

Plantae Lindheimerianae, Part II. An account of a collection of plants made by F. Lindheimer in the Western part of Texas, in the years 1845-6, and 1847-8, with critical remarks, descriptions of new species, etc / By Asa Gray, M.D.

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ART. I. — PLANTÆ LINDHEIMERIANÆ, Part II. *An Account of a Collection of Plants made by F. LINDHEIMER in the Western part of Texas, in the Years 1845-6, and 1847-8, with Critical Remarks, Descriptions of new Species, &c.*
By ASA GRAY, M. D.

[The numbers follow on from the end of the former collection, as published in Vol. V. of this Journal, through the collection of 1845-6, and thence to the later collection. Those inclosed in () belong to the collection of 1847-8; for greater convenience in describing them, they are here intercalated. The few numbers in brackets below 319 belong to species which occurred in the former distribution. Those marked with a † in place of a number have not been distributed at all. The orders elaborated by Dr. Engelmann have his name affixed to that of the Order.]

RANUNCULACEÆ.

319. CLEMATIS DRUMMONDII, *Torr. & Gray, Fl. 1. p. 9.* Dry prairies, Comale Spring, &c. June. Cultivated in the Cambridge Botanic Garden, from Texan seeds, this plant climbs extensively, but does not show its blossoms until October. The calyx is yellowish green, tinged with purple.

320. RANUNCULUS REPENS, *Linn.* var. MACRANTHUS: petalis 7-16; caulibus petiolisque villosissimis. *R. macranthus, Scheele in Linnæa, 21, p. 585.* Sparsely on high, rocky plains, and in patches on damp Muskit (Algarobia) flats, New Braunsfels. March. — Mr. Wright has specimens



of the same plant, with the leaves also densely silky-vil-
lous, nearly as much so as in *R. canus*, *Benth. Pl. Hartw.*
No. 1626, from California; indeed, it would seem to belong
to the same species; but the carpels are, as in our *R. repens*,
pointed with a pretty long, straight, or flexuous beak, slen-
derly subulate from a broad base, and not "mucrone valde
recurvo fere circinnato," as *R. canus* is characterized. My
specimen of the latter exhibits no fruit. The petals are in
some specimens nearly an inch in length; in others no larger
than in ordinary American forms of *R. repens*, into which it
passes by every kind of gradation.

† DELPHINIUM VIRESCENS, *Nutt. Gen.* 2, p. 14; *Torr. &*
Gr. Fl. 1. p. 32; floribus albis. Rocky prairies and hills,
Comale Spring. April. The species is very likely to be
considered as only a broader-leaved variety of *D. azureum*.

321. *D. VIRESCENS*, *Nutt.*, var. floribus subcæruleis. Dry
and rocky prairies, and margins of thickets, New Braunfels.
April.

BERBERIDACEÆ.

322. BERBERIS (TRILICINA, *Gray*.) TRIFOLIOLATA, *Mori-*
cand, Pl. Nouv. Amer. p. 113, t. 69. *B. ilicifolia*, *Scheele in*
Linnaea, 21, p. 591, non *Forst.* *B. Rœmeriana*, *Scheele*, l. c.
22, p. 352. High shore of Matagorda Bay. Also common
in the interior of Texas, on Comale Creek, at New Braunfels,
&c. (575.) An evergreen shrub, with few branches, but
with many stems from the same base, often forming large
thickets. It flowers in February and March; and the yellow
blossoms exhale the odor of saffron. The globose berries,
about the size of peas, ripen in May, are red, aromatic, and
acid; they are called "currants" by the inhabitants, and are
used for tarts, &c. This interesting species, which is
remarkable for its palmately trifoliolate leaves, is first men-
tioned in the Appendix to the first volume of the *Flora of*
N. America, as having been gathered by Drummond with-
out flower or fruit. In 1841, it was named and characterized



by Moricand, from flowering specimens which occurred in Berlandier's Texan Collection. We have now fine specimens both in flower and fruit from Mr. Lindheimer's, Mr. Wright's, and from Dr. Gregg's collections; the latter met with it as far south as Buena Vista. I have characterized it as a third section of *Berberis*, in the *Genera Am. Bor.-Or. Illustrata*, 1. p. 80.

CRUCIFERÆ.

323. *STREPTANTHUS PETIOLARIS*, Gray, *Pl. Fendl.* p. 7. Muskit thickets and shady woods, New Braunfels and San Antonio. March. — All the lower leaves, as well as the base of the stem, are more hairy in my specimen than in those cultivated in the Cambridge Botanic Garden, from seeds taken from Mr. Wright's plant; and the radical leaves are barely lyrate-pinnatifid, and rounded at the summit. From seeds sown in early spring, it flowers and fruits during the summer and autumn.

† *S. BRACTEATUS* (Gray, *Gen. Am. Bor.-Or. Ill.* 1. p. 146, t. 60. fig. 1-3.): glaberrimus, subglaucus; foliis caulinis auriculato-amplexicaulibus, inferioribus oblongis acutis sæpe repando-dentatis, superioribus cordatis sinu profundo clauso in bracteas cordatas (inferiores florem, summas pedicellum subæquantes) sensim decrescentibus; petalis obovatis purpureis; siliquis angustis prælongis ($5\frac{1}{2}$ –6 unc.) patentibus subfalcatis. — At New Braunfels. June. Also gathered by Mr. Wright on sand bars of the Colorado, near Austin, in flower only, in the month of April. The radical leaves are sometimes entire or barely repand-toothed, sometimes incised or even lyrate pinnatisect, with most of the lower segments minute. One of Mr. Wright's specimens is remarkable for having all the lower cauline leaves pinnately parted in this way, and petioled. The sepals are tinged with deep purple; the petals are light purple, with the broad spreading lamina half an inch in length. No ripe pods were gathered. The largest seen are about six inches long, but less than a line wide; the immature seeds are winged. I have no specimens

of *S. obtusifolius* nor of *S. maculatus*, with which last especially our plant should be critically compared. But Dr. Torrey informs me that these species want the bracts, so uncommon in Cruciferæ, and which so conspicuously distinguish *S. bracteatus*.

324. *ERYSIMUM ARKANSANUM*, Nutt. in Torr. & Gr. Fl. 1. p. 94; Gray, Gen. Ill. 1. t. 63. Wooded, rocky banks, &c., Comale Spring, and on the Guadalupe. March, April. — A showy species, with large, deep, golden yellow, and faintly fragrant flowers. It was found on the Rio Grande by Mr. Wright.

325. *VESICARIA ENGELMANII* (Gray, Gen. Am. Bor.-Or. Ill. 1. p. 162, t. 70): perennis, pube lepidoto-stellata argentata; caulibus e caudice sublignoso plurimis simplicibus erectis superne parce foliatis; foliis inferioribus spathulatis seu oblanceolatis rariter repando vel sinuato-dentatis in petiolum attenuatis, superioribus sublinearibus integerrimis; racemo etiam fructifero brevi sæpius corymbiformi; silicula globosa glaberrima breviter stipitata 5-12-sperma (loculis 8-ovulatis) stylo pergracili breviora; seminibus submarginatis; funiculis septo longe adnatis. — Pebbly shore of the Guadalupe, New Braunfels. May. Chiefly with mature fruit. (The same species, apparently, with elliptical and entire radical leaves, was found on the Upper Canadian, by Mr. Gordon.) From Lindheimer's seeds, this handsome and very distinct perennial species is in cultivation in the Cambridge Botanic Garden. It makes a strong, deep root. The clustered, simple stems rise to the height of a span or a foot, are clothed, like the foliage, with a silvery pubescence composed of dense and closely appressed stellar tufts, and are terminated by a short and dense, usually umbelliform, raceme of golden yellow flowers, which are fully as large as those of *V. grandiflora*, the petals being half an inch long. Lower leaves two to three inches in length. The style is one third of an inch in length. I should have adopted Dr. Engelmann's or Lindheimer's name of *V. umbellata*, under which the specimens were sent,

and which is not inappropriate to this form, where the pedicels are as long as the axis of the fruiting raceme, except that, in the cultivated and some wild specimens, the raceme elongates in fruit to the length of three or four inches, as in the succeeding.

(576.) *V. ENGELMANNII*, var. β . *ELATIOR*: racemo fructifero extenso (3 - 4-pollicari). *V. pulchella*, *Kunth & Bouché*, in *Ann. Sci. Nat.* 3-ieme Ser. 2, p. 229 (Apr. 1849.) ex char.

326. *V. ANGUSTIFOLIA*, *Nutt. in Torr. & Gr. Fl.* 1. p. 101. Summit of hills, in large patches, on stony soil, New Braunfels. March, in flower. Accords entirely with the original specimens. What Scheele has taken for this species is evidently *V. recurvata*, at least in part.

327. *V. LINDHEIMERI* (*sp. nov.*): radice crassa perenni; caulibus decumbentibus foliosis cinereis; foliis oblongis argute sinuato-vel laciniato-dentatis imis lyrato-pinnatifidis pube implexa appressissima (e pagina superiore sero subdecidua) argenteo-incanis; racemo fructifero elongato; silicula ovoideo-globosa glaberrima stipite plus duplo stylo subduplo longiore; seminibus immarginatis. — Black, stiff prairie soil on the lower Guadalupe, east of Victoria. February, in flower and fruit. — This appears to be a truly perennial species, and is remarkable for its strongly toothed leaves, as well as for the matted, extremely fine and close-pressed, silvery pubescence which clothes them. The upper surface of the older leaves, however, is merely cinereous with minute and rather sparse stellar down. Petals apparently light yellow, three or four lines long.

328. *V. DENSIFLORA* (*sp. nov.*): annua v. biennis, pube stellata laxa cinerea; caulibus adscendentibus usque ad flores foliosis; foliis oblongo-spathulatis vel oblanceolatis basi attenuatis sæpius repando-denticulatis, radicalibus integris; racemo etiam fructifero denso multifloro, pedicellis erectiusculis; silicula estipitata subdepresso-globosa glaberrima stylo brevior 10 - 16-sperma (loculis 8-ovulatis); seminibus im-

marginatis; funiculis septo longe adnatis.—Prairies near Victoria, on the lower Guadalupe; February, in flower. Gravelly banks of streams, Fredericksburg; May, in fruit (577.) (Also, near Austin, *Mr. Charles Wright.*)—Stems numerous from the same root, rather stout, spreading or ascending, 5 to 10 inches long, leafy to the top. Leaves equally cinereous both sides, as well as the stem and pedicels, with a rather loose stellar pubescence; the cauline an inch or less in length; even the radical undivided and barely repand or repand-denticulate. Flowers bright yellow, smaller by about one third than those of *V. grandiflora*. The remarkably dense raceme becomes in fruit from two to four inches long, often ripening as many as fifty silicles; the lower pedicels usually subtended by leaves. Silicles two lines in diameter, slightly didymous as well as depressed, not strictly sessile on the receptacle as in *V. grandiflora*, but raised on a barely appreciable stipe. Style fully two lines long. Seeds small, not at all margined.—This well-marked species appears to be common in Texas, especially throughout the Western districts. But I do not find that it has yet been described.

† *V. GRANDIFLORA*, *Hook. Bot. Mag.* t. 3464. var. β PINNATIFIDA: foliis radicalibus majoribus interrupte pinnatipartitis segmentis dentatis lobatisve, caulinis sæpe subpinnatifidis.—Prairies east of Victoria; February, in flower. The same form was gathered by *Mr. Wright.*—*V. grandiflora* is well distinguished from all the other species (of which a goodly number are now known in North America) by the unusually short style, the narrowly winged seeds, and the large flowers and pods.

329. *V. ARGYRÆA* (*sp. nov.*): perennis, pube lepidotostellata undique argentea; caulibus diffusis v. procumbentibus foliosis; foliis omnibus spathulatis integerrimis vel repandodentatis; racemo laxifloro, fructifero elongato; pedicellis sæpius patentibus apice sursum curvatis; silicula globosa estipitata glaberrima stylo æquilonga oligosperma (loculis 16–18-ovulatis); seminibus immarginatis.—*V. arctica* var.? *Gray, Pl.*

Fendl. p. 9. — Sandy banks of Green Lake, near Matagorda Bay, and prairies near Victoria; February, in flower and half-grown fruit. Also gathered by Mr. Wright on the Rio Grande, Texas; by Dr. Gregg at Buena Vista, and Dr. Edwards at Monterey, Northern Mexico; and by Fendler at Santa Fe, in flower only. The species assumes a variety of forms, according as it flowers early near the root, or from long procumbent stems. In the first case the pedicels are more upright; in the latter they are spreading and upwardly curved, as mentioned in the specific character. They are sometimes subtended by leaves; and the racemes in Dr. Gregg's specimens are occasionally proliferous. The bright yellow flowers are about half an inch in diameter. The plant is silvery with crowded, but distinct, appressed, scurfy stellæ.

330. *V. RECURVATA* (*Engelm. ined.*): tenella, pube minuta lepidoto-stellata cinerascens; caulibus e radice annua plurimis gracilibus diffusis vel procumbentibus ramosis; foliis spathulatis integerrimis aut radicalibus repandis lyratisve, supremis sublineari-oblongis; racemis elongatis sparsifloris; pedicellis sæpe secundis, fructiferis recurvis; silicula vix aut ne vix stipitata globosa glabra oligosperma parva stylo tenui brevior vel subæquali; seminibus immarginatis. — *V. angustifolia*, *Scheele, in Linnæa*, 21, p. 584, non *Nutt.* — Dry and stony or light soil, growing sparsely in the grass, San Antonio and New Braunfels. March, in flower; April and May, in fruit. Also around Austin, *Mr. Charles Wright.* — The most slender species; with diffusely spreading stems, from four to eight inches long, and short, spathulate or oblong-spathulate leaves. The flowers are not larger than those of *V. gracilis*, which it most resembles, and from which it is at once distinguished by its nearly or quite estipitate silicles, pendulous on the recurved pedicels. The pods are a line, or little more, in diameter.

331. *V. GRACILIS*, *Hook, Bot. Mag.* t. 3533. Muskit Flats, in wet or low, grassy places, New Braunfels. April, May. — Stems upright or nearly so, slender, from 8 to 16

inches long. The pods, in the stronger specimens, are twice as large as in Hooker's figure and description.¹

(216.*) DRABA PLATYCARPA, Torr. & Gr. Fl. 1. p. 108. This is not the same as No. 216 (*D. cuneifolia*) of the former

¹ VESICARIÆ Boreali-Americanae Synoptice Dispositæ.

Sect. I. VESICARIANA, DC. Silicula globosa, raro pyriformis, valvis membranaceis inflatis.

§ 1. Annua seu biennes.

* *Seminibus marginatis; stylo silicula (stipitata) dimidio vel ultra brevioris; foliis caulinis basi sæpe auriculatis et subamplexicaulis.*

1. *V. GRANDIFLORA* (Hook. Bot. Mag. t. 3464): caulibus pube brevi subcinereis; foliis sæpe sinuato-pinnatifidis dentatisve; stylo silicula 2-3-plo brevioris. *V. brevistyla*, Torr. & Gr. Fl. 1. p. 102 (vide Suppl. p. 668.) The septum is not veinless, as is said by Don, but has a midnerve stretching from the apex towards the base, as is usual in the genus.

2. *V. AURICULATA* (Engelm. & Gray, Pl. Lindh. No. 217, p. 32): caulibus pedunculisque hirsutis; floribus minoribus; stylo silicula dimidio brevioribus.

** *Seminibus immarginatis; stylo silicula subæqualibus aut longioribus; foliis omnibus basi angustatis.*

† *Silicula vix aut ne vix stipitata, globosa.*

‡ *Racemo etiam fructifero densifloro; pedicellis erectiusculis vel subpatentibus.*

3. *V. DENSIFLORA*, (sp. nov.) Vide supra, No. 328.

4. *V. ANGUSTIFOLIA*, Nutt. in Torr. & Gr. Fl. 1. p. 101. Vide supra, No. 326.

5. *V. SHORTII*, Torr. & Gr. Fl. 1. p. 102. — The silicles, in the specimen of *Herb. Torr.*, the only one I have ever seen, are nearly all sterile and imperfectly grown; hence their small size in proportion to the length of the style. In one pod, however, although remarkably small for the genus, I found a single ripe (marginless) seed, nearly filling the cell; in this case the style was no longer than the silicle. The species, although not sufficiently well known, is unlike any other here enumerated.

‡‡ *Racemo sparsifloro; siliculis nutantibus.*

6. *V. RECURVATA*, Engelm. Vide supra, No. 330.

†† *Silicula breviter stipitata obovato-globosa seu pyriformi; foliis caulinis subrepandis.*

7. *V. NUTTALLII* (Torr. & Gr. Fl. 1. p. 101): subcinereo-puberula; filamentis basi ampliatis; silicula pyriformi juxta basim constricta.

8. *V. REPANDA* (Nutt. in Torr. & Gr. l. c.): glabrata; floribus majoribus; filamentis e basi dilatata sensim angustatis; silicula immatura subglobosi-obovata. — There are no specimens with full-grown silicles, while those of *V. Nuttallii* are altogether fruitful, with no good flowers. There is much reason to suspect that the two belong to one species. *V. Nuttallii* usually has a shorter but distinct stipe to the pod; but in one of the original specimens the stipe is fully as long as in *V. gracilis*.

††† *Silicula manifeste stipitata, exacte globosa.*

‡ *Floribus saturate flavis.*

9. *V. GRACILIS* (Hook. Bot. Mag. t. 3533): glabrata, erectiuscula; foliis lanceolatis subintegerrimis; racemo laxifloro elongato; pedicellis elongatis patentibus; silicula glabra stipite duplo longiore stylo pl. m. brevioris. — The silicles of Berlandier's and Drummond's specimens are, as described and figured by Hooker, "not larger than hemp seed." In those of Lindheimer, where the whole plant is stronger, and in

distribution. Thickets, New Braunfels, &c. February. D. Rœmeriana, *Scheele in Linnæa*, 21, p. 583, would seem to be

cultivated specimens, the silicles are considerably larger. The stipe is sometimes almost as long as the pod; sometimes scarcely half that length.

