molle (n. sp.): suffruticosum, griseo-velutinum; foliis deltoideo-ovatis basi in petiolum abrupte angustatis margine undulatis; pedunculis terminalibus bifidis spicis conjugatis nudis scorpoideis; floribus sessilibus; calycis lobis lanceolatis corollæ tubo paullo brevioribus; corollæ lobis obtusis crenulato-undulatis: fructu subgloboso velutino apice integro,

loculis in utroque segmento lateralibus lacuna magna centrale interposita. Plains near Presidio del Norte, August, fl. and fr.; *Bigelow*. Plant about a foot high, the stem a little woody at the base. Leaves alternate, 2 inches long, and an inch or more wide, clothed (like the stem) with a soft velvety pubescence, the veins underneath very distinct. Spikes 1½–2 inches long, and not much elongated in fruit, at first strongly circinate, the flowers closely approximated. Corolla about 2½ lines long, white, infundibuliform. Anthers oblong. Stigma subsessile, conical from a broad base, pubescent. Fruit about 2 lines in diameter, segments 2-seeded, with a large central lacune interposed, besides 1–2 smaller lateral ones.

Heliophytum (Celoma) glabriusculum (n. sp.): caule herbaceo erecto e basi ramoso adpresse pubescente; foliis alternis lanceolatis, obtusiusculis basi in petiolum attenuatis utrinque viridis glabriusculis; spicis solitariis geminatis vel ternatis, junioribus scorpoideis; floribus brevissime pedicellatis approximatis ebracteatis; calycis lobis lineari-lanceolatis; corollæ lobis oblongis obtusis; fructu compresso subdidymo puberulo apice integro ad suturas late excavato, segmentis dispermis, lacuna centrali interposita præterea lacunarum 2 minorum lateralium. Sandy plains, Eagle Pass, September; *Bigelow*. (No. 1549, *Wright*.) About a span high; the lower branches spreading and perhaps prostrate. Leaves an inch long and 2–3 lines wide, a little hairy on the midrib underneath, the rest nearly smooth; the margin somewhat undulate. Peduncles terminal, bearing from one to three spikes, which are about an inch in length. Corolla white, the border dilated, deeply 5-lobed; the lobes slightly undulate. Stamens inserted about the middle of the tube; anthers sessile, fixed near the middle of the back, lanceolate, acute. Stigma about as long as the subglobose ovary, nearly sessile, conical from a broad annular base. Fruit didymous, the apex truncate, concave and 4–6-denticulate; the segments sometimes only 1-seeded by abortion, with 3 empty cells, the central one (near the commissure) larger, the others lateral and much smaller.

Euploca convolvulacea, *Nutt. in Trans. Amer. Phil. Soc. n. ser.* 5, *p.* 189; *Hook. Ic. t.* 651; *Torr. in Marcy's Rep. p.* 294, *t.* 15. Valley of the Rio Grande, from Presidio del Norte upwards, July—October. Chihuahua; *Thurber*. (*Wright*, No. 1553.) In the centre of each division of the fruit there is a small empty cell or lacuna, which is seen only when a cross section is made midway between the base and the apex. This genus is intermediate between Tournefortia § Arguzia, and Heliophytum.

Macromeria viridiflora, *DC. Prodr.* 10, *p.* 68? Copper Mines, New Mexico, June—August; *Bigelow, Thurber*. (No. 1558, *Wright*.) Plant two or three feet high; erect. Stem hispid with spreading hairs. Leaves ovate, lanceolate, 2–3½ inches long, and 6–12 lines wide, the upper surface hispid with hairs which arise from an elevated callous base; the under side either hispid or somewhat softly villous with closely appressed hairs. Flowers nearly an inch and a half long, tubular-funnelform, greenish and very hairy externally; yellow inside. Calyx about one-fourth the length of the corolla; the divisions much elongated in fruit. Stamens at first included, but at length exserted. Nutlets ovate, more than a line long, smooth, and shining. Our plant agrees sufficiently well also with the description of M. viridiflora.

Onosmodium Carolinianum, *DC. Prodr.* 10, *p.* 70. San Antonio, Texas; *Thurber*. We have intermediate forms which seem to connect O. Virginiana and O. molle with this species.