10. *V. GORDONI* (*sp. nov.*): tomentuloso-canescens; caulibus diffusis; foliis subintegerrimis, infimis subspathulatis, superioribus lanceolatis vel linearibus; racemo fructifero laxo; pedicellis brevibus patentibus; silicula glabra breviter stipitata stylo subduplo longiore. — On the Canadian, in the Raton Mountains, *Mr. Gordon*, (communicated by *Dr. Engelmann*.) April; in flower and fruit. — This is, perhaps, a perennial species, but the root appears more like that of a biennial. The plant is silvery-hoary, with a stellate pubescence; except the pods, which are very smooth, and two lines in diameter. Flowers not larger than those of *V. gracilis*, more crowded. The unripe seeds are not at all margined.

‡‡ *Floribus albidis; siliculis nutantibus.*

11. *V. PALLIDA* (*Torr. & Gr. Fl. l. p. 668, Suppl.*): pube minuta lepidoto-stellata subcinerea; caulibus adscendentibus ramosis; foliis oblongis plerisque laciniato-dentatis basi attenuatis, radicalibus sublyratis; racemo laxifloro; pedicellis fructiferis recurvis; silicula globosa glabra leviter stipitata stylo tertia parte longiore. — *V. grandiflora* β. *pallida*, *Torr. & Gr. l. c. p. 101.* — The corolla is said, by *Dr. Leavenworth* (who alone has met with this plant) to be "white."

§ 2. *Perennes (Argenteæ seu incanæ.)*

* *Seminibus levissime marginatis; silicula substipitata stylo brevior.*

12. *V. ENGELMANNII*, *Gr. Gen. Ill. t. 70.* Vide supra, No. 325.

** *Seminibus immarginatis; silicula stipitata stylo duplo longiore.*

13. *V. LINDHEIMERI*, *sp. nov.* Vide supra, No. 327.

*** *Seminibus immarginatis; silicula non aut vix stipitata.*

† *Stylo silicula æquilongo v. longiore.*

‡ *Caulibus elongatis decumbentibus; foliis spathulatis; silicula glabra.*

14. *V. ARGYRÆA*, *sp. nov.* Vide supra, No. 329.

‡‡ *Caulibus abbreviatis suffruticosis; foliis angustis; silicula glabra.*

15. *V. FENDLERI*, *Gray, Pl. Fendl. p. 9.*

16. *V. STENOPHYLLA* (*sp. nov.*): humilis, cano-argentea, multiceps; foliis anguste linearibus gracilibus confertis; racemo multifloro denso; silicula membranacea glaberrima stylum æquante. — On the Rio Grande, Texas, *Mr. Charles Wright*. Monterey and Aguaneuva, Northern Mexico, *Dr. Gregg*, *Dr. Edwards*. — The specimen of *Mr. Wright* is the most characteristic one. From a thick, ligneous caudex it bears several, more or less woody branches, a span high, densely leafy, and terminated by a very compact raceme of golden yellow flowers, nearly as large as these of *V. grandiflora*. The plants of *Gregg* and *Edwards* are less condensed, and with smaller flowers. The leaves are an inch or more, the lower over two inches in length, entire, or the lower sparingly toothed; and the pods, also, are twice the size of those of *V. Fendleri*. Specimens intermediate between the two may perhaps occur.

‡‡‡ *Caulibus herbaceis erectis vel adscendentibus; silicula globoso-obovata incana.*

17. *V. LUDOVICIANA*, *DC. Syst. 2, p. 297; Hook. Fl. Bor.-Am. 1, p. 48.* *V. globosa*, *Desv. Jour. Bot. 3, p. 171 & 184, ex char.*

†† *Stylo silicula globosa glabra vel stellato-puberula, 2-3-plo longiore.*

18. *V. ARCTICA*, *Richards. Appx. Frankl. Journ.; Hook. l. c.*

a form of the same species, or perhaps of *D. cuneifolia*. To the latter, as a slender form, or to *D. micrantha*, would seem to belong *D. filicaulis*, *Scheele, l. c.*

CAPPARIDACEÆ.

332. *POLANISIA TRACHYSPERMA*, *Torr. & Gr. Fl.* 1. p. 669; *Gr. Gen. Ill.* 1. t. 79, & *Pl. Fendl.* p. 10. Sandy soil, on the Colorado and Pierdenales. July, October. This differs from *P. uniglandulosa*, as I have formerly remarked, principally in the smaller size of the flowers. It is likely to prove only a northern form of that species.

POLYGALACEÆ.

333. *POLYGALA LINDHEIMERI* (*sp. nov.*): pubescens; caulibus e radice incrassata lignea plurimis foliosis; foliis alternis subsessilibus coriaceis utrinque reticulatis nitidis cuspidato-mucronatis, imis obovatis, superioribus gradatim ovatis oblongis et lanceolatis; racemis terminalibus demumque lateralibus laxifloris; rachi geniculato-flexuosa bracteis parvis ad nodos 3 persistentibus squamosa; pedicellis brevissimis; sepalo superiore bracteiformi a flore subdistante alis spathulatis vix dimidio brevioribus; carina imberbi crista calcariformi aucta; capsula immatura pilosula. — Rocky declivities of the upper Guadalupe and Pierdenales. June, August. Also met with by Mr. Wright, from the Colorado to the Rio Grande. — Root not unlike that of *Krameria lanceolata*, long, covered with a thick reddish bark. Stems a little woody at the base,

Sect. II. ALYSSOIDES, DC. Silicula ovata, valvis convexis rigidiusculis.

19. *V. ALPINA*, *Nutt. in Torr. & Gr. Fl.* 1. p. 102; *Gr. Pl. Fendl.* p. 9.

V. lasiocarpa, *Hook. ined.* (Vide *Bot. Mag.* sub t. 3464) is unknown to me. I have seen no Texan species with other than glabrous fruit.

V. argentea, *Schauer in Linnæa*, 20, p. 720, when the mature fruit is known, may prove to be a species of *Synthlipsis*.

V. didymocarpa, *Hook.*, and *V. Geyeri*, *Hook.* constitute the genus *Physaria*.

The *Iberis*, *n. sp.?* *Torr. in Ann. Lyc. New York*, 2, p. 166, from Dr. James's Collection, is *Dithyræa Wislizeni*, *Engelm. in Wis. Rep.* p. 96, which has recently been met with, in flower only, on the Upper Canadian, by Mr. Gordon.

branching, a span to a foot high, clothed with a soft spreading pubescence. Leaves from 5 to 10 lines long, coriaceous, minutely pubescent but shining, with a prominent midrib, the veinlets conspicuously reticulated on both surfaces. Racemes gradually prolonged so as to bear from 10 to 20 flowers in the course of the season; the joints of the remarkably zig-zag rachis from one to three lines long. Pedicels shorter than the calyx, 3-bracteate. Upper sepal a little remote from the flower, like a bractlet, ovate-oblong, concave, with the rudiment of a gland in its axil. Stamens 8, subdiadelphous. The galea of the carina is beardless, and bears a conspicuous, straight spur on the back in place of a crest. The ripe fruit is unknown. The large upper sepal is persistent at the base of the half-grown fruit, after the others have fallen. All the sepals are deciduous in what I take to be *P. ovalifolia*, DC., which was gathered on the Leona and Rio Grande by Mr. Wright, as well as by Dr. Edwards and Major Eaton at Monterey, &c.

KRAMERIACEÆ.

(13.) *KRAMERIA LANCEOLATA*, Torr. in *Ann. Lyc. New York*, 2. p. 168; *Gr. Gen. Ill.* 2, t. 185, 186. New Braunsfels, among rocks. April, June. "Roots often more than three feet long."

VIOLACEÆ.

(578.) *IONIDIUM LINEARE*, Torr. in *Ann. Lyc. New York*, 2, p. 168; Torr. & Gr. *Fl.* 1. p. 145; *Gr. Gen. Ill.* 1, t. 82. *I. stipulaceum*, Nutt. in Torr. & Gr. *l. c.* Stems much branched from a ligneous perennial root, diffuse, or the branches often erect. Leaves opposite or occasionally alternate, entire or remotely serrulate; the lower varying from lanceolate to oblong or obovate; the upper linear, obtuse, usually three or four times the length of the stipules. Seeds turning black. — I possess no perfectly authenticated specimens of *I. stipulaceum*, Nutt.; but I have good reason to

think that it is not specifically different from the plant which was earlier indicated (from a branch, bearing narrowly linear leaves alone) by Dr. Torrey, under the name of *I. lineare*; which name I have therefore adopted. The stipules should not have been termed "minute" in *I. lineare*, since they are further said to be "one-third the length of the leaves." The upper ones are seldom so long as this, while the lower are frequently "half as long as the leaves," as they are said to be in *I. stipulaceum*. It is manifest that all our specimens belong to one and the same species.

344. *I. LINEARE*, Torr., ramis floriferis erectis strictioribus. *I. stipulaceum*, Nutt. l. c. Damp Muskit flats, San Antonio. April.

CARYOPHYLLACEÆ.

335. *PARONYCHIA LINDHEIMERI* (Engelm. ined.): annua, glabra, erecta; caule ramosissimo diffuso in cymas apertas multoties dichotomas diviso; foliis setaceis, superioribus bracteisque consimilibus mucronatis internodio brevioribus; calyce basi breviter pubescentibus, laciniis in aristulam iisdem duplo brevioribus productis. — Naked, rocky places in high prairies. September. (Also gathered in Western Texas, by Mr. Wright. — Nearly allied to *P. setacea*, and very similar in aspect, foliage, flowers, &c., but the cymes are more open; the calyx minutely pubescent, instead of strigose-hirsute, at the base; and the awns much shorter than its segments, instead of being nearly of their length. The plant is smoother, often six inches high, and very much branched.

(222.) *P. DICHOTOMA*, Nutt. Gen. 1. p. 159; Torr. & Gr. Fl. 1. p. 171. High, rocky places, north of New Braunfels. August, October.

336. *STELLARIA PROSTRATA*, Baldw. in Ell. Sk. 1. p. 518. Rocky and shaded margins of rivulets, about the Comale Springs, and at New Braunfels; flowering from March to October. (Also Trinity Bay, Mr. Wright.)

PORTULACACEÆ (by Dr. Engelmann).

(579.) *TALINUM AURANTIACUM* (*n. sp.*): radice tuberosa; caule adscendente herbaceo ramoso patulo ~~piloso~~; foliis lanceolatis s. lineari-lanceolatis subsessilibus carnosis; floribus axillaribus singulis; pedunculis supra basin articulatis bibracteolatis, fructiferis reflexis; sepalis ovatis acuminatis tricarinatis, fructiferis subpersistentibus; petalis ovatis mucronatis; staminibus sub-25; seminibus lineis gyratis carinatis et striis tenuissimis transversis eleganter notatis. — On the Sabinas, and more abundantly on the Liano, rare about New Braunfels, on rocky soil or almost naked rocks; in flower principally in July and August, but also at other seasons, always after heavy rains. — Root white, fleshy, tuberous, often bifurcated. Stems 8-16 inches long, ascending, much branched. Leaves $1\frac{1}{2}$ –2 or even 3 inches long, 2–4 lines wide. Peduncle 4–5 lines long. Sepals of the same length; petals 5 lines long and 3 wide, orange to red; filaments red; style and stigma orange. Seeds elegantly marked, black, larger than in any other North American species. — Distinct from all other species described by De Candolle, by the single flowers.

(580.) *TALINUM SARMENTOSUM* (*n. sp.*): radice crassa; caule prostrato; ramis debilibus sarmentosis ascendentibus foliosis; foliis carnosis late ovatis cuspidatis basi attenuatis subsessilibus; cymis axillaribus bracteatis subtrifloris (rarius compositis) versus apicem laxè paniculatis; floribus longe pedicellatis; sepalis ovatis cuspidatis membranaceis deciduis; staminibus sub-15; seminibus nigris nitentibus sub lente tenuiter tuberculatis. — New Braunfels, among shrubs on the banks of the Guadeloupe. July, September. — Stems prostrate; branches weak, ascending, supported by the shrubs under “which the plant grows, often 6–10 feet long;” — the specimens before me are 2–4 feet long. Lower leaves $2\frac{1}{2}$ – $3\frac{1}{2}$ inches long, $1-1\frac{3}{4}$ wide. Pedicels 6–12 and more lines long, thickened at the apex. Sepals about one line long; flowers apparently

4-5 lines in diameter, purple. Capsule about one line long, almost globose. Seeds smoother than in any other of our species.¹

¹ "Besides these two species, we have in the flora of the United States, three others very different from these, but nearly related to one another; namely, the well-known *T. teretifolium*, Pursh, *T. calycinum*, Engelm. in Wisliz. Rep.; and *T. parviflorum*, Nutt.; all three now in cultivation with me, and well distinguished from one another. *T. calycinum* is very ornamental; the large flowers have sometimes six to ten petals.

"Mr. Lindheimer has discovered two undescribed species of *Portulaca* in Western Texas. As these plants are so difficult to preserve and so unsightly when dried, he did not collect specimens for distribution; but from his seeds both were raised by me last season and prove very remarkable plants, one from its near alliance with *Portulaca oleracea*, the other from its great difference from that species. I arrange the species of our flora (all of them annuals) in the following manner.

PORTULACA.

* *Spathulata*: glaberrimæ; caule tereti; foliis spathulatis obovatis; sepalis alato-carinatis cum operculo capsulæ maturæ deciduis; petalis flavis emarginatis s. bilobis; capsulæ annulo circulari tumido.

1. *P. OLERACEA*, L.: foliis obovatis spathulatis apice rotundatis; alabastro compresso ovato acuto; sepalis carinatis; staminibus 7-9; stigmatibus 5 stylum brevem superantibus; seminibus minoribus minute sub lente verruculosi nigris. — St. Louis, very common; flowers open in direct sunshine between 9 and 10 o'clock, A. M. August.

2. *P. RETUSA* (*n. sp.*): foliis cuneatis retusis, seu *emarginatis*; alabastro compresso orbiculato obtuso; sepalis late carinato-alatis; staminibus sub-15 (17-19, Lindh., in plantis parvulis 7-10); stigmatibus 3-4 stylum æquantibus vel eo brevioribus; seminibus majoribus sub lente echinato-tuberculatis nigricantibus. — Granite region of the Liano in Western Texas. Flowers open in direct sunshine between 8½ and 9½ A. M. (in St. Louis, in August), always before the common species. — Distinguished from the nearly allied *P. oleracea* by the broader retuse leaves, and broader calyx; by the larger, more distinctly tuberculated, somewhat paler seeds, much larger style, and shorter and fewer stigmata. Number of stamina variable. In large specimens (bushes several feet in diameter, stems at base 6-7 lines thick, prostrate or ascending); the number counted was 15. Stigmata almost invariably 4, rarely 3.

** *Lanceolata*: glaberrimæ; caule angulato; foliis superioribus lanceolatis; sepalis vix carinatis post anthesin deciduis; petalis plerumque versicoloribus acutiusculis; capsulæ ala circulari lata ex calycis basi aucta.

3. *P. LANCEOLATA* (*n. sp.*): *sub-erecta*; foliis inferioribus spathulatis obtusis, superioribus lanceolatis acutis; petalis obovatis s. oblanceolatis acutiusculis s. cuspidatis; staminibus 7-27; stigmatibus 3-6; capsula turbinata versus apicem ala circulari lata cincta; seminibus majoribus echinato-tuberculatis cinereis.

α. VERSICOLOR; petalis majoribus obovatis rubris basi flavis; staminibus 12-24; stigmatibus 5-6 linearibus; capsulæ ala orbiculari plana.

β. MINOR; petalis minoribus oblanceolatis sæpe totis flavidis rarius apice rubellis; staminibus 7-12; stigmatibus 3-4 ovato-oblongis; capsulæ ala subpentagona undulata.

Granite region of the Liano, in Western Texas. — Stems in smaller plants a few inches high, erect, with erect branches; in larger specimens a foot or more high, as-

LINACEÆ.

† LINUM BOOTHII, *Planchon in Lond. Jour. Bot.* 7, p. 475. Upper Pieddenales, sparsely in sandy prairies.—The specimen is entirely in fruit, and has lost nearly all its leaves. Some remarks on this species will be found under No. 581.

337. L. BOOTHII, γ . RUPESTRE; caulibus gracilentis; foliis lineari-subulatis; sepalis paulo latioribus; capsulis minoribus.—L. rupestre, *Lindheimer in sched.* New Braunfels, with *Cereus cæspitosus*, growing sparsely on rocky soil or in crevices of naked rocks. May.—Stems several, from a firm, probably not really perennial root, very strict and slender, a foot or more high. Petals three or four times the length of the lanceolate-ovate, cuspidate, and glandular-ciliate sepals.

338. L. MULTICAULE, *Hook. in Torr. & Gr. Fl.* 1. p. 678; *Planchon in Lond. Jour. Bot.* 7, p. 185. Upper Pieddenales; socially in naked, clayey places in open oak woods. October; mostly in fruit. Flowers small, yellow. Styles united almost to the summit. Branches clothed with the minute lanceolate-subulate leaves quite up to the flower; the

ending, very much branched. Leaves $\frac{1}{2}$ –1 inch long, 1–3 lines wide. Flowers 4–6 lines in diameter, very pretty in the larger forms, open from 8–9 o'clock, A. M. (St. Louis, August); earlier than any other species. Capsule with the wing, which is formed by the enlarged base of the deciduous calyx, 2–2 $\frac{1}{2}$ lines in diameter.—The seeds of both forms are absolutely identical, so that the difference in the number of stamina and stigmata, and in the size and color of the flower, cannot constitute them distinct species, as Mr. Lindheimer suggests. He adds that the leaves of α have an acidulous, and those of β an insipid, mucilaginous taste.

*** *Teretifoliae*: ad axillæ pilosæ; caule tereti; foliis plus minus teretibus, basi paulo productis; sepalis membranaceis ecarinatis cum operculo capsulæ maturæ deciduis; petalis violaceis; capsulæ margine circulari tumido.

4. P. PILOSA, L.: sepalis lineari-oblongis, petalis ovato-oblongis obtusis retusis s. emarginatis duplo brevioribus; staminibus 15–25 stigmatibus 5–6 subæquantibus; seminibus minutis nigris opacis minute tuberculatis. Texas, New Mexico, Mexico, etc.—Flowers open from 9–11 or 12 o'clock in bright sunshine, 4–5 lines in diameter: stigmata glandular, hairy on the margins only, purple.

5. P. GILLIESII, *Hook.*: sepalis orbiculato-ovatis petalis orbiculato-obcordatis ter quaterve brevioribus; staminibus numerosissimis (60) stigmatibus sub-5 exsertis longe brevioribus; seminibus paulo majoribus tuberculatis cinereis nitentibus.—Common in cultivation, and here and there almost naturalized; originally from Chili. Flowers 20–24 lines in diameter, open from 8 or 9 to 2 or 3 P. M. in sunshine. Stigmata glandular, hairy on the margins and upper surface, yellowish or greenish.

margins of the latter aculeolate-ciliate, or in Lindheimer's specimens nearly smooth and naked. It is probably only an annual, as likewise the next. Mixed with this, in the distribution, and probably forming the whole in many sets, are fruiting specimens with the upper leaves sparser and the tips of the branches naked, like a short peduncle. These belong to the following species, if indeed it be different, and to the New Braunfels locality there cited.

339. *L. HUDSONIOIDES*, *Planchon l. c.* p. 186. New Braunfels, growing in dense patches, on dry soil, with a rocky substratum, in naked places in the prairies; May; in fruit; (distributed under No. 338). In clayey soil, Agua Dulce on the Matagorda Bay; February, in flower. — The leaves are less approximated and less squamous than in the preceding; the uppermost sparse on the branches, so that the flower, and especially the fruit, is raised on a manifest peduncle, sometimes of more than half an inch in length. The capsules and the flowers are larger; the yellow petals nearly five lines in length. But it too closely resembles *L. multicaule*, of which it is perhaps only a variety.

(581.) *LINUM BERLANDIERI* (sphalm. *Berendieri*), *Hook. Bot. Mag.* t. 3480; *Engelm. & Gr. Pl. Lindh.* p. 5; *Gr. Pl. Fendl.* p. 25, No. 84 (non. 85); *Planchon in Lond. Jour. Bot.* 7, p. 473; *Scheele in Linnæa*, 21, p. 596. *L. rigidum*, β . *Berendieri*, *Torr. & Gr. Fl.* 1. p. 204. Stony, dry prairies, near New Braunfels. May. — Except in the larger size of the flowers, and the laxer leaves, this species is hard to distinguish from *L. rigidum*. Both, I believe, are *annuals*; but, as they flower through a great part of the year, the root hardens, and the base often shows the vestiges of earlier stems, which have perished; thus giving it somewhat the appearance of a perennial. The styles are united either for two-thirds of their length, or almost to the apex. One of Lindheimer's specimens in my set (gathered in 1846) not indistinctly shows small stipular glands; while that of the Coll. 1847–8 does not. These glands are equally visible in some of the

specimens of No. 85, *Pl. Fendl.*, which I should now refer to *L. rigidum*, *Pursh.* I believe that I have also noticed them in *L. Virginianum*; but they do not appear in any of the specimens preserved in my herbarium. The localities from the eastern parts of the United States, cited from *Torr. & Gr. Fl. N. Amer.* by Planchon under *L. Berlandieri*, belong to his *L. Boottii*, as I suppose does also the whole of what is called *L. rigidum* in New England, &c. At least this is the case with the plant gathered at New Haven by Oakes, and at Providence by Mr. Olney. The latter is exactly *L. Boottii a. Planchon, l. c.* As to his *L. Boottii β.* from Texas, by Lindheimer, I fortunately possess a corresponding specimen, supplied by Engelmann subsequently to the distribution of Lindheimer's former collections, and named "*L. rigidum*" on a ticket bearing the printed number 118, which number has been erased with the pen. This explains its occurrence in the same way in *herb. Hooker.* The root is annual. If it be a distinct species, as is most likely, still it appears, from what has already been stated, the stipular glands cannot be entirely relied upon for a character. Planchon has omitted to notice the more or less glanduliferous-ciliate margins of the sepals, which are conspicuous in most cases, and caused the plant to be referred in the Flora of North America, &c. to *L. rigidum*, to which it is very nearly related.

GERANIACEÆ.

340. *ERODIUM TEXANUM* (*Gr. Gen. Ill. 2, p. 130, t. 150*):
 bienne v. annuum; caulibus diffusis cinereo-puberulis; foliis
 glabriusculis cordatis crenatis plerumque 3-lobatis, superiorum
 lobis lateralibus bifidis, terminali 3-5-fido; pedunculis 3-flo-
 ris; floribus vernalibus petalis purpureis sepala scarioso-mar-
 ginata subulato-mucronata duplo superantibus, serotinis ape-
 talis; pedicellis calycibusque pube appressa canescentibus
 eglandulosis; carpellis hirsutis lineari-clavatis basi pungenti-
 bus. — Small thickets in prairies above Victoria; and in
 patches in rocky soil at New Braunfels; March, April. Also

the apetalous state (340, in Coll. 1847-8); the particular locality not given. Mr. Wright also gathered it in Texas, where it appears to abound.—From the Californium *E. macrophyllum*, *Hook. & Arn.* (the leaves of which are often less than an inch in diameter,) which it most resembles, this species is distinguished by its smaller flowers, more deeply lobed leaves, more slender carpels, and the close cinereous pubescence of the pedicels and calyx, which are destitute of glandular hairs.

OXALIDACEÆ.

341. *OXALIS VESPERTILIONIS*, *Torr. & Gr. Fl.* 1. p. 679. Prairies, Upper Pieddenales. October. Also gathered in Western Texas by Mr. Wright.

ZYGOPHYLLACEÆ.

342. *KALLSTREMLIA MAXIMA*, *Torr. & Gr. Fl.* 1. p. 213; *Gr. Gen. Ill.* 2, t. 146. Prostrate in clayey soil, near San Antonio. September.

(582.) *GUAIACUM ANGUSTIFOLIUM*, *Engelm. in Wislitz. Memoir, Appx.* p. 113; *Gr. Gen. Ill.* 2, p. 123 (subgen. ? *GUAIACIDIUM*), t. 149. Western Texas, in fruit; the station not given.

RUTACEÆ.

343. *RUTOSMA TEXANA*, *Gr. Gen. Ill.* 2, p. 143, t. 155. Stony prairies, with Cactaceæ, Upper Guadalupe. March. Also detected by Mr. Wright in Texas, and by Dr. Gregg at Monterey.—Remarkable as the sole representative of the proper Rutaceæ in America.

ANACARDIACEÆ.

344. *RHUS COPALLINA*, *Linn.* var. *LEUCANTHA*, *DC.*: caule 10-pedali; foliis lanceolatis; floribus albis. *R. leucantha*, *Jacq.* Rocky precipices, New Braunfels. July.

345. *R. COPALLINA*, *Linn.* var. *LANCEOLATA*: foliis lanceolatis subfalcatis sæpe elongatis integerrimis vel subserratis;

floribus flavis (pl. submasc. subfœm. fruct.) Rocky soil and high prairies, New Braunsfels. July. Plant from two to five feet high.

346. *R. TOXICODENDRON*, *Linn.*; *Torr. & Gr. Fl.* 1. p. 218. Thickets and stony prairies, New Braunsfels. May, in flower: September, in fruit. "Erect, not climbing." — This is the *Rhus verrucosa*, *Scheele in Linnæa* 21, p. 592, which is compared only with *R. aromatica*! The "Verrucæ magnæ subrotundæ atropurpureæ lucidæ," of the lower surface of the leaves, which suggested the name, are merely exudations of resinous juice caused by the puncture of insects on some leaves only, as Dr. Engelmann has pointed out.

† *R. TOXICODENDRON*, *Linn.* var. *foliis ramulisque molliter pubentibus*. Thickets, New Braunsfels.

347. *R. (LOBADIUM) TRILOBATA*, *Nutt. in Torr. & Gray, Fl.* 1, p. 219. Rocky soil, margin of high prairies, New Braunsfels; March (in flower); June (in fruit). A slender, much branched shrub, two to five feet high.

348. *R. VIRENS* (*Lindheimer, Mss.*): *glabella; foliis semipervirentibus 3-4-jugis cum impari, rachide nuda; foliolis ovatis oblongisve obtusis v. obtusiuscule acuminatis margine subrevolutis integerrimis coriaceis supra nitidis subtus pallidis sub lente minutim tomentulosis; floribus albidis thyrsoido-paniculatis; paniculis axillaribus folio brevioribus; drupa rubra hirsuta, putamine lenticulari lævi.* — Rocky soil, in open places, in Cedar woods, New Braunsfels, &c. March; in fruit, August. Mr. Wright sends the same species from Western Texas; and Dr. Coulter collected it at Zimapan, Mexico. A well marked species, of the section Sumac. Leaflets an inch or rather more in length, smooth, except under a lens, soft to the touch, shining above, thick and rigidly coriaceous.

MALVACEÆ.

† *CALLIRRHÖE INVOLUCRATA*, *Gray, Pl. Fendl.* p. 14, & *Gen. Ill.* 2, p. 53, t. 117. *Malva involucrata*, *Torr. & Gray, Fl.* 1, p. 226. Oak openings, on the Pierdenales. June.

(584.) *C. DIGITATA*, Nutt. in *Jour. Acad. Philad.* 2, p. 181; Gray, *Pl. Fendl. l. c.*, & *Gen. Ill.* 21, p. 53. *Nuttallia digitata*, Bart. *Fl. N. Amer.* 2, t. 63, *Hook. Exot. Fl.* 3, t. 171. *Nuttallia cordata*, Lindl. *Bot. Reg.* t. 1938. Prairies on the Pierdenales, at the margin of woods. May, June. Also gathered by Mr. Wright. "Root edible, more pleasant than that of *Psoralea esculenta*," Lindh. — One of the most showy species of this handsome genus; the petals, over an inch in length, are beautifully fringed at the summit. The radical leaves are very various.

349. *C. PEDATA*, Gray, *Pl. Fendl.* p. 17, (excl. syn. *Nuttallia digitata*, Bart.) & *Gen. Ill.* 2, p. 53, t. 118. *Nuttallia pedata*, Nutt. in *Hook. Exot. Fl.* 3, t. 172. Dry prairies and margin of thickets, near Victoria, New Braunfels, and on the Cibolo, &c. Also abundantly gathered by Mr. Wright. February, April. — In cultivation, this handsome species produces its deep cherry-red blossoms through the whole season, and when supported attains the height of five or six feet. Although it has been confused with the preceding, it is totally distinct from it. It has much smaller flowers, leafy stems, more incised foliage, and a slender, annual or biennial root.

350. *M. WRIGHTII*, Gray, *Pl. Fendl.* p. 21, & *Gen. Ill.* 2, p. 60, t. 122. *Malva aurantiaca*, Scheele, in *Linnaea*, 21, p. 469. Muskit flats, in black and heavy prairie soil. New Braunfels. July. — The stems are rigid, from a more or less ligneous base; the rather large, golden yellow flowers open in the afternoon. The fructiferous calyx is somewhat enlarged, and expanded, and tinged with brownish-red; the carpels in the living plant (raised in the Cambridge Botanic Garden,) are more deeply tinged of the same color. — The characters of a new species, allied to *M. coccineum*, are subjoined.¹

¹ *MALVASTRUM PEDATIFIDUM* (sp. nov.): caulibus e radice perenni diffusis gracilibus ramosis; foliis tripartitis profunde trifidisve pilis stellatis parce hirsutis, segmentis lateralibus bifidis, terminali subtrilobo, omnibus subpinnatifido-incisis, lobulis dentibusve patentibus; stipulis subulatis; floribus sparsis axillaribus et secus ramulos laxe racemosis; bracteolis 3 setaceis calyce subduplo brevioribus; carpellis muticis, rostro

351. MALVASTRUM CARPINIFOLIUM, *Gray, Pl. Fendl.* p. 22. In sterile soil, New Braunfels, &c. August. — To the synonyms cited in the work above-cited, I have to add that of *Malva Lindheimeriana*, *Scheele in Linnæa*, 21, (1848,) p. 470. The flowers open merely during a few hours of the brightest sunshine.

352. PAVONIA WRIGHTII, *Gray, Gen. Ill.* 2, p. 76, t. 130. *P. lasiopetala*, *Scheele in Linnæa*, 21, p. 470. Rocky soil in Cedar woods, New Braunfels. Also gathered in Western Texas, by Mr. Wright, and near Monterey, in Northern Mexico, by Dr. Edwards and Major Eaton. — A low, shrubby species, with handsome, rose-colored flowers, which are larger in the wild than in our cultivated plant, from which the figure in the *Genera Illustrata* was made. The seeds are glabrous, except a little pubescence at the chalaza; and in some other respects, also, the species is not very well characterized by Scheele. His name, from its priority in publication, should probably be adopted, although so badly chosen; for the petals, at most sparingly stellate-pubescent externally, are often nearly or quite glabrous.

353. A. TEXENSE (*Torr. & Gray, Fl.* 1, p. 231): tomento minuto molli undique velutino-canescens; caule (2-4-pedali) paniculato; foliis cordatis acutis vel subacuminatis serratis supra viridulis, ramealibus gradatim minoribus; pedunculis inferioribus petiolum subæquantibus, summis folio longioribus; corolla lutea; capsula ovoidea obtusa cinerea 8-loculari apice breviter 8-loba calyce 5-fido demum reflexo multum longiore; carpellis erectis obtusiusculis muticis 3-spermis. — Prairies, &c. in hard and dry soil, New Braunfels. August, September. Apparently common throughout Texas, and to Monterey, in Northern Mexico, where it was gathered by Dr.

brevi complanato membranaceo inflexis. — On the Rio Grande, Texas, in dry soil. Cultivated in the Cambridge Botanic Garden, it flowers through the summer. Stems a foot or less in height, much more slender than in *M. coccineum*; the flowers smaller and paler (between a buff and a brick-color.) The leaves are not canescent, but green and sparsely stellate-hirsute, and their segments incised or almost pinnatifid; the lobes are tipped with a deciduous mucro or short seta.

Gregg. The expanded corolla is two thirds of an inch in diameter. The larger cauline leaves are from three to four inches long, on petioles of half that length. They are described in the *Flora of North America*, from the branches only. I do not know the *A. Nuttallii*.¹

354. ABUTILON HOLOSERICUM, *Scheele in Linnæa*, 21, p. 471. *A. velutinum*, *Gray, Gen. Ill.* 2, p. 67, t. 125. Rocky soil, along the margin of thickets, New Braunfels, &c. August, September. Also gathered by Mr. Wright in Western and Southern Texas. — Stem three to six feet high; the larger leaves nearly a foot in diameter, on petioles six to eight inches long, very seldom at all lobed. The deep orange-yellow corolla is over an inch in breadth. The details of the fruit, &c. are well delineated in the plate cited above. The anthers are reniform, in the ordinary manner, not three-lobed, as described by Scheele. The young leaves are quite white; the older and larger ones greener. The root is said to be "ligneous and perennial?" in the wild plant. In cultivation it is an annual.

† SPHÆRALCEA LINDHEIMERI (sp. nov.): lanoso-tomentosa; caulibus decumbentibus basi ut videtur suffruticosis; ramis floridis assurgentibus; foliis cordatis sæpius rotundatis grosse crenatis indivisis; pedunculis petiolo longioribus; bracteolis involucelli 3 setaceis calycis lobis ovato-lanceolatis acuminatis dimidio brevioribus; corolla rosea. — Victoria, on the lower Guadalupe; margin of thickets on the prairie.

¹ Near the southwestern borders of Texas, Mr. Wright obtained specimens of the subjoined species, namely: —

ABUTILON WRIGHTII (sp. nov.): caulibus decumbentibus ramosis viscoso-pubescentibus et pilis gracillimis patentibus villosis; foliis ovato-cordatis obtusiusculis argute dentatis supra viridulis scabrido-velutinis subtus mollissime niveo-tomentosis; stipulis subulatis caducis; pedunculis unifloris petiolum æquantibus vel superioribus folium superantibus; calyce tomentoso 5-partito, laciniis sensim acuminatissimis corollam auream subæquantibus; capsula tomentulosa calyci æquilonga, e carpellis 7 apice subulato-rostratis 3-spermis. — On the Rio Grande and the Seco, *Mr. Charles Wright*. — Stems one or two feet in length; the leaves from one third to an inch and a half long. Calyx nearly as long as the peduncle. The golden-yellow corolla is over an inch in diameter when fully expanded. Capsule half an inch long, not inflated, the subulate beaks little diverging.

February; just beginning to blossom. Stems a foot long. Leaves one or two inches broad; the soft pubescence appearing as if deciduous with age. Calyx deeply 5-cleft; the lobes half an inch long. The expanded corolla about two inches in diameter. Staminal column stellate-hairy. Styles 17-18, clavate at the tip; the stigmas truncate rather than capitate. Ovules two or three in each cell. Fruit not seen.