Lithospermum canescens, *Lehm. Asp.* 2, *p.* 305; *DC. Prodr.* 10, *p.* 78. Copper Mines, New Mexico, and Mountain Arroyos, near Camp Bache, June—July—August; *Bigelow, Thurber*.

Sierra San Luis, Chihuahua, September; *Schott.* No. 1653, *Wright*, seems to be only a narrow-leaved form of this species.

LITHOSPERMUM LONGIFLORUM, *Spreng. Syst.* 1, *p.* 554. L. incisum, *Lehm. l. c.* Pentalophus longiflorus, *DC. Prodr.* 10, *p.* 86. Banks of streams, cañon of Guadalupe, Sonora, April; *Captain E. K. Smith.* Near the Copper Mines, Ben Moore, Santa Barbara, and Mimbres, April; *Bigelow.* Apache Springs, March; *Parry.* Hueco mountains, Texas, and Ojo de Vaca, Chihuahua; *Thurber.* Nutlets ovate, white and shining, marked more or less with shallow pits. After flowering the plant becomes more branched, and produces narrower and more crowded leaves.

LITHOSPERMUM BREVIFLORUM, *Englm. & Gray, Pl. Lindh. p.* 44. Western Texas; (*Wright*, Nos. 1560 and 1561.) Nutlets as in the last.

LITHOSPERMUM MATAMORENSE, *DC. Prodr.* 10, *p.* 76. On the Lower Rio Grande; (*Wright*, No. 1564.) Near Monterey, Mexico; *Dr. Edwards and Major Eaton.* Our plant agrees very well with Berlandier's own specimens.

AMSINCKIA LYCOPSOIDES, *Lehm. Del. Sem. H. Hamb.* 1831, *p.* 7; *DC. Prodr.* 10, *p.* 117. Journado between Tucson and the Gila, Sonora; also grassy places near San Diego, California, March; *Parry.*

AMSINCKIA INTERMEDIA, *Fisch. & Mey. Ind.* 2, *Sem. Petrop.* 1835, *p.* 26; *DC. l. c.* Alluvions of the Gila, Sonora, and near San Diego, California, March; *Parry.* The insertion of the stamens is not constant in this genus. In the same species they are sometimes placed near the base of the corolla; sometimes in the upper part of the throat. Perhaps all the species with rugose nutlets are forms of A. lycopsoides.

ERITRICHIUM GLOMERATUM, *DC. Prodr.* 10, *p.* 131. Myosotis glomerata, *Nutt. Gen.* 1, *p.* 112, *Hook. Fl. Bor.-Amer.* 2, *p.* 82, *t.* 162. Near El Paso and Doña Ana, March—April. (No. 1566, *Wright.*) New Mexico; *Fendler.* No. 632. About a foot high. Root perennial. Hairs of the calyx and of the upper leaves yellowish. Nutlets closely fitted to each other, forming a depressed globose fruit, margined; the back strongly rugulose transversely and more or less verrucose.

VAR. HISPIDISSIMUM is more hispid, and seems to be biennial. Common in New Mexico.

ERITRICHIUM JAMESII, *Torr. in Marcy Rep. p.* 294. Myosotis suffruticosa, *Torr. in Ann. Lyc. New York*, 2, *p.* 225. Near the Copper Mines, New Mexico, and Mule Springs, March—June, El Paso, and Journado del Muerto, March—April; *Thurber.* Dry ravines, San Luis, Sonora, April; *Captain E. K. Smith.*

ERITRICHIUM HELIOTROPIOIDES. Antiphytum heliotropioides, *Alph. DC. in Prodr.* 10, *p.* 122. Sandy shore of the Rio Grande at Eagle Pass; *Schott.* No. 1572, *Wright.* Valley of the Limpio; *Bigelow.* Dry plains southwest of Escondido, May, (1847,) and Saltillo, (1848 and 1849;) *Dr. Gregg.* Our specimens agree in all respects with Berlandier's. The leaves are not opposite, and we have little doubt that the plant should be referred to Eritrichium, § Rutidocaryum. The root is annual, but in old plants the stem becomes hard and ligneous.