355. *SIDA FILICAULIS*, Torr. & Gray, *Fl.* 1, p. 232. *S. filiformis*, Moricand, *Pl. Nouv. Amer.* p. 38, t. 25. High and dry prairies and sunny declivities, New Braunfels, &c. June, August.—Prostrate, in patches, producing very numerous slender and branching stems from a perennial and somewhat ligneous root. These, when young, are beset with long, spreading hairs, which are so slender that they often escape notice, and are also deciduous from the older stems. Hence our Texan plant is doubtless the *S. filiformis* of Moricand, gathered at Tampico by Berlandier. Moricand's name is a little the earlier published; but it appears from Steudel that there is a prior *S. filiformis* of Jacquin, which has been overlooked.¹

(583.) *S. PHYSOCALYX* (sp. nov.): caulibus e radice carnosâ crassa plurimis decumbentibus ramosis strigosis; foliis carnosulis ovato-oblongis crenato-dentatis basi 5-7-nerviis

¹ *Sida anomala* β . Mexicana, Moricand, *l. c.* p. 36, t. 24, also from Tampico, is *S. fasciculata*, Torr. & Gray, *Fl.* 1, p. 231, which has recently been gathered in Western Texas, by Mr. Wright. The corolla, in dried specimens, is pink or rose-color, as is also said by Moricand, and the short, tufted stems spring from a stout perennial root. Another species, indicated by Dr. Engelman, I know only from a fragment, namely:—

SIDA HETEROCARPA, Engelm. *Mss.*: "stellato-pubescentis; caule erecto ramoso; foliis basi subcordatis obtusis crenato-dentalis, inferioribus lanceolatis, superioribus linearibus; tuberculo subbasi petioli subspinoso; petiolis brevibus stipulas setaceas et pedicellas solitarias s. fasciculatas superantibus; carpellis 5 nigris divaricato-birostratis apice pubescentibus latere tenuiter rugulosis, dorso membrana tenui evanescente clausis.—Road-sides, waste places, Houston, Texas, with *S. spinosa*. Annual? Flowers in August and September. Distinguished from *S. spinosa* by the narrower dentate-crenate (not serrate) leaves, and smaller black (not light brown) carpels, rugulose (not lacunose-reticulated) on the sides, with a prominent point on the back, broader, shorter, more divaricate, not erect beaks. The seed escapes through the back, not through the regular opening at the top."

subcordatis petiolo subduplo longioribus supra pilis simplicibus subtus pilis 3-5-partitis appressis parce strigosis, infimis rotundatis, summis sublanceolatis acutis; stipulis subulatis; pedunculis axillaribus unifloris petiolo brevioribus fructiferis nutantibus; calyce 5-partito membranaceo inflato 5-alato clauso pedunculum adæquantibus, segmentis late ovatis quasi cordatis; corolla flavida vix exserta; ovario carnosio arcte depresso 10-lobo pruinoso demum in carpella 10 rotundata intus subrostrato-producta mutica semini conformia nitida minute reticulata calyce maximo vesicario inclusa secedentibus. — On the Liano. A well-marked species, apparently allied to *S. physalodes*, *Presl*; the calyx strikingly inflated, like a *Physalis*; the corolla inconspicuous and opening only for a short time in direct sunshine. It has been cultivated during the past summer in the Botanic Garden, and it forms a conical and fleshy perennial root. Specimens have been gathered by Mr. Wright, and others in Southern Texas, by Wislizenus, south of El Paso del Norte, and by Dr. Gregg in Northern Mexico.¹

¹ Three other undescribed Texan species have been detected by Mr. Wright namely: —

SIDA TRAGLEFOLIA (sp. nov.): humilis; caulibus (e radice perenni?) suberectis petiolisque pube stellata subglutinosa velutinis setisque patentibus gracillimis hispidis; foliis ovato-oblongis angulato-cordatis grosse dentatis penninerviis basi 5-7-nervatis supra parce subtus molliter pubescentibus petiolo gracili (pollicari) vix duplo longioribus, superioribus acutis; stipulis setaceis; pedunculis axillaribus unifloris petiolum subæquantibus; corolla supra calycem villosulum paulo excedente; carpellis 10 glabriusculis apice obtuso bipartilibus summo dorso bicorniculatis. — Raised in the Botanic Garden, Cambridge, from seeds gathered in southern Texas by *Mr. Charles Wright*. The foliage is not unlike that of *Tragia urticæfolia*. Corolla fugacious, half an inch in diameter. Carpels short, beakless, bimucronate or bicorniculate on the back near the apex.

S. FILIPES (sp. nov.): furfuraceo-canescens; caule erecto paniculato gracili: foliis brevissime petiolatis lanceolatis basi cordatis dentato-serratis obtusiusculis supra velutino-pubescentibus subtus ramulisque cano-tomentosis nunc fulvis vel ferrugineis; stipulis setaceis petiolum excedentibus; pedunculis unifloris capillaribus (2-3-pollicaribus) foliis longioribus paulo sub flore pendulo articulatis; corolla (purpurea?) calycem subduplo superante; carpellis 7 reticulato-rugosis muticis superne pubescentibus dorso canaliculatis bivalvibus. — On hills above Austin, Texas, *Mr. Charles Wright*. Also near Monterey, Mexico, *Dr. Edwards* and *Major Eaton* (in *Herb. Torrey*). — Base of the slender stems wanting, (1841) apparently it is entirely herbaceous, of two or three feet in height. The leaves are from one and an half to two

356. MELOCHIA PYRAMIDATA, *Linn.*; *Torr. & Gray, Fl.* 1. p. 683; *Gray, Gen. Ill.* 2. t. 134. Upper Guadalupe, on rocky soil. August.

357. HERMANNIA TEXANA, *Gray, Gen. Ill.* 2. p. 88. t. 135. Rocks, on the Upper Guadalupe; in flower; and in high rocky prairies on the Salado River; in fruit, October, (585.) — This interesting accession to our flora has also been found on the Rio Grande by Mr. Wright, and in Northern Mexico, by Dr. Gregg. Since the figure above cited was published, the plant has flowered in the Cambridge Botanic Garden. I must remark that the cinnabar-colored corolla is convolute and erect, not at all spreading at any period, as is represented in the figure, which was made from a dried specimen. The plant is suffruticose, with a thickened ligneous root.

VITACEÆ.

358. V. RUPESTRIS, *Scheele in Linnæa*, 21. p. 591. V. populifolia, *Lindh. ined.* Dry, rocky bed of the Cibolo, Upper Guadalupe, and other streams; also in rocky prairies on the Pierdenales; flowering in May; the fruit ripe in July, August, and September. — Like his other species, this is by

inches long, half an inch or less in width, and much like those of *Sphæralcea angustifolia*. The peduncles are remarkably long and slender, and curved towards the apex, near the articulation, so that the flower and fruit are pendulous. The calyx is 5-cleft to the middle; the lobes rather obtuse. The expanded corolla is only about four lines in diameter. It is said by Mr. Wright to be "blue;" in the dried specimens it is dark purple. — The species is probably allied to *S. venusta*, *Schlecht.*

S. CUNEIFOLIA (*sp. nov.*): cano-tomentosa, humilis; caulibus e basi fruticulosa assurgentibus ramosissimis; foliis parvulis rotundato-cuneiformibus flabellato 3-5-nerviis crenato-dentatis repandisve utrinque concoloribus; stipulis linearibus petiolum subæquantibus; floribus (flavis) brevissime pedunculatis folio brevioribus; carpellis 5 pubescentibus membranaceis turgidis apice inter rostra brevia mollia demum bivalvibus; semine globoso. — In subsaline soil, Texas, about thirty-five miles north-east of Eagle Pass, on the Rio Grande, September, *Mr. Charles Wright.* — A well-marked, low, procumbent species, in foliage and habit not unlike a *Hermannia*. The soft, downy leaves are only about half an inch in length and breadth, on petioles of three or four lines long; the flowers are solitary, or often clustered in the axils, and sometimes scarcely exceed the petioles. The yellow corolla is twice the length of the calyx, and is half an inch in diameter when expanded. The ovate carpels are membranaceous, slightly inflated; the seed is proportionally large and spherical, as in *Abutilon*, with the micropyle somewhat rostellate.

no means well characterized by Mr. Scheele. According to Lindheimer it is called *Mountain Grape*, and covers large tracts of rocky soil. It does not climb, but the stems are upright, and only two or three feet high. The branches are small, and the berries, of the size of peas only, are black, very sweet, and the most grateful as well as the earliest ripened grape of Texas. Dr. Engelmann informs me that he met with the same species in Western Arkansas, growing in similar situations. Also that a specimen exists in Michaux's Herbarium, on the same sheet with *V. riparia*. The leaves are somewhat glaucous, and in appearance between those of *V. riparia* and *V. vulpina*, but much smaller than in either.

359. *V. ÆSTIVALIS*, *Michx. Fl. 2. p. 230*: var. *tomento albo, nec fulvo*. Shady banks of streams, New Braunfels, &c.; flowering in May; the fruit ripe in August. "Climbing high trees. Berries of the size of peas, in large bunches, very black; the taste vinous and pleasant. Flowers very odorous." *Lindh.* — Under the name of "*V. candicans*, (*n. sp.*) *Engelm. ined.*, I have from Lindheimer, as also from Mr. Wright, Texan specimens of what appears to be a variety of *V. Californica*, *Benth.*, with the leaves somewhat less dentate and more densely tomentose underneath.

† *VITIS (CISSUS) INCISA*, *Nutt. in Torr. & Gray, Fl. 1. p. 243*. New Braunfels, climbing on Muskit trees. July–September. — Leaves thick and remarkably fleshy.

† *V. VULPINA*, *Linn.*; *Torr. & Gray, l. c. V. rotundifolia, Michx. Fl. 2. p. 231*. New Braunfels. April.

ACERACEÆ.

360. *NEGUNDO ACEROIDES*, *Mærch.*; *foliis adultis molliter pubescentibus*. New Braunfels; and banks of the Comale. March, in flower. August, in fruit.

MALPIGHIACEÆ.

361. *GALPHIMIA LINIFOLIA* (*Gray, Gen. Ill. 2. p. 196. t. 173*): *humilis*; *caulibus gracilibus e basi pubescente herba-*

ceis glabellis; foliis glabris glaucescentibus lanceolatis vel linearibus subsessilibus (infirmis sæpe oblongis vel ellipticis in petiolum angustatis) juxta basim utrinque uniglandulosis repando-subdenticulatis vel integerrimis; racemis laxis; pedicellis basi articulatis; petalis flavis cito rubris. — Rocky hills and prairies of the Upper Guadalupe. July — September. Also found by Mr. Wright; and in Northern Mexico by Dr. Edwards and Major Eaton. Stems from one to two feet in height.¹

SAPINDACEÆ.

362. *ÆSCULUS PAVIA*, β . *DISCOLOR*, Torr. & Gr. *Fl.* 1. p. 252. *Pavia discolor*, Pursh. Banks of the Comale Creek, March. “Shrub 6 – 10 feet high: flowers red or yellow.”

363. *UNGNADIA SPECIOSA*, Endl. *Atakt. Bot.* t. 36, & *Nov. Stirp. Dec.* p. 86; Torr. & Gray, *Fl.* 1. p. 684; Gray, *Gen. Ill.* 2. p. 211, t. 178, 179. *U. heterophylla*, Scheele in *Linnæa*, 21. p. 589; sphalm. pro *U. heptaphylla*, Scheele, *l. c.* 22. p. 352. In bottom-woods, New Braunfels. March; sometimes flowering again in August. “Shrub 3 to 20 feet high, with many long stems, 1 to 3 inches thick, branching only at the top. Fruit sweet and pleasant, but emetic.” Lindh. Its popular name is *Spanish Buckeye*. — “The fertile flowers and the fruit, although for several years known to us, have not until now been illustrated or described, except by Adolf Scheele, who has published a description, from Lindheimer’s specimens, in the *Linnæa*, during the past year. The flowers

¹ On the southwestern border of Texas, Mr. Wright has detected a Malpighiace-ous plant, which proves to be a third species of *Aspicarpa*, namely: —

ASPICARPA HYSSOPIFOLIA (*sp. nov.*): caulibus e radice lignescente plurimis erectis (6–12-pollic.); foliis lineari-lanceolatis basi rotundatis subcordatisve sessilibus; pedicellis axillaribus solitariis; petalis rotundatis eximie crispato-fimbriatis. — On the Rio Grande and Rio Seco, Texas, Mr. Charles Wright. — Leaves scarcely an inch long, one to two lines wide; the midrib and margins hispid-ciliate. Flowers about one third the size of those of *A. Hartwegiana*; the petaliferous ones scattered in the axils (not umbellate at the summit of the stem), and fructiferous, either two or three carpels ripening. These are much as in *A. Hartwegiana*, but smaller, more upright and acute, deeply umbilicate at the insertion. Fruit from the abnormal, apetalous flowers not seen.

which Endlicher happened to examine were pentapetalous, which is not the more usual case; and he erroneously states the plant to form a large tree, whereas it is commonly a slender shrub, of five or ten feet in height, or at most a small tree. Misled by these discrepancies, and by the differences of the two kinds of flowers, and, it would seem from his description, happening to possess *tetrasepalous* as well as tetrapetalous flowers (although there are five sepals in all my Lindheimerian and other specimens,) Mr. Scheele has wrongly introduced a second species, under the name of *U. heterophylla*. The leaflets vary from five, or even three, on the earlier leaves, to seven." *Gen. Ill. l. c.*—In seedling plants, raised in the Cambridge Botanic Garden, I have noticed a lusus of the earliest leaves, in which the leaflets are confluent.

(586.) *U. SPECIOSA*, *Endl.* Finer specimens of both sexes; from New Braunfels.

(587.) *SAPINDUS MARGINATUS*, *Willd.*; *Torr. & Gray, Fl. 1. p. 255*; *Gray, Gen. Ill. 2. t. 180.* New Braunfels. June, (in flower.)

RHAMNACEÆ.

364. *ZIZYPHUS OBTUSIFOLIA*, *Gray, Gen. Ill. 2. p. 170. t. 163.* *Rhamnus obtusifolius*, *Hook. in Torr. & Gray, Fl. 1. p. 685.* *Paliurus Texanus*, *Scheele in Linnæa, 21. p. 580.* Bottom woods of Comale Creek, New Braunfels, &c.; common. A shrub or small tree, with slender shoots and greenish-white bark; several times flowering between March and September. No. (588) is the same plant in flower, and in ripe fruit, the fruit ripening the season after flowering.¹

¹ Another species, gathered by Dr. Gregg between Matamoros and Mapimi, may be thus characterized:—

ZIZYPHUS LYCIOIDES (*sp. nov.*): glabrata; ramis valde spinosis; foliis oblongo-linearibus parvis integerrimis coriaceis; pedunculis brevissimis 3-5-floris; drupa subglobosa monosperma. — The sharp and straight thorns are from one to two inches in length: the specimen shows no stipular spines. Leaves half an inch long, one or two lines wide, obtuse. Fruit, of the size of that of the Buckthorn, said by Dr. Gregg to be black and edible.

365. COLUBRINA TEXENSIS: caule ramosissimo, ramulis divaricatis cinereis; foliis elliptico-cuneatis oblongisve glanduloso-denticulatis breviter petiolatis alternis plerumque in nodos fasciculatis supra pubescentibus nunc glabratis subtus sericeo-villosis fulvis penniverviis basi trinervatis; pedunculis fasciculatis paucis petiolo longioribus calyceque (laciniis patentibus) villosis. — Rhamnus? Texensis, *Torr. & Gray, Fl.* 1. p. 263. — Prairies and borders of woods on the Guadaloupe and Comale. (Also communicated by *Mr. Wright.*) Flowers in May; fruits in June. — Shrub 2 to 5 feet high, rigid. Leaves three fourths of an inch long. Pedicels two to four together from the centre of the cluster of leaves, two or three lines long in flower, in fruit becoming half an inch or more in length. Calyx-tube adherent to the ovary and filled with the broad annular disk; the lobes widely spreading, broadly triangular-ovate, nearly herbaceous. Petals unguiculate, shorter than the subulate-filiform filaments, scarcely equalling the calyx. Styles three, sometimes four, united at the base, stigmatose on the inner face above. Ovary immersed in the adherent disk. Fruit dry and capsular at maturity, tricocous, somewhat three-lobed, globular, girt at the base by the persistent and adherent base of the calyx, three-seeded. Seeds lenticular, plano-convex, shining. Cotyledons plane; albumen very thin. This shrub, of which we at length are provided with complete specimens, has nearly the flowers of a *Zizyphus*, but the fruit of a *Ceanothus*. It appears to be a genuine *Colubrina*.

366. CONDALIA OBOVATA, *Hook. Ic. Pl.* t. 287; *Torr. & Gray, Fl.* 1. p. 685; *Gray, Gen. Ill.* 2. t. 164. “On slopes, near watercourses; common from Matagorda Bay to New Braunfels. — Shrub, or small tree, sometimes 20 to 30 feet high, with a trunk one foot in diameter. Flowers very sparse. August, September. The wood dyes blue. Called here *Blue-wood* or *Logwood*.” No. (589) is the same plant, in flower and fruit.

† CEANOTHUS OVALIS, *Bigel. Fl. Bost. ed. 2. p. 92.* C. ovatus, *Desf. Arb. 2. p. 381.* Rocky heights, along the Pierdenales and Sabinas. June (in fruit.)

LEGUMINOSÆ.

(590.) VICIA LEAVENWORTHII, *Torr. & Gr. l. c.* W. Texas.

367. PHASEOLUS RETUSUS, *Benth. Pl. Hartw. No. 59, p. 11.* P. maculatus, *Scheele in Linnæa, 21. p. 465.* On rocky or gravelly soil in the dry bed of the Cibolo River. June, September. "Prostrate; the stems often running for twenty feet." In cultivation it is more or less voluble. The leaflets are thicker in texture and more reticulated than those of *P. perennis*, not acuminate, but obtuse or many of them retuse. They are more dilated at the base than in my specimen of Hartweg's plant, but otherwise, there is little perceptible difference. Mr. Wright met with it all the way to the Rio Grande, and Dr. Wislizenus in Chihuahua.

† P. DIVERSIFOLIUS was found on the Liano; and APIOS TUBEROSA and CLITORIA MARIANA on the Pierdenales.