ERITRICHIUM (RUTIDOCARYUM) FLORIBUNDUM (n. sp.): caulibus erectis basi simplicibus superne paniculatim ramosissimis folliisque adpresse cinereo-pubescentibus; foliis lanceolatis seu linearibus acutiusculis; racemis brevibus paniculatis pauciflоris parcebracteatis; corolla campanulata, lobis rotundatis; nuculis late-ovatis acutiusculis densissime verruculosis. Mountains of Puerto de Paysano, September, fl. and fr.; *Bigelow.* Also in low places near Rock Creek. Root apparently perennial. Stem 2–3 feet high. Leaves 1–1½ inch long; the radical ones 3–4 lines wide, lanceolate or lanceolate-spatulate; the cauline 1–2 lines wide. Racemes lateral

and terminal, forming a long, somewhat contracted panicle, 3–8-flowered, at first circinate; flowers approximated, on short pedicels. Segments of the calyx linear, somewhat hispidly pilose. Corolla white, about one-third longer than the calyx; the tube very short; border much dilated. Stamens scarcely exserted. Nutlets nearly a line long, the face acutely carinate, and a small prominence near the base, where it is attached to the style; the back strongly convex.

ERITRICHIUM PUSILLUM, *Torr. & Gray, in Bot. Pope Rep. p.* 15. Dry hills and rocky places near El Paso, March; *Bigelow, Wright.* Santa Maria, Chihuahua, March; *Parry.*

ERITRICHIUM CRASSISEPALUM, *Torr. & Gray, l. c.* Dry soils in various places along the Rio Grande, from Eagle Pass upward to El Paso, westward to Gaudalupe Pass, Sonora, March—April.

ERITRICHIUM MICRANTHUM (n. sp.): annuum, pusillum, canescenti-hispidum; caule e basi ramosissimo; foliis linearibus obtusis; racemis brevibus longe bracteatis; floribus confertis, corolla minutissima, fauce nudo; nuculis oblongis acutiusculis glaberrimis dorso convexis angulo interno prominente sulcato. Sand hills, Frontera, Texas, and in other places along the Rio Grande, March—April; *Thurber.* (*Wright*, No. 1565.) Stem 2–4 inches high, much branched from the base, and apparently diffuse when old; the branches very slender. Leaves 3–4 lines long, and scarcely more than half a line wide. Racemes at first capitate and crowded with short leafy bracts, unfolding gradually, but never more than half an inch long, the flowers so close together as to be imbricated, with foliaceous bracts at the base longer than the calyx. Segments of the calyx linear. Corolla less than a line in length, separating early from the base, but remaining on the flower like a calyptra, the tube narrow, and about as long as the calyx; no traces of appendages; the lobes small and ovate. Stamens inserted about the middle of the corolla-tube, nearly sessile. Nutlets about one-third of a line long, narrowly oblong, shining, apparently adhering to the column (which is very broad at the base,) by the whole length of the sulcate inner angle. This species is allied to Krynitzkia, and also to the section Cryptantha of Eritrichium, differing from the first in the persistent calyx, and in wanting the appendages of the corolla, from the latter in the homomorphous flowers and smooth nutlets.

ERITRICHIUM ANGUSTIFOLIUM, *Torr. in Pacific Railroad Reports, 5, p.* 363. On the Rio Gila; *Thurber.* Cañon of Guadalupe Mountain, Sonora; *Capt. E. K. Smith.* The segments of the calyx are much elongated after flowering, when they become almost subulate. One of the nutlets is sometimes larger and smoother than the others. Differs from E. crassisepalum in the longer, denser, and naked racemes; in the nutlets being wholly or nearly homomorphous, oblong, and only very minutely scabrous.

ERITRICHIUM CHORISIANUM, *DC. Prodr.* 10, *p.* 130? Grassy hills near San Luis Rey, and on mountains east of San Diego, California, March—June; *Parry.* The plant from the former station is much larger, with radical leaves 3 inches long and 3–4 lines wide. Specimens laid in the herbarium give out, after some time, a purplish material, which leaves the imprint of the plant on the paper. The coloring matter is of a resinous or terebinthine nature and is quite soluble in alcohol, so that it is not a kind of indigo. It is contained in cells which are situated along the margin and on each side of the midrib. In the dried plant the color is of a bright red. We have a strong suspicion that E. Californicum, E. Chorisianum, and E. Scouleri are not distinct.