368. GALACTIA TEXANA: procumbens, subvolubilis, cinereo-tomentosa, trifoliolata; foliolis ovalibus retusis setaceo-mucronatis supra cinereo-puberulis subtus sericeo-canescensibus; racemis paucifloris folio brevioribus petiolum raro superantibus; legumine eximie falcato sericeo folia excedentibus. — Lablab Texanus, *Scheele in Linnæa, 21, p. 467.* — New Braunfels. August. Root ligneous. Leaflets 1 to 1½ inch long, in appearance intermediate between those of *G. mollis* and *G. canescens*, less whitened beneath than in the latter. Flowers little larger than those of *G. mollis*, with hirsute, more attenuated and longer calyx-lobes. Legumes 2½ inches long, linear, strongly falcate, densely silky, 9–10-seeded. I do not observe the muricate-tuberculate sutures mentioned by Scheele. Seeds oval, chestnut-colored, with a brown hilum, not strophiolate. The species is nearest allied to what I take to be *G. mollis*, *Michx.* Mr. Scheele, with his usual wisdom, provisionally refers the plant (without fruit) to Lablab!

369. RHYNCHOSIA TEXANA, Torr. & Gr. *Fl.* 1. p. 687. New Braunfels; prostrate, or climbing over bushes. August. It has the aspect of a Galactia.

370. GALACTIA CANESCENS, Benth. *Comm. Legum. Gen.* p. 62; Torr. & Gr. *Fl.* 1. p. 288, & p. 687. Heterocarpæa Texana, Scheele in *Linnaea*, 21, p. 467. Rocky soil, New Braunfels. June, September. "Often flowering a second time after the rains in September, as is the case with many other plants." — Stems creeping; many of the racemes becoming subterranean, and bearing globular, membranaceous legumes which are filled by a single large seed; while the legumes which fructify above ground are linear-oblong, canescent, and 4-5-seeded; as is mentioned in the *Fl. N. Amer.* p. 687. On this Mr. Scheele has founded his new genus *Heterocarpæa*, which he thinks is very distinct from any other known!

(591.) G. HETEROPHYLLA (*sp. nov.*): cano-sericea; caulibus gracilibus e basi suffruticosa decumbentibus; foliolis oblongis subcuneatis obtusis retusisve mucronulatis, aut 3 lateralibus a terminali paulo remotis brevissime petiolulatis, aut in plurimis 4-5, accessoriis cum lateralibus digitatim insertis; racemis brevibus paucifloris; calycis laciniis triangulari-oblongis sericeis corolla multo brevioribus, superiore bidentato; legumine puberulo recto inferne angustato 3-6-spermo. — On the Liano, October. — Remarkable for its prevailingly 4-5-foliolate leaves, although some in each specimen are only 3-foliolate; the additional leaflets are mostly rather smaller than the others, and inserted with the lateral pair. Stems 6 to 20 inches long. Leaflets half an inch long, thickish, silky-canescens, especially underneath, with a closely appressed and silvery pubescence; the veins rather prominent underneath. Stipules subulate: stipels deciduous. Peduncles 1-4-flowered. Corolla nearly half an inch long, fully twice the length of the calyx; the vexillum appears to have been pale yellow! the other petals rose-color. Legume $1\frac{1}{2}$ inches long. Seeds, style, &c. as in the genus to which I refer this in some respects anomalous species.

371. *SESBANIA MACROCARPA*, Muhl.; Torr. & Gr. Fl. 1. p. 293. Banks of Comale Creek. August, September.

(592.) *TEPHROSIA LINDHEIMERI* (*sp. nov.*): caule prostrato nunc adscendente flexuoso ramoso pube brevi tomentuloso; foliolis 7–13 late obovatis cuneatisve sæpe retusis mucronulatis subtus præsertim incano-sericeis; stipulis brevibus subulatis; racemis laxè multifloris; lobis calycis subulatis tubo sublongioribus; legumine pube brevi densa velutino. — Muskit prairies, on the Liano. August. (Also gathered by Mr. Wright in Western Texas.) Stems rather stout, 3 or 4 feet long, from a tuberous and ligneous root. Leaflets 8 to 12 or sometimes 18 lines in length, roundish-obovate or broadly cuneiform; the pairs rather distant on the rachis. Raceme 7–9 inches long, exceeding the leaves, 20–30-flowered. Corolla nearly as large as that of *T. onobrychoides*, over half an inch broad, purple.

372. *PSORALEA CUSPIDATA*, Pursh. Fl. 2, p. 741; Torr. & Gr. Fl. 1, p. 688. *P. cryptocarpa*, Torr. & Gr. l. c. p. 301. *P. Rœmeriana*, Scheele in *Linnaea*, 21, p. 463.¹ New Braunsfels; sparsely on rocky prairies. May, June. “Flower entirely blue.” — The caudex or root often bears a globular tuber, as in *P. esculenta*, &c. The spikes become oblong or cylindrical, and looser in fruit; the bracts are ovate-oblong or obovate, and abruptly cuspidate-acuminate; the calyx is somewhat gibbous, and its lower lobe soon elongated; points in which the species is not quite correctly described in the Flora. The legume is utricular, membranaceous and fragile.

(593.) *PSORALEA CYPHOCALYX* (*sp. nov.*): striguloso-subcinerea, caulibus e caudice lignescente tuberifero erectis simplicibus; foliis digitatis 3–5-foliolatis; foliolis linearibus (majoribus 3-pollicaribus) mucronulatis supra glabratis nigroglandulosis; stipulis subulatis; spicis longiuscule pedunculatis

¹ The *Indigofera Lindheimeriana*, Scheele in *Linnaea*, l. c. is evidently *I. Anil*, L. *β. polyphylla*, DC., which I have from Texas by Mr. Wright (although neither Dr. Engelmann nor I have received it from Mr. Lindheimer,) and also from South Carolina, where, according to Mr. Ravenel it occurs not uncommonly in cultivated fields.

interrupte multifloris fasciculis approximatis; bracteis ovatis acuminatis; calycis tubo valde obliquo postice saccato pedicillum bis terve excedente, lobis lanceolatis acuminatis margine albo-villosis, superioribus ultra dimidium coalitis.— Rocky prairies on the Cibolo and Pierdenales, growing sparsely. May, June (in flower.)—Caudex perpendicular, dilated below the summit into a globular tuber, of nearly an inch in diameter. Stem 2 to 3 feet high, simple, or sparingly paniculate at the summit. Lower petioles nearly as long as the leaflets; the latter 2 or 3 lines wide. Spikes dense, one or two inches long. Flowers apparently pale purple, fully half an inch in length; the pedicels scarcely a line long. Calyx conspicuously glandular; the tube remarkably one-sided, nearly straight on the lower side, but strongly gibbous-saccate or almost calcarate on the upper! The free apices of the nine filaments are very short, all antheriferous; five of them spatulate, the four intermediate triangular and shorter. Ovary glabrous. Fruit not seen.

(594.) *P. HYPOGÆA*, Nutt., var. *SCAPOSÀ*: pedunculis petiolos v. folia æquantibus, $1\frac{1}{2}$ – $2\frac{1}{2}$ unc. longis.— Stony soil, hills on the Pierdenales, near Fredericksburg. April. (Western Texas, Mr. Charles Wright.)—Tuber globular or pointed upwards, sending forth a slender caudex, beset with membranous scales. From the Canadian River we have specimens gathered by Mr. Gordon, which are intermediate, as to the length of the peduncle, between the Texan plant and that described by Nuttall.

373. *P. FLORIBUNDA*, Nutt. in Torr. & Gray, *Fl.* 1. p. 300. Prairies on Comale Creek. In black, clayey soil, New Braunfels, “growing in patches, many stems from the same base, forming a large and dense bush.” June.— May not this rather than *P. obtusiloba* (of which Mr. Wright has sent characteristic specimens from Texas,) be the *P. tenuiflora* of Pursh and Nuttall?

374. *EYSENHARDTIA AMORPHOIDES*, H. B. K. *Nov. Gen. & Sp.* 6. p. 491, t. 592; Schauer in *Linnæa*, 20, p. 747. E.

Drummondii, *Torr. & Gray, Fl.* 1. p. 690, sine descr. *E. Texana*, *Scheele in Linnæa*, 21. p. 462. — Rocky precipices, Upper Guadalupe. August. Also gathered by Mr. Wright. "Shrub 4 to 7 feet high." Vexillum barely emarginate. Style little curved at the apex. Ovary with two collateral ovules. Legume linear and arcuate or sabre-shaped, compressed, 5 or 6 lines long, sessile, glandular, dotted, with a single oblong seed pendulous from near the apex, empty below, agreeing with those of *E. amorphoides*, as described by Schauer, and as observed in Mexican specimens of Coulter's Collection. The foliage is rather smoother, the vexillum less notched, and the style less hooked than in the Hartwegian specimens of *E. amorphoides*; but those of Coulter and of Dr. Edwards are intermediate; so that I have no reason to think that the Texan plant is a distinct species. The tenth stamen is scarcely free in either. All the specimens show an oval gland near the apex of the style. — A second species, however, with a 4-ovulate ovary, gathered by Dr. Wislizenus, has been characterized by Dr. Engelman, as below.¹

† AMORPHA FRUTICOSA, *Linn.*; var. subglabra; foliolis ellipticis retusis supra nitidis. — On a creek near Fredericksburg. June. — One of the forms of this polymorphous species, nearly the same as the *A. nana*, *Bot. Mag.* t. 2112.

(595.) *A. FRUTICOSA*, *Linn.*; var. subglabra; foliolis oblongis seu lineari-oblongis. *A. Lewisii*, *Lodd. ! Cat.* — New Braunfels. Like the last, except that the leaflets are narrower and seldom retuse. I know of no constant characters for distinguishing *A. glabra*, *Desf.*, *A. Caroliniana*, *Croome*,

¹ "*E. SPINOSA* (*n. sp.*): fruticosa; ramis squamosis rachidi spicarum persistente lignosa spinosis; foliis 6-8-jugis; foliolis minutis ovatis acutis adpresse pilosis; spicis paucifloris; calycis obconico-campanulati dentibus triangularibus obtusis inæqualibus; vexillo profunde bilobo; staminibus subdiadelphis; ovario 4-ovulato et stylo apice uncinato pilosis. — On Lake Encinillas, north of Chihuahua, *Dr. Wislizenus*; in flower, August and September. — A rough looking, in many respects, remarkable shrub, 2-3 feet high, with black bark. Leaves 4 to 6 or 7 lines long: leaflets 1-1½ lines long. Spikes an inch long, with a stout persistent rachis: flowers at first white, then rose-colored: uppermost (vexillary) filament shortest and almost free, adhering to the tube only at its base: style strongly hooked." — *Engelm. Mss.*

A. nana, Nutt., *Bot. Mag.*, and *A. lævigata*, Nutt. from *A. fruticosa*. The *A. Rœmeriana*, *Scheele in Linnæa*, 21. p. 461, is doubtless a form of *A. fruticosa* or of *A. paniculata*.

375. *DALEA LAXIFLORA*, Pursh. *Fl.* 2. p. 741; Torr. & Gray, *Fl.* 1. p. 307. *D. penicillata*, Moric. *Pl. Nouv. Amer.* t. 45. Dry and rocky prairies, between the Rio Colorado and Guadalupe. June, in flower. September, in fruit.

† *D. POGONATHERA*, Gray, *Pl. Fendl.* p. 31. On the Llano. October. — Stems a span high, numerous, from a thickish, apparently perennial root. Vexillum violet-purple.

† *D. AUREA*, Nutt. *Gen.* 2. p. 101. Dry prairies, Upper Guadalupe. June.

† *D. NANA*, Torr. in Gray, *Pl. Fendl.* p. 31. Post-Oak openings, on the Pierdenales. June. Also gathered by Mr. Wright on the Rio Grande, and by Mr. Gordon on the Arkansas.

376. *D. FRUTESCENS* (*sp. nov.*): glaberrima; caulibus lignescentibus ramosis glandulis tuberculiformibus raris obsitis; foliolis 6–8-jugis glaucescenti-æuginosis obovatis retusis obcordatisve manifeste petiolulatis subtus (rachique in foliis summis submarginata) grosse glandulosis; spicis paniculatis brevibus paucifloris; bracteis coriaceis ovatis muticis glandulosis calycem vix æquantibus caducis; tubo calycis sessili glabro glandulis magnis cerinis ornato, dentibus brevibus triangulato-subulatis margine villosis; corolla violacea, carina maxima vexillo plus duplo longiore. — Rocky hills, and high plains, along the margin of thickets, on the Guadalupe, Sabinas, and Pierdenales. July, August. (Western Texas, and on the Rio Grande, Mr. Charles Wright. Monterey, N. Mexico, Dr. Edwards in *Herb. Torr.*) This is a shrubby species, a foot or two in height, and totally distinct from *D. citriodora*, for which I at first mistook it. The flowers are more like those of *D. nutans*, but they are much fewer, sessile, the calyx remarkably glandular; the leaflets are of a different form, not at all crenate; and there is a gland,

instead of a subulate stipel, on the rachis at the insertion of each leaflet.¹

(596.) *ASTRAGALUS CARYOCARPUS*, *Ker, Bot. Reg.* t. 176; *Torr. & Gray, Fl.* 1. p. 331. Clayey soil, near Victoria. February, in flower. Also (598) in Western Texas, in flower and fruit.

(597.) *A. MEXICANUS*, *Alph. DC. Pl. Rar. Hort. Genev. not.* 5. p. 17. t. 3. *A. trichocalyx*, *Nutt. in Torr. & Gray, Fl. l. c.* Prairies on the Lower Guadalupe, west of Victoria. February, in flower. — This and the last species, although often confounded in herbaria, are manifestly distinct in the living state. *A. caryocarpus* has more strigose and somewhat canescent, oblong or linear-oblong leaflets, close and fine hairs on the calyx, sometimes blackish, a violet purple corolla, the flower about two thirds of an inch long, and ovate pointed legumes, which are seldom more than two thirds of an inch in diameter. *A. Mexicanus* is a larger plant in all its parts, with smoother and greener foliage; the leaflets varying from roundish-obovate to oblong; the flowers an inch long; the calyx villous, (often very densely) with soft, white hairs; the corolla barely tinged above with pale violet, or nearly white; and the very turgid globose-ovoid legumes are obtuse and over an inch in diameter.²

¹ *Petalostemon virgatum*, *Scheele in Linnæa*, 21, p. 461, is plainly the No. 42, *Pl. Lindh.* and No. 137, *Pl. Fendl.*, viz. a pubescent variety of *P. violaceum*, perhaps connecting that species with *P. decumbens*. The leaves in some specimens are indeed 7-foliolate, in others both 5-foliolate and 3-foliolate. — *Trifolium Rœmerianum*, *Scheele, l. c.* is manifestly the *T. amphianthum*, *Torr. & Gray, Fl.* 1. p. 316.

² This Texan plant is clearly De Candolle's *A. Mexicanus*; but Dr. Engelmann thinks it distinct from the *A. trichocalyx*, of Missouri; on account of the still larger and pale purple flowers, and shorter calyx-teeth. The remarks above are chiefly founded on living plants of *A. trichocalyx* and *A. caryocarpus*, raised from seeds furnished by Dr. Engelmann from St. Louis.

Mr. Wright has communicated specimens of a new Texan species of *Astragalus*, and also seeds from which the plant has been raised, during the past summer in the Cambridge Botanic Garden.

ASTRAGALUS WRIGHTII (*sp. nov.*): annuus, pumilus, hirsuto-canescens; caule subsimplici; stipulis subulatis liberis; foliolis 3-5-jugis oblongis acutiusculis; pedunculis folio longioribus paucifloris; floribus capitatis; calyce hirsutissimo, lobis lineari-subulatis attenuatis corollam violaceam superantibus legumine oblongo hirsuto subtereti fere biloculari 6-4-spermo dimidio brevioribus. — Texas, near Austin, *Mr.*

(599.) ZORNIA TETRAPHYLLA, *Michx. Fl.* 2. p. 76. Post-Oak openings west of the Pierdenales. June.

(600.) LUPINUS TEXENSIS, *Hook. Bot. Mag.* t. 3492. New Braunfels. Not distinct, I fear, from *L. subcarnosus*.

377. CERCIS OCCIDENTALIS (*Torr. ined.*): frutex; foliis subreniformibus obtusissimis; leguminibus oblongis obtusissimis breviter apiculatis vix stipitatis. — *C. Siliquastrum*, var. *Benth. Pl. Hartw.* No. 1706, p. 307. — Var. floribus etiam paulo minoribus, foliis supra nitidioribus. *C. reniformis*, *Engelm. Mss.* Rocky plains of the Upper Guadalupe. March, in flower; June, with ripe fruit. A shrub, forming thickets, never becoming a tree. — This is entirely distinct from *C. Canadensis*; but does not differ from the Californian plant of Fremont and of Hartweg, except that the flowers are a little smaller still, being no larger than those of *C. Canadensis*, and the full-grown leaves are rather thicker and more shining above. The Texan and the Californian plants agree in their short and scarcely stipitate pods (only 2 or $2\frac{1}{2}$ inches long, and two thirds of an inch broad,) which character, with the size of the flowers, would seem abundantly to distinguish it from *C. Siliquastrum*, the legumes of which, including the manifest stipe, are six, or at least five inches in length. (Dr.

Charles Wright. — The plants from seeds sown in the spring blossom from midsummer to autumn. Stem a span high, seldom branched. Leaflets 4 lines long, the upper surface sparsely, the lower densely beset, like the stem, &c., with villous-hirsute loosely appressed hairs. Peduncles in fruit 2 or 3 inches long. Legumes half an inch long, densely hirsute, straight, rather acute, tipped with the short style, often carrying away the inconspicuous corolla upon its apex as it enlarges, nearly erect, only three or four produced in each capitulum, scarcely twice the length of the persistent sessile calyx. Bracts subulate, the lower resembling the calyx-lobes. — Mr. Wright has also detected *Oxytropis Lamberti*, *Pursh*, in Western Texas; and likewise a unifoliate *Desmodium*, namely: —

DESMODIUM WRIGHTII (*sp. nov.*): caulibus gracilibus ramosis puberulis; foliis unifoliolatis breviter petiolatis; foliolo membranaceo oblongi-ovato obtuso basi subcordato fere glabro; stipulis stipellisque subulatis minimis; racemis laxis; fomento 3-4-articulato breviter stipitato, articulis inæquilateris ovalibus. — Austin, Texas, *Mr. Charles Wright.* — Stems one or two feet high. Leaves veiny, paler and minutely pubescent underneath, mucronulate; the lower two inches long, on petioles half an inch long; the upper successively narrower and smaller, on shorter petioles. Legume less than an inch long; the stipe as long as the staminal tube. l

Gregg has gathered fruiting specimens of the same plant in the high lands near Saltillo, Mexico, in 1848.) — Dr. Engelmann states that it is peculiar to the limestone districts of Middle Texas.

378. SOPHORA (STYPHNOLOBIUM) AFFINIS, *Torr. & Gray, Fl. 1. p. 390.* Margin of Cotton-wood groves along the Rio Colorado, above Bastrop: August (in fruit); also near New Braunfels and San Antonio, common; April, in flower. — “A small tree, 10 to 12 feet high, the trunk 4 to 8 inches in diameter, rarely a small shrub; the annual shoots with green bark, fragile; the wood very heavy.” Leaflets less than an inch long, nearly of the same hue both sides, retuse or very obtuse. No. 601 is the same plant, from New Braunfels.

379. SOPHORA (DERMATOPHYLLUM) SPECIOSA, *Benth. Mss.* *Dermatophyllum speciosum, Scheele in Linnæa, 21. p. 459.* *Sophora sempervirens, Engelm. Mss.* “On the western part of Matagorda Bay, where it forms groves. Also sparsely on rocky hills, margins of Cedar woods along the Guadalupe, near New Braunfels, &c. Flowers in February. A small tree, about 30 feet high; the wood yellow, hard, and heavy, called *lignum-vitæ*. Flowers, showy, blue, sweet-scented, exhaling nearly the fragrance of violets. The tree forms small groves on the shores of Matagorda Bay, where it is the only fire-wood. The wood dyes yellow.” Also gathered by Berlandier, and by Mr. Wright. The large, woody pods, two to four inches long, are sometimes constricted between the seeds, sometimes barely torose. Mr. Bentham remarks, in *Herb. Torr.*, that, “at present *Dermatophyllum* can only be admitted as a section to include *S. speciosa*, *S. secundiflora*, and an intermediate species collected by Dr. Gregg in Northern Mexico, until the pods of all the genus are better known.” — No. (602) is the same species from New Braunfels, flowering in March, either a shrub or a small tree.

(603.) HOFFMANSEGGIA JAMESII, *Torr. & Gray, Fl. 1. p. 393; Gray, Pl. Fendl. p. 38.* Stony soil on the Liano. October; the second flowering, after the burning of the

prairies. Shrubby, many stems form a large ligneous root, one or two feet high. Upper surface of the leaves smooth, and with the petals, destitute of the black glands. "Petals yellow; stamens red."¹

380. CASSIA (CHAMÆSENNÀ) LINDHEIMERIANA (*Scheele in Linnæa*, 21. p. 457): perennis, undique tomento sericeo mollissimo albicans; foliolis 6-8-jugis oblongis utrinque obtusis basi inæqualibus aristato-mucronatis subtus argenteo-sericeis; glandula cum stipite tomentoso setiformi inter omnia paria; stipulis subulatis caducis; racemis folium æquantibus plurifloris; legumine lato-lineari complanato parce pilosulo. — Rocky plains and margin of woods, New Braunfels, &c. September. Also found by Mr. Wright from San Marcos to the Rio Grande. — Stems 4 or 5 feet high, from a thick, perennial root, clothed like the petioles, peduncles, stipules, &c. with a dense velvety tomentum. Leaflets from one to nearly two inches in length, silky above, silvery-sericeous beneath, tipped with a very conspicuous mucro. The setiform gland, with its stipe, between each pair, is a line long. Petals golden yellow with dark veins, half an inch in length. Anthers 7, chocolate-colored; the three upper stamens rudimentary. Legumes 2 inches long, over 2 lines wide. Seeds as in the section. — A species apparently allied to *C. argentea* and *C. mollissima*, *H. B. K.*

¹ The subjoined, very distinct species, comes from the southern borders of Texas.

HOFFMANSEGGIA CAUDATA (*sp. nov.*): frutescens; ramis glaberrimis superne rachique foliorum glandulis minimis rariter conspersis; foliis bipinnatis; pinnis 2-3-jugis abrupte 8-10-foliolatis, cum impari elongata 24-30-juga; foliolis glaberrimis omnino glandulosis rotundatis oblique subcordatis venosis; stipulis bracteisque caducis; racemo sparsifloro; legumine acinaciformi dilatato glanduloso. — Sandy soil, between the Nueces and the Rio Grande, Texas, *Mr. Charles Wright*. August, September. — This species is remarkable for its smoothness (some small tack-shaped glands only occurring on the calyx, or a few still minuter ones scattered on the upper part of the branches and the petioles,) and for the elongation of the terminal pinna, which is two or three inches in length, and bears many pairs of leaflets; while the lateral ones are scarcely an inch long. The leaflets are about two lines in length, thickish, obscurely mucronulate, subsessile, oblique. Raceme sparsely 6-9-flowered. Legume nearly two inches long and two thirds of an inch wide, flat, reticulated, furfuraceous-glandular, and roughened with subsessile blackish glands. There are no expanded flowers; the raceme of one specimen bears unopened flower-buds.

381. *C. (CHAMÆSENNA) RÆMERIANA*, (*Scheele, l. c.*): caule suffruticoso cinereo-pubescente; foliolis unijugis e basi inæquilatera rotundata lanceolatis acutiusculis mucronatis supra puberulis subtus strigoso-pubescentibus; glandula subulata interposita; stipulis setaceis caducis; racemis paucifloris folium superantibus; legumine lineari-oblongo basi attenuato subfalcato glabello. — Rocky plains of the Upper Guadalupe. August. Also communicated by *Mr. Wright*. — Plant one or two feet high, much branched. Leaflets about two inches long, gradually tapering from the rounded inæquilateral base, sometimes a little falcate, beneath somewhat cinereous with fine strigose hairs. Petals yellow, with brownish veins, one third of an inch in length. Legumes an inch or little more long, with a prominent border, minutely and sparsely strigose.¹

† *C. PUMILIO (sp. nov.)*: subcaulescens e caudice lignescente, strigulosa; foliolis unijugis linearibus subtrinervatis; glandula nulla; petiolo in appendicem setaceam producto; stipulis setaceo-subulatis petiolo basi adnatis rigidis persistentibus; pedunculis unifloris folio longioribus infra apicem unibracteatis; sepalis obtusissimis; staminibus 3 superioribus difformibus castratis; ovario glaberrimo; fructu ignoto. — On the Liano and Pierdenales. “Only two small specimens were seen.” Rio Grande, Texas, *Mr. Charles Wright*. The caudex of this singular dwarf species scarcely rises out of the

¹ From the Rio Grande, Texas, as well as from Northern Mexico, we have the subjoined species, which is said by Mr. Bentham (in *Herb. Torr.*) to be “a very distinct, new species, apparently near *C. bauhiniaefolia*.” It belongs, however, to the section *Chamæsenna*.

CASSIA (CHAMÆSENNA) BAUHINIOIDES (sp. nov.): humilis, suffruticosa, hirsuto-sericea; foliolis unijugis rariusve bijugis oblongis vel subovatis utrinque rotundatis inæquilateris sericeo-canescensibus; glandula interposita; stipulis setaceis persistentibus; pedunculis 2-3-floris; legumine membranaceo turgido rectiusculo hirsuto. — On the Rio Grande, Texas, August (in fruit,) *Mr. Charles Wright*. Santa Rosalia, Northern Mexico, May (in flower only,) *Dr. Gregg*. Between El Paso and Chihuahua, August, *Dr. Wislizenus*. — The plant of *Dr. Wislizenus* is 10 inches high, larger in all its parts and less canescent than the other specimens, which are from three to six inches high. The peduncles in the latter are shorter than the leaves. The three upper stamens are rudimentary; the linear-oblong anthers open only by a terminal pore. Legumes an inch long, slightly curved upwards, very obtuse, and with an incurved apiculate tip.

ground. Leaves crowded. Leaflets an inch or less in length, one to two lines wide, rather rigid, as long as the petiole. Peduncle one or two inches long, slender. Corolla two thirds of an inch in diameter, pale yellow in the specimens. The seven perfect anthers open by a terminal pore; the three upper stamens are abortive, as in the section *Chamæsenna*, to which, so far as can be told in the absence of the fruit, this species would seem to belong.

382. *ALGAROBIA GLANDULOSA*, Torr. & Gray, *Fl.* 1. p. 399. Common on the Guadalupe, &c. May, in flower; August, with unripe fruit.—The *Muskit* “forms open woods in high, rocky plains, and wet, clayey bottoms. Trees from 30 to 40 feet high, with few and large, erect branches; the trunk often from one to two and a half feet in diameter; the heart-wood dark reddish brown; but often occurring as a small tree or shrub. Important as furnishing the only fire-wood in Western Texas; also for its edible fruit.” *Lindheimer*. — The foliage appears different from that of *A. dulcis*, *Benth.*, in Hartweg’s Mexican Collection.

383. *MIMOSA LINDHEIMERI* (*sp. nov.*): fruticosa, glabra, v. sub lente minutim puberula; aculeis infrastipularibus validis geminis (nunc solitariis ternisve) recurvis, petiolaribus minutis raris v. nullis; stipulis subulatis etiam spinescentibus; pinnis 4–6-jugis; foliolis 8–12-jugis oblongis; pedunculis folium subæquantibus; capitulis globosis; bracteolis minutis; floribus 5-meris glaberrimis; legumine glabro lineari-oblongo seu falcato margine aculeis validis sparsis subuncinatis armato. — Rocky plateaus near New Braunsfels, and on the Upper Guadalupe, not seen on the Pieddenales. July, in flower, and with young fruit: August, with ripe fruit. — Shrub two or three feet high; the branches armed with very stout, compressed, infrastipular aculei, which are sometimes solitary, geminate, often usually in threes. Occasionally there are one or two minute prickles on the rachis of the leaves. Calyx purple, very glabrous. This species is nearly allied to *M. acanthocarpa*, of Mexico, from which it differs in the want

of pubescence, except a mere trace under the lens, and in the spinescent stipules. The valves of the pod somewhat incline to break transversely into pieces.

(606.) *M. FRAGRANS* (*sp. nov.*): fruticosa, erecta, glaberrima; aculeis infrastipularibus solitariis subrecurvis; petiolis inermibus gracilibus; pinnis 1-3-jugis (in ramis floridis sæpissime unijugis); foliolis 5-6-jugis lineari-oblongis; pedunculis axillaribus sæpius fasciculatis folio æqualibus capitulum globosum gerentibus; floribus 5-meris 10-andris glabris; petalis liberis calyce parvo quadruplo longioribus; legumine lineari falcato 6-8-articulato membranaceo glaberrimo inermi, rariusve margine aculeis 1-3 armato. — Rocky soil, on the Pieddenales. April, in flower (606); May, with immature fruit (607). (Also gathered near Austin by *Mr. Wright*). — “Shrub 3 or 4 feet high, covered at the season of blossoming with the heads of light purplish-red, fragrant flowers.” Aculei short and stout. Leaflets rather thin, not crowded as in the preceding species, rather sparse on the sterile branches, where they are two lines long; on the flowering branches smaller. Peduncles nearly an inch in length, larger than the head. The unripe pods are two inches long; strongly falcate, the margins sinuate so that the joints are well defined, and the transverse lines at which the valves will separate are already evident. — This species is allied to *M. borealis*, *Gray, Pl. Fendl.* (which much resembles *M. depauperata*, *Benth.*) of which I think I have a Texan specimen from *Mr. Wright*; but the pinnæ are much longer, with more numerous and narrower leaflets, and the pods are different. It is perhaps the same as a North Mexican species of *Dr. Gregg*, indicated by *Mr. Benth* (in *Herb. Torr.*) as “*Mimosa, n. sp. near M. terniflora*,” a species which I do not find anywhere enumerated.¹

¹ On the Rio Grande, Texas, *Mr. Wright* gathered specimens of the subjoined species of the section *Habbasia*, § *Rubicaules*, *Benth.*

MIMOSA MALACOPHYLLA (*sp. nov.*): suffrutescens, pube mollissima undique sericeo-tomentosa; caulibus procumbentibus angulatis petiolisque copiosissime aculeatis, aculeis brevibus uncinato-retrorsis; pinnis 4-7-jugis; foliolis 5-8-jugis ovatis

384. *SCHRANKIA PLATYCARPA* (*sp. nov.*): glabra, leviter aculeata; pinnis 4-6-jugis; foliolis oblongis ciliatis aveniis: leguminibus latiuscule linearibus compressis acuminatis aculeis brevibus echinatis pedunculo subduplo longioribus, valvulis planis margine persistente (reple) fere duplo latoribus. — *Mimosa Rœmeriana*, *Scheele in Linnæa*, 21. p. 456? — Dry, stony, prairies, New Braunfels. April, in flower; September, in fruit. — I have seen this species from other Texan correspondents. It is distinguished from *S. angustata*, in some degree by its rather broader and more ciliate leaflets, and obviously by its legumes, which are about three inches long, but a quarter of an inch in width, flat, and about twice the breadth of the persistent margin; thus confirming Mr. Bentham's remark, that the genus is not sufficiently distinct from *Mimosa*. The valves are rather sparsely, the thickened margin densely, echinate with very short, somewhat uncinatè prickles. From the locality this is most probably the *Mimosa Rœmeriana* of Scheele; but that blundering and unscrupulous propounder of species had not seen the legumes, and his description applies nearly as well to any other *Schrankia*. To the latter genus, so long as it is maintained, the present species must be referred, notwithstanding the flatness of the pod.

385. *DESMANTHUS VELUTINUS* (*Scheele in Linnæa, l. c.*): adscendens v. prostratus e basi suffrutescente; caulibus petiolisque pube mollissima cinereis; pinnis 3-6-jugis, glandula parva concava inter infimas; foliolis 10-20-jugis lineari-oblongis aveniis margine præsertim pilosis; floribus decan-

vel ovali-oblongis mucronatis; panicula racemosa laxa; floribus 5-meris 10-andris; legumine lato-lineari longiuscule stipitato membranaceo glabro nitido inermi 6-8-spermo. — On the Rio Grande, Texas, *Mr. Charles Wright*. August, September, in flower and fruit. Also gathered near Monterey, Northern Mexico, by *Dr. Gregg* and *Dr. Edwards*, without fruit; and east of Rinconada by *Dr. Gregg* in 1848. — Plant with the habit of a *Schrankia*, canescent with a fine and very soft down; the partial and general petioles as well as the stem beset with numerous short uncinatè prickles. Leaflets 3 to 5 lines long. Flowers white, according to Mr. Wright, yellowish according to Dr. Gregg. Legume two inches or more in length, with a stipe half an inch long, very smooth.

dris; leguminibus linearibus elongatis rectis v. rectiusculis acuminatis lævibus 10–20-spermis; seminibus rhombo-orbiculatis. — Rocky soil, and on grassy slopes, near New Braunfels. August, chiefly in fruit. Also near Austin, *Mr. Charles Wright*. — A well marked species, which Scheele has described from some of the rather imperfect fruiting specimens gathered by Lindheimer in 1846, in which the legumes are sometimes only an inch and a half long, and a little falcate. But in better specimens, particularly in those of 1847, the pods are straight, from two to three inches long, often 20-seeded. The seeds are not obovate-elliptical, but roundish-obovate, or somewhat rhombic by mutual pressure. It is distinguished from all the species I am acquainted with by its downy stems and minute gland; from *D. depressus* by its pointed pods. — *D. depressus*, *Kunth*, is common at Key West and Cape Florida, and occasionally comes from Texas. There, however, a more common species is the allied *D. acuminatus*, *Benth. in Jour. Bot.* 4, p. 357, which is readily known by its shorter, falcate, and pointed pods. In cultivation it is prostrate. *D. reticulatus*, *Benth.*, has also been received from Mr. Wright.

386. *D. BRACHYLOBUS*, *Benth. Mimoseæ, in Jour. Bot.* 4. p. 358. *D. falcatus*, *Scheele in Linnæa*, 21, p. 455. Wet soil near Comale Creek, &c. May, in flower; August, in fruit. This does not grow in dry, rocky soil, nor the foregoing in wet places, as is stated by Scheele, who has evidently transposed the tickets of these two plants.

387. *ACACIA RÆMERIANA*, *Scheele in Linnæa*, 21. p. 456. Rocky soil, near San Antonio, and from New Braunfels to the Guadalupe. April, in flower; June, in fruit (605). — This would appear to be the *Acacia Ræmeriana* of Scheele, said to have been gathered near Austin by Mr. Römer, except that the flowers are “yellowish-white” (*Lindh.*) instead of rose-color, and the leaves usually bear three pairs of pinnæ. The leaflets, 4 to 5 lines long, are membranaceous in the flowering specimens, but firmer in those in fruit. The species be-

longs to Bentham's section *Vulgares*, and subsection *Pennatæ*. The legume is coriaceo-chartaceous, continuous within, flat, linear-oblong or oblong, somewhat falcate, $2\frac{1}{2}$ to 4 inches long, an inch or less in width, raised on a short stipe. Seeds oval, flat, brown. It is said to be a shrub, or small tree, with the stem one or two inches thick. There are specimens of it in Dr. Gregg's North Mexican collection. Another Acacia of the latter collection, marked by Mr. Bentham *A. (Ataxacanthæ) n. sp.*, not unlike the above in foliage and fruit, but with a different inflorescence, was found by Mr. Wright from San Antonio to the Rio Grande.¹

(604.) Same as the foregoing, with larger leaflets; in flower only.