PECTOCARYA CHILENSIS, *DC. Prodr.* 10, *p.* 120. California, (the station not recorded, but probably near San Diego;) *Parry.*

KRYNITZKIA LEIOCARPA, *Fisch. & Mey. Ind.* 7, *Sem. H. Petrop.* 1841, *p.* 52. Grassy hills near San Luis Rey, February; *Parry.* Also found in California by the *Rev. A. Fitch.*

ECHINOSPERMUM DEFLEXUM, *Lehm. Asp. No* 93: Var. lobis calycinis oblongo-linearibus. Hills near the Copper Mines, New Mexico, August, fl. & fr.; *Bigelow.* This differs from my European specimens of this species in the narrower lobes of the calyx; but they are nearly as broad as those of E. secundum, *Ker. & Kir.*, which Alph. DC. refers to E. deflexum. In specimens of the latter from Altai, (collected as I think by Bunge,) the nutlets are somewhat heteromorphous, two opposite ones having rather a broad margin, which is pectinate with flat glochidiate prickles; the other two are smaller, with a much narrower margin and shorter prickles. Our plant has a biennial root. The stem more than 2 feet high. Lower leaves 2 inches long and 5–7 lines wide, villous with spreading hairs. Racemes numerous, forming a loose terminal panicle, bracteate to the summit. Pedicels closely deflexed. Corolla salver-form, 2 lines long, with a short tube and obtusely 5-lobed border; the throat furnished with 5 very prominent tubercles. Nutlets homomorphous; the aculei marginal only, in a single series, confluent at the base.

ECHINOSPERMUM PATULUM, *Lehm. Asp. No.* 95. Gravelly and sandy soils. Valley of the Rio Grande, from El Paso to Eagle Pass, and west to the Gila. Usually about a foot high, and much resembling E. Lappula.

ECHINOSPERMUM STRICTUM, *Nees. in Maximill. Trav. App.; Torr. & Gray in Bot. Pope Rep. p.* 15. E. Texanum, *Scheele in Linnæa* 25, *p.* 260. Cynoglossum pilosum, *Nutt. Gen.* 1, *p.* 114? Near San Antonio, Texas; *Thurber.* Western Texas; *Wright*, No. 1573. Nutlets with an inflexed border and a deeply depressed disk; almost as in Omphalodes. Flowers pale blue.

ERITRICHIUM PTEROCARYUM, (n. sp.,) *Torr. in Bot. U. S. Expl. Exped. t.* 13, *ined.* Hills and rocky places near El Paso, etc.; *Bigelow.* (*Wright*, No. 1570.) This species was first detected in Oregon by Dr. Pickering while connected with the United States Exploring Expedition. It is about a foot high and remarkable for its conspicuously winged fruit, the wings being as broad as the body and more or less toothed above the middle. In the Oregon specimens, and in some of those from New Mexico, one of the nutlets is apterous.

CYNOGLOSSUM GRANDE, *Dougl.; Hook. Fl. Bor.-Amer.* 2, *p.* 85. Napa valley, California, March; *Thurber.* Also found by *Mr. Fitch* in the same State.

HYDROPHYLLACEÆ.

NEMOPHILA PEDUNCULATA, *Benth. in Linn. Trans.* 17, *p.* 275? Napa valley, California; *Thurber.* This is the same as No. 480 of Coulter's Californian Collection. It is named N. parviflora by Dr. Harvey, (MSS.,) but differs from that species in the seeds being more numerous (10–13) and tuberculate, not 4, and impressed-punctate. The arillus is calyptriform in both species. The leaves, too, are usually 7–9-lobed in N. pedunculata, and only 5-lobed in N. parviflora. Alph. De Candolle (in Prodr.,) remarks that he found the placentæ 2-ovulate in both species, and Fischer & Meyer (l. c.) think they are not distinct. They may have examined a different plant from the one here noticed, probably a mere variety of N. parviflora.

NEMOPHILA AURITA, *Lindl. Bot. Reg. t.* 1601; *Alph. DC. Prodr.* 9, *p.* 290. San Diego, California; *Parry.* San Pasqual, in the same State, May; *Thurber.*

NEMOPHILA LINIFLORA, *Fisch. & Mey. Sert. Petrop. t.* 5. Dana's Ranch, and grassy plains below Los Angelos, March; *Parry.* Napa Valley, May; *Thurber.*