(605.) These are fine fruiting specimens, which I refer to *A. Ræmeriana*, and to them alone the remarks above, as respects the legumes, refer.

ROSACEÆ.

388. PRUNUS MINUTIFLORA (*Engelm. ined.*): nana, intricato-ramosissima, glabra, ramulis novellis vix puberulis; foliis parvis ovalibus obovatisve obtusissimis integerrimis aut obsolete parceque denticulatis; floribus solitariis subsessilibus minimis 10-15-andris; calyce turbinato; fructu immaturo subgloboso cano-tomentoso. — Hills and dry slopes between San Antonio and New Braunfels, in large clusters. March, in flower; the unripe fruit (4 lines in diameter) gathered at the end of May. — Shrubs one or two feet high, forming dense masses. Leaves from 3 to 5 lines long, on short, glandless petioles, fascicled, coriaceous, smooth, entire, sometimes tridentate or with one or two obscure lateral denticulations, which are at first somewhat glandular. Stipules very minute. Flowers solitary, a line and a half in length; the peduncle shorter than the calyx. "Stamens 10 to 15, in two

¹ Among Dr. Gregg's plants I find well-marked specimens of *A. amentacea*, DC., a species not identified by Mr. Bentham. It was gathered, in flower, near Rinconada.

or three circles, the innermost partially abortive." *Engelm.* — Closely allied to the *Amygdalus microphylla*, *H. B. K.*, and very likely to prove a variety of it, judging from the fragment of that plant which I possess from Schlechtendal. These, with *P. glandulosa*, belong to the subgenus *MICROCERASUS*, *Webb*, characterized by *Spach in Ann. Sci. Nat.* 2. Ser. 19. p. 125; a group "intermediate between the true *Cerasi* and *Prunus* [but referred by these authors to the former] and also nearly allied to some *Amygdali*." It embraces *Cerasus prostrata*, *C. orientalis*, and some other oriental species.

389. *P. RIVULARIS*, *Scheele in Linnæa* 21. p. 594. *P. Tawakonia*, *Lindheimer, Mss.* (which name was doubtless appended to the specimen received by Scheele.) Banks of streams and margins of bottom-woods, forming thickets near the water, rarely on higher places, Upper Guadalupe, and between Comale Creek and the Colorado. March, in flower; June, in fruit. "Shrub from two to six feet high. Fruit ripe in June, of the size of a cherry, or a little larger, acidulated, cherry-red. The Tawakony Indians boil them and eat them with honey. Called *Tawakony Plum.*" *Lindheimer.* — The same plant extends northward into Missouri, and passes, if I mistake not, into an evident form of *Prunus Americana*, or *P. nigra*, if the two species are to be distinguished. *P. Texana*, *Scheele, l. c.* gathered at New Braunfels, by Mr. Römer, is probably the same species.

† *CERASUS SEROTINA*, *DC.*; *Torr. & Gray, Fl.* 1. p. 410. On the Pieddenales. April, in flower. A tree or a large shrub.

(608.) *ROSA FOLIOLOSA*, *Nutt. in Torr. & Gray, Fl.* 1. p. 460. Hills of the Sabinas and Three Creeks. May. — Stems less than a foot high, from a creeping rootstock. "Flower very fragrant."

† *CRATÆGUS COCCINEA* var. ? *MOLLIS*, *Torr. & Gray, Fl.* 1. p. 465. *C. mollis*, *Scheele in Linnæa*, 21. p. 569. Muskit flats near San Antonio. March, in flower. — If this be admitted to rank as a species, it must bear, I believe, the name of *C. subvillosa*, *Schrad.*

ELATINACEÆ.

390. ELATINE (MERIMEA SEU BERGIA) TEXANA, *Hook. Ic. Pl.* t. 278; *Torr. & Gray, Fl.* 1. p. 678. E. (Bergella) Texana, *Gray, Gen. Ill.* 1. p. 218. t. 96. In slow flowing rivulets, New Braunfels. August. — This is a pentamerous and decandrous or sometimes pentandrous Elatine, with the aspect of Bergia, for which, in the work above cited, I have indicated a distinct section.

LYTHRACEÆ

† LYTHRUM ALATUM VAR. OVALIFOLIUM: humile; foliis suborbiculatis et ovalibus, floralibus oblongis calyce brevioribus. *L. ovalifolium, Englm. Mss.* Springs of the Pierdenales, on rocks covered by water. October. — Stems a foot high, from long and creeping stolons. Leaves one third of an inch long. This evidently runs into the next.

(609.) *L. ALATUM*, var. *PUMILUM*: foliis ellipticis oblongisve, caulibus spithamæis. Rocks partly covered with water, in Sister Creek. April. — Mixed with this in the distribution are a few fruiting specimens of

† *L. ALATUM*, var. *BREVIFLORUM*: glabrum, ramosissimum; ramulis angulatis; foliis linearibus plerisque alternis, floralibus, flores approximatos 6-petalos 6-andros subæquantibus; calyce fructifero campanulato seu brevissime clavato subpedicellato; stylo incluso vel breviter exserto. — Damp rocks on the Guadalupe, near running water. The specimen is the branching summit of an apparently rather tall stem, which has lost its lower leaves. The floral leaves are only from one to three lines long; the flowers are so approximated as at length to form a virgate spike. The calyx even in fruit is barely a line and a half in length. Petals purple, small, those of the later flowers minute or wanting. The style is shorter than the petals, often included, or barely equaling the stamens; but the specimen, perhaps, belongs to a staminal form. Vide *Pl. Lindh.* p. 8. No. 52.

(610.) *L. ALATUM*, var. (*LANCEOLATUM*), *Torr. & Gray, Fl.* 1. p. 481. *L. lanceolatum*, *Ell. Sk.* 1. p. 544. Wet prairies, on the Pieddenales. May. — A form with dwarf stems, a foot or less in height, from long, and deeply subterranean root-stocks or stolons.

† *L. ALATUM*, var. γ . *Torr. & Gr. l. c.* — On the Cibolo. — Leaves mostly alternate.

† *L. ALATUM*, var. *LINEARIFOLIUM*: caulibus ramosissimis; foliis linearibus plerisque alternis, floralibus calyce subæqualibus. — Rocks in the Cibolo River. This and the var. *ovalifolium* are two extreme forms, on either hand, of what I take to be one polymorphous species; for which the name *L. lanceolatum*, *Ell.*, would be much more appropriate than that of Pursh. They may embrace several of the tropical American species in the books; but they pass into one another in such a way that Dr. Engelmann and I can fix upon no reliable distinguishing characters.

† *AMMANNIA LATIFOLIA*, *Linn.*; *Torr. & Gr. Fl.* 1. p. 480. (the *A. stylosa*, *Fisch. & Meyer, Ind. Sem. Hort. Petrop.* 7, p. 41): var. *octandra*, staminibus exsertis, stylo brevi incluso! *A. Texana*, *Scheele in Linnæa*, 21, p. 588. Upper Guadeloupe.

ONAGRACEÆ.

391. *CENOTHERA* (*MEGAPTERIUM*) *MISSOURIENSIS*, *Sims, Bot. Mag.* t. 1592; *Torr. & Gr. Fl.* 1, p. 500: var. *A.* foliis anguste lanceolatis linearibusve. *Megapterium Missouriense*, *Spach.* Rocky plains and slopes, on the Pieddenales and Upper Guadeloupe, and in the dry bed of the Cibolo. April to July; in flower and fruit. Also gathered by Mr. Wright, who sends seeds from which the plant has been raised in the Cambridge Botanic Garden. “Capsule larger or smaller, orbicular, or elliptical-oblong; corolla from two to five inches in diameter. This runs, by every gradation in the broadness of the leaves into the var. β . *LATIFOLIA* foliis lato-lanceolatis vel ovato-lanceolatis, (*C. macrocarpa*, *Pursh.*; *Sweet, Brit. Fl. Gard.* t. 5. *Megapt. Nuttallii*, *Spach.*) Nor, with both

plants in cultivation, do I discern any distinction in the flowers or pods. On the Upper Platte and Canadian, Fremont and Mr. Gordon have gathered specimens in which even the full-grown leaves &c. are silvery-canescens; namely, var. γ . INCANA: foliis lanceolatis vel ovatis undique argenteo-incanis.

392. *Œ.* (LAVAUXIA) TRILOBA, *Nutt. in Jour. Acad. Philad.* 2. p. 118; *Hook. Bot. Mag.* t. 2566; *Torr. & Gray, l. c.* *Œ.* Rœmeriana, *Scheele in Linnæa*, 22. p. 154. Muskit flats, New Braunfels. March, April. In cultivation, and I think also in the wild state, this is a biennial. It forms a dense cone of pods at the crown, which rises to the height of two or three inches in the course of the season, and the root does not survive the winter. The flowers, which open about sunset, are cream-colored or nearly white.

393. *Œ.* (MERIOLIX) SERRULATA δ . SPINULOSA, *Torr. & Gray, Fl.* 1. p. 502; subvar. floribus, ut in No. 238, maximis, calycis fauce cum stigmate sæpius atropurpurea interdum fusca v. flava.—Rocky banks of the Cibolo River. April. In cultivation, as in the wild plant, the throat of the calyx and the disk-shaped stigma, one or both, are sometimes deep black-purple, sometimes brownish or yellow. The plant forms rather stout and decumbent woody stems, two or three feet long, producing a great number of branches, and flowering throughout the summer.

394. *Œ.* SERRULATA, *e.* PINIFOLIA, *Engelm.*: foliis angustissimis fere filiformibus sæpe fasciculatis marginibus revolutis integris; floribus maximis (ut in præcedente). *Œ.* capillifolia, *Scheele in Linnæa*, 21. p. 577. Rocky prairies, New Braunfels. April.—This is just the *Œ.* serrulata var. spinulosa, except that the leaves are extremely narrow. It is vain to attempt to erect the varying forms of this and other polymorphous *Œ.*notheræ into separate species.

(55.) *Œ.* SPECIOSA, *Nutt.* New Braunfels, March.

(53.) *Œ.* DRUMMONDII, *Hook.* Galveston. March to May.

† *Œ.* JAMESII (*Torr. & Gray, Fl.* 1. p. 693): pube ap-

pressa cinereo-canescens; caule erecto elato (5-10-pedali) lignescente; foliis oblongo-lanceolatis acutis repando-denticulatis; spica multiflora conferta; tubo calycis prælongo (4-5-unciali) canescente crassiusculo apice ampliato segmentis 2-3-plo ovario multoties longioribus; petalis flabelliformibus maximis (2-3-pollicaribus) stylum vix æquantibus; stigmatibus prælongis; capsula cylindræa subcinerea. — Banks of rivulets on the Upper Guadalupe; also on the San Fernando and the Liano. August. — Cultivated from Texan seeds, this most showy and almost gigantic species flowers in October, either as an annual or a biennial, bearing profusion of flowers, of which an unusual number are open at the same time. Although altogether like that of an ordinary annual or biennial, the tall stem becomes perfectly woody below, and often two inches in diameter at the base. The expanded corolla is four or five inches in diameter, as large as in *Æ. Missouriensis*; the anthers three fourths of an inch, and the stigmas half an inch, in length.¹

395. *LUDWIGIA NATANS*, *Ell. Sk.* 1. p. 581; *Torr. & Gray, Fl.* 1. p. 526. *L. fluitans*, *Scheele in Linnæa*, 21. p. 580. Comale Spring, in clear rivulets. May, in flower and fruit. — This is Elliott's plant in all respects.

† *L. PALUSTRIS*, *Ell. l. c.* On the Liano. November.

(240.) *GAURA DRUMMONDII*, *Torr. & Gray, Fl.* 1. p. 517. New Braunfels, April.

(241.) *G. PARVIFLORA*, *Dougl. in Hook. Fl. Bor.-Am.* San Antonio.

(60.) *G. SINUATA*, *Nutt.; Torr. & Gray, l. c.* New Braunfels.

(611.) *GAURA SUFFULTA* (*Engelm. Mss.*): annua; caule 1-2-pedali pilis longis patentibus barbati-villoso; ramulis floriferis cum floribus bracteisque glaberrimis; foliis pilosiusculis glabratis lanceolatis utrinque attenuatis repando-sub-

¹ *Æ. uncinata*, *Scheele in Linnæa*, 21. p. 578. is not to be identified by the vague description. It was gathered on a prairie near Houston by Mr. Römer, and is not likely to be new.

dentatis, inferioribus oblongo-lanceolatis petiolatis; floribus 4-meris 8-andris; bracteis oblongis ovario longioribus e basi brevi persistente caducis; rachi ideoque squarroso-dentata; tubo calycis ovario longioribus segmentis brevioribus; nuce sessili alato-tetraquetra ovato-pyramidata glabra, faciebus concavis unicostatis lævigatis aut basi parce subtuberculatis. — Cedar woods, in sandy and rocky soil, New Braunfels. May, June, in flower and fruit. — Plant, with much the aspect of *G. Drummondii*; but the leaves smoother, less toothed, and “longer petioled than any other;” the stem villous or hirsute below with long spreading hairs, while the rachis, calyx, bracts, &c. are perfectly glabrous. The petals appear to be paler than those of *G. Drummondii*, and the fruits are closely sessile, without any narrowed base or stipe. It is much more closely related to the *Gaura tripetala*, *Cav.*; judging from Spach’s description, and from Texan specimens with triquetrous fruit and trimerous flowers, gathered by Mr. Wright, which agree well with the character.¹

† MYRIOPHYLLUM HETEROPHYLLUM, *Michx.* With the next.

† PROSERPINACA PECTINACEA, *Lam.* On the Pierdenales.

LOASACEÆ.

396. MENTZELIA OLIGOSPERMA, *Nutt.*; *Torr. & Gray, Fl.* 1. p. 533. Thickets, on high, rocky plains of the Upper Guadalupe. August.

† MENTZELIA (BARTONIA) NUDA, *Torr. & Gray, Fl.* 1. p. 535; *Gray, Pl. Fendl.* p. 47. Springs of the Cibolo, Guadalupe, and Pierdenales, in rocky soil. July, October. “Stems three to five feet high: petals expanded in the evening, not in the morning.”

† EUCNIDE BARTONIOIDES, *Zucc. Pl. Hort. Bot. Monac. fasc. 5, in Abhandl. Baier. Akad. Wissensch.* 4. t. 1. Mi-

¹ *Gaura hirsuta*, *Scheele, in Linnæa*, 21. p. 580, described from specimens gathered by Römer between Bastrop and Austin, does not accord with the present species, but is likely to be either *G. Lindheimeri* or *G. biennis*. *G. Rœmeriana* of the same author, from New Braunfels, described without the fruit, may be safely referred to *G. Drummondii*.

80/80
 crosperma bartonioides, *Walp. Repert.* 5. p. 776, & *Ann. Bot. Syst.* 1. p. 794; *Hook. Bot. Mag.* t. 4491. On perpendicular rocks, near New Braunfels. April, in flower. (Also on rocky cliffs near Ojito, April, *Dr. Gregg.*) "Plant succulent, full of aqueous juice." — Hooker's prior name of *Microsperma* must give way to *Eucnide*, Zucc., as there is a much older genus *Microspermum* of Lagasca, also Mexican. *Eucnide lobata* (*Microsperma lobata*, *Hook. Ic. Pl.* t. 234, probably also *M. rudis*, *Schauer in Linnæa*, 20. p. 721, as the stamens are not always as short as in Hooker's figure), was likewise gathered near Monterey, Saltillo, &c. by Dr. Gregg, and at Zimapan, by Coulter.

PASSIFLORACEÆ.

PASSIFLORA TENUILOBA (*Engelm. Mss.*): "petiolis brevibus eglandulosis; foliis supra pilis brevibus subscabris subtus glabriusculis trinerviis reticulatis basi biglandulosis subcordatis trilobis, lobis lateralibus lanceolato-linearibus elongatis cuspidatis horizontaliter divergentibus vel recurvatis, medio brevissimo in fol. inferioribus integro in superioribus breviter trilobo; stipulis setaceis; pedunculis binis petiolum bis superantibus; cirrho elongato simplici; floribus exinvolucratis apetalis; calyce 5-lobato virescente. — On the Liano; coll. in October. — Apparently near *P. normalis*, *L.*, of Jamaica, which is unknown to me. Herbaceous, sub-erect, slender. Petioles 2, the peduncles 3–3½, lines long. Leaves rather rigid, with revolute margins, 5 or 6 lines long, but from 3 to 5 inches in transverse diameter; the lobes about 3 lines wide, the lateral ones sometimes bearing a posterior tooth or lobule. Flowers 8 or 9 lines in diameter. Only a single specimen was gathered by Lindheimer." *Engelm. in litt.* — I have this plant from Mr. Wright, gathered two years since, between San Antonio and the Rio Grande. Fine fruiting specimens also have just reached me in the collection made by this enterprising botanist last summer between San Antonio and El Paso, New Mexico. The fruit is about the size of a musket ball. Seeds ovate, acute at both ends, tuberculate.

397. *SICYOS ANGULATUS*, *Linn.* Bottom woods of Comale Creek, climbing trees. May.

398. *CYCLANTHERA DISSECTA*, *Arn. in Hook. Jour. Bot.* 3. p. 280. *Discanthera dissecta*, *Torr. & Gray, Fl.* 1. p. 696. *Echinocystis pedata*, *Scheele in Linnæa*, 21. p. 586. Margin of woods and hedges. June, in flower. — The genus *Discanthera* is correctly referred by Prof. Arnott to *Cyclanthera* of Schrader.

399. *CUCURBITA PERENNIS*: radice carnosissima; foliis strigoso-canescens cordato-ovatis vel triangulatis sursum angustatis indivisis vel subsinuato-repandis margine denticulatis; calycis lobis subulatis tubo æqualibus; fructu globoso. — *Cucumis?* perennis, *James in Long's Exped.* 2. p. 20; *Torr. in Ann. Lyc. New York*, 2. p. 242; *Torr. & Gray, Fl.* 1. p. 543. Plains and prairies, in dry, clayey or sandy soil, near San Antonio and New Braunfels. May. — "Trailing on the ground. Root from six inches to three feet thick, fusiform, yellow inside." Fruit yellow, globose, two or three inches in diameter." — This plant has been in cultivation in the Cambridge Botanic Garden for the last two or three years, from Texan seeds. It flowers freely, and has produced full-grown fruit, which, however, has not ripened. Our plants are *diœcious*, but it is *monœcious*, according to Dr. James. It may be the *Cucurbita fœtidissima*, *H. B. K.*, as Dr. Torrey long since suggested, but that plant is said to be an annual, like the rest of the genus; besides, ours is not fetid. In its calyx, gamopetalous campanulate corolla, exappendiculate anthers, and even in the tumid margin of the seeds (although said by Dr. James to be acute) it accords with *Cucurbita*. Mr. Fendler met with the plant at Santa Fe; Dr. Gregg, between Saltillo and Parras, and, according to Dr. Engelmann, "Dr. Wislizenus found the same plant in the mountains of Chihuahua, with pyriform fruit."

400. *C. TEXANA*: (an *C. ovifera*, var.?) *Tristemon Texanum*, *Scheele in Linnæa*, 21. p. 586, & 22. p. 352. Margin of thickets, in moist woods, on the banks of the Upper

Guadaloupe, "apparently indigenous." September. This has also been cultivated in the Cambridge Botanic Garden. The column sometimes contains as many as four stamens. The pyriform fruit is just that of *C. ovifera*, of which our plant may possibly be only a naturalized variety.

401. *LAGENARIA VULGARIS*, *Seringe*. Bottom woods, Comale Creek. September. Probably early naturalized. The fruit is said to be globose.

(612.) *SICYDIUM* (an *Melothriæ* sect.?) *LINDHEIMERI* (*sp. nov.*): radice crassa perenni; foliis subreniformibus carnosis 3-5-lobatis partitisve et sinuato-dentatis tuberculis vel pustulis subtus prominulis scabratis ceterum cauleque glabris; pedunculo in pl. mascula atque fœminea folio brevior, masculo 3-9-floro, fœmineo unifloro; calyce fl. masc. infundibuliformi, fœm. supra ovarium longe producto anguste tubuloso, lobis petalis oblongis duplo brevioribus; bacca globosa rubra (diametro pollicari); seminibus abortu paucis turgidis rotundatis subcompressis submarginatis hilo bidentatis. — Thickets, from New Braunfels to the Liano; procumbent or climbing. June. (Also gathered in Texas, by *Mr. Charles Wright*.) — Root large and fleshy. Stems slender. Leaves succulent, from one to three inches in diameter, either moderately or deeply lobed. Flowers from one third to half an inch in length, greenish; the calyx of the sterile tubular-funnel form. Stamens 3, subsessile in the throat of the calyx; two of them bilocular, the thecæ separated by a rather broad and slightly two-lobed connective; the third of only one theca (or, as taken by some authors, 5 and triadelphous); the loculi linear-oblong, straight. Fertile flowers with the calyx-tube constricted above the globular ovary and prolonged into a rather slender beak, then funnel-form like the sterile, but bearing rather longer subulate calyx-lobes. Sterile filaments 3, short, one of them simple, the two others two-cleft, subulate. Petals, as in the sterile flower, entire, obscurely ciliate, oblong, a little narrowed below, unconnected, separately inserted into the throat of the calyx. Style a

little longer than the calyx-tube, three-cleft at the apex; stigmas fleshy, dilated, granulose-fimbriolate. Ovary three-celled, many ovuled. Berry, pulpy, "deep red when ripe, an inch or more in diameter," globose, ripening few seeds. Seeds 3 lines long, roundish-oval, turgidly lenticular. — *Sicydium* was founded by Schlechtendal on a small-flowered Mexican diœcious plant, of which the sterile flowers alone are known. Until the fruit of that plant is identified it must remain doubtful whether ours belongs to the same genus. This has larger blossoms, and a more elongated calyx. But it accords with Schlechtendal's incomplete description in being diœcious, in the 5-petalous corolla, and in the three distinct stamens with straight anther-cells. The leaves vary in the depth and breadth of their lobes. From the Rio Grande, Mr. Wright has communicated fragmentary specimens of what is probably a variety of the same species, with the leaves dissected into linear or filiform lobes and segments.

CACTACEÆ; by *Dr. Engelmann.*

** Mr. Lindheimer has again sent many living specimens of Cactaceæ from New Braunfels, San Antonio, the Pierdenales, and the Liano. Among them I not only recognized all the species described in *Plant. Lindh.* (*Boston Journal*, Vol. V.) but found also a number of new forms. From other sources I have obtained other species from the lower Rio Grande. All these will be enumerated here in order to complete, as far as possible, the catalogue of the Texan Cactaceæ. A correspondence with Prince Salm Dyck, than whom none is better acquainted with these curious plants, and his examination of living specimens of most of the species, enables me to give this revision an authenticity not otherwise attainable.

MAMMILLARIA.

§ 1. *Fructu viridi, ovali; corolla persistente; testa seminum pergamentacea fusca; floribus ex axillis tuberculorum hornotinorum.*

M. CALCARATA (*M. sulcata*, *Engelm. Pl. Lindh. l. c.*, non *Pfeiffer*). Near *M. scolymoides*, *Schw.* but sufficiently distinct, according to Prince Salm. — Rocky and hard, clayey

soil, on the Upper Guadalupe. My specimens from there are mostly densely cæspitose; tubercles in thirteen oblique rows; proliferous groove producing the buds always near its upper end. Flowers 2 inches long and 2 to 2½ inches in diameter: sepals (or rather outer firmer perigonial leaves) 20–35: petals (inner more delicate petaloid perigonial leaves) 30–35, yellow (dirty yellow only when fading), reddish at the base.

M. COMPACTA, Engelm. in Wislitz. Rep. not. 32, from the mountains of Chihuahua is mentioned here only in order to add to the description of the plant that of the flower which I have had occasion to examine in the living state. — Floribus in vertice dense lanato centralibus; sepalis (17–19) lanceolatis acutis integris (rufescentibus, interioribus margine flavis); petalis (28) oblongo-lanceolatis mucronatis versus apicem denticulatis (sulphureis); stigmatibus 7–8 cuspidatis flavicantibus supra stamina (sulphurea) paulo exsertis. — Flowers at the end of June and beginning of July (in St. Louis). Flower-bud dark reddish brown: flower about 15 lines long and of the same diameter. Petals 6 lines long and 1¾ lines wide. Stigmata 2 lines long, cuspidate, as in *M. vivipara*, while all other species known to me have obtuse stigmata.

MAMMILLARIA RADIOSA (*sp. nov.*): simplex s. parce proliferata, ovata seu cylindrica; tuberculis teretibus supra plus minus sulcatis apice ex tomento albo aculeatis; aculeis rectis numerosis valde inæqualibus, plurimis (20–30) radiantibus tenuioribus albidis, centralibus 4–5 robustioribus fuscis s. rarius flavis, 3–4 sursum directis, singulo deflexo; axillis nudis, sulco subtomentoso; floribus (violaceis) ex axillis tuberculorum hornotinorum ortis sparsis (nec centralibus); sepalis petalisque lineari-lanceolatis acuminatis aristatis; sepalis (40–50) arachnoideo-fimbriatis, exterioribus brevioribus adpressis, interioribus longioribus recurvatis; petalis (30–40) integris s. basi subciliatis patentibus; staminibus (violaceis) numerosissimis æqualibus; stylo longe exserto; stigmatibus 7–9 (violaceis) erectis obtusis; bacca oblonga viridi floris

rudimento coronata; seminibus fulvis ovatis scrobiculato-punctatis. — Sterile, sandy soil on the Pieddenales: flowers (in St. Louis) about the middle of June. The flowers open for three days, in direct sunshine only, and later than most other Cactaceæ, viz., from 12 or 1 till 3 or 4 o'clock. Stems 2–4 inches high, about 2 inches in diameter, dark green; tubercles in 13 oblique rows;¹ radiant spines 3–4; central spines from 4–6 lines long: flowers $1\frac{1}{2}$ – $2\frac{1}{4}$ inches long, and about the same diameter when fully open, of a lighter violet color or of a splendid dark purple: stigmas deep velvety purple. — Very near *M. vivipara*, Haw., which has been found from the Upper Missouri to Santa Fe: this, however, is distinguished by its low, mostly cæspitose growth, by the smaller number of radiant spines (14–18), the absence of the deflexed central spine, the smaller *central* flowers, the apiculate stigmata, and smaller seeds: it also flowers earlier (in St. Louis about the middle of May), but, like *M. radiosa*, opens the flowers only after 12 o'clock. In *M. vivipara* the youngest tubercles produce in their axils the flowers which appear central, and remain so till after fructification, whereupon new tubercles are developed in the centre, and the young fruit is pushed aside and becomes more and more lateral. In *M. radiosa* the flower buds are also formed in the axils of the first young tubercles of the season, but are immediately pushed aside by a continuous growth of more tubercles; the buds as well as the flowers and fruits are therefore lateral. *M. vivipara* has not yet been found in Texas, though it may be expected in the mountainous regions bordering New Mexico.

§ 2. *Fructu coccineo; corolla decidua.*

* *Fructu clavato elongato; seminum testa pergamentacea,*

¹ It will hardly be necessary to mention that there are several different sets of rows of tubercles observable, but one set is usually more distinct than the others; they depend on the size of the plant, and the number, size, and closeness of the tubercles. It is well known that in different specimens of the same species they turn to either side, right or left.

*fusca; caule simplici, succo lacteo; floribus ex axillis tuberculorum anni prioris.*¹

MAMMILLARIA APPLANATA (*n. sp.*): simplex, depressa; tuberculis elongato-pyramidatis subquadrangulatis apice ex tomento albo lanoso demum evanescente aculeiferis; aculeis rectis 15–20 tenuioribus inequalibus radiantibus, singulo centrali robustiori erecto; axillis nudis; floribus sordide albidis s. rubellis; ovario glabro, sepalis 8–13 lanceolatis; petalis 12–18 lanceolatis mucronatis, internis versus apicem fimbriato-denticulatis; stigmatibus 5–8 stamina brevia pauca flavida longe excedentibus flavis; baccis elongato-clavatis; seminibus subgloboso-ovatis scrobiculatis rugulosis parvis.—Rocky plains on the Pieddenales: flowers (in St. Louis) in May. Flowers forming a circle or wreath, in the larger specimens, of 1–1½ inches diameter around the growth of tubercles of the same year, while the scarlet fruit is frequently still persistent and forms an outer circle. Plant 2½ to 4½ inches in diameter, 1–2 inches high, with an almost level top and depressed vertex; in larger specimens 34, in smaller ones 13 or 21, spiral rows of tubercles are most conspicuous. Radiating spines 2½–6 lines long, whitish; the 3 or 4 outer or lower are stouter and very light brown; the central spines erect, or rather somewhat inclined upwards and inwards, 2–4 (mostly 3) lines long, light yellowish brown. The innermost tubercles of the preceding year appear to produce the inconspicuous flowers, which are from 9 to 12 lines long, urceolate when not fully expanded in bright sunshine. Berry 8 to 15 lines long.

MAMMILLARIA HEMISPHERICA (*n. sp.*): simplex, hemisphæ-

¹ It has been stated over and over again, that all the *Cactaceæ paralleleæ* (with cotyledons parallel to the more or less compressed sides of the seed,) see *Wisl. Rep.* pp. 91 and 92) produce the flowers from the same year's growth, and the *Cactaceæ contrariæ* (cotyledons contrary to the compressed sides of the seeds) from that of the last preceding or former years. In *Wisl. Rep. l. c.* I have stated that some *Mammillarise* probably formed an exception to that rule. What was a supposition then I have since ascertained to be the fact. These few species, however, are the only ones in which I have as yet observed this exception.

rica; tuberculis elongato-pyramidatis subquadrangulatis apice ex tomento albo brevi mox evanido aculeiferis; aculeis rectis, 9–10 tenuioribus inæqualibus radiantibus, singulo centrali robustiori porrecto; axillis nudis; floribus sordide albidis s. rubellis; ovario glabro; sepalis sub-13 lanceolatis acutis vel obtusiusculis; petalis sub-13 oblongo-lanceolatis mucronatis integris s. versus apicem denticulatis; stigmatibus 5–8 ex flavido rubellis supra stamina numerosa rubella exsertis; bacis elongato-clavatis; seminibus elongato-ovatis rugulosis minutis. — Below Matamoras, on the Rio Grande; brought home by the St. Louis Volunteers, in 1846: flowers (in St. Louis) in May. Very similar to the last species, but well distinguished by the hemispherical shape, the much smaller number of shorter spines, the less woolly areolæ, and the much smaller, less rough, and lighter-colored seed. I can see no essential difference in the flower. Body of the plant 3–4½ inches in diameter, 2–3 inches high: flowers 10–15 lines long and about the same diameter when fully open in the forenoon sun, urceolate in the afternoon. Radial spines 2, or 3–4; the central spine 2–3 lines long.

MAMMILLARIA GUMMIFERA, *Englm. in Wisl. Rep. not. 33*, has now flowered with me, and proved, as was expected, similar to the two foregoing species. I add here the description of the flower. — Floribus rubellis; ovario glabro; sepalis sub-13 oblongo-linearibus obtusiusculis fimbriatis; petalis 16 lanceolatis breviter acuminatis denticulato-erosis; stigmatibus 6 stamina brevia rubella longe excedentibus petala subæquantibus virescentibus. — Flower 15 lines long, 6–12 lines wide when fully open, brownish red outside; the petals reddish white, with dark red in the middle. Flower larger than that of *M. applanata*, much darker and more elegantly colored; style longer, etc. Fruit not seen.

** *Fructu subgloboso; seminum testa dura nigra; caule prolifero (an semper?) succo aqueo; floribus ex axillis tuberculorum hornotinorum.*

MAMMILLARIA NUTTALLII, *Englm. in Pl. Fendl.*, from the

Upper Missouri; the only specimen I possessed was unfortunately destroyed. — *Mammillaria similis*, *Engelm. in Plant. Lindh. l. c.*, first discovered by Mr. Lindheimer near the Brazos, has since been found by him south of the Guadalupe, about New Braunfels and on the Pieddenales in several forms. It has frequently flowered with me and annually produces abundant fruit. I substitute the following character and description.

M. SIMILIS: subsimplex s. plerumque cæspitosa; tuberculis ovato-cylindræcis supra plus minus sulcatis (sulco in junioribus basin versus tomentoso sæpe prolifero) axilla tomentosis; areola albo-tomentosa demum nuda; aculeis 10–12 rectis albidis, radiantibus tenuioribus æqualibus, centrali nullo s. singulo robustiori; floribus ex axillis tuberculorum hornotiorum subcentralibus s. demum lateralibus (flavis s. ex rubello flavicantibus); sepalis petalisque lineari-lanceolatis acuminato-aristatis; sepalis 15–25 ciliato-fimbriatis sæpe plus minus recurvis; petalis 20–30 integris s. basi subciliatis; stigmatibus 5–8 virescentibus supra stamina numerosissima exsertis; bacca obovato-subglobosa coccinea; seminibus nigris subglobosis scrobiculatis majoribus.

α. CÆSPITOSA: gracilior; aculeis radiantibus sub-12, centrali subnullo; sepalis 15–20; stigmatibus sub-5.

β. ROBUSTIOR: subsimplex; aculeis radiantibus sub-10, centrali robustiori; sepalis 20–25; petalis 25–30; stigmatibus 7–8. Flowers (at St. Louis) in May. — Stems $1\frac{1}{2}$ – $2\frac{1}{2}$ inches high, obovate, of smaller diameter; tubercles in *α.* 8, in *β.* often in 13 rows; spines 3–4, in *β.* 4–8 lines long; central spine, when present, 6 lines long. Grooves proliferous towards the upper or the lower end. Flowers $1\frac{1}{2}$ –2 inches long, and of the same diameter when fully open, radiating like stars with their pale yellow, silky lustre, giving this species a most beautiful appearance when several open on the same morning: petals 12–15 lines long and 2 lines wide. Berries 3–5 lines in diameter.

ECHINOACTUS.

The specimens described in the account of Lindheimer's plants, under the name of *E. setispinus* were the most northern and rather diminutive forms of this beautiful species; the flowers were incorrectly described from a withered bud adhering to one of the specimens. Numerous plants have since been sent by Lindheimer from San Antonio, and by the St. Louis Volunteers from the lower Rio Grande.

ECHINOACTUS SETISPINUS (*Englm. l. c.*): ovato-subglobosus s. oblongo-cylindraceus; costis 13 acutis sæpe undulatis s. subinterruptis plus minus obliquis; areolis remotis, junioribus flavido- s. albido-tomentosis; aculeis radiantibus setiformibus 10-16, summis longioribus imisque flavicanti-fuscis, lateralibus albidis, centrali subsingulo robustiori fusco flexuoso s. apice uncinato; floribus solitariis nudis infundibuliformibus, tubo glaberrimo; sepalis inferioribus brevioribus obtusis s. cuspidatis 25-40, superioribus elongatis lanceolatis 15-25, omnibus margine membranaceis basi auriculato-cordatis tenuiter ciliatis; petalis 20-30 (cum basi miniata flavis) oblanceolatis acutis integris s. denticulatis; stylo supra stamina rubella longe exserto; stigmatibus 5-8 sulphureis recurvis s. erectis; bacca pulposa globosa rubra rudimentis sepalorum infimorum membranaceis stipata.

α. HAMATUS: major, subovatus; aculeis radialibus 10-12, centrali robustiori hamato. *E. hamatus*, Muhlenpf. *E. Muhlenplfordtis*, Fen.

β. SETACEUS: minor, subglobosus; aculeis radialibus 14-16, centralibus 1-3 setiformibus flexuosis. *E. setispinus*, Engelm. l. c. — Texas, from the Colorado to the Rio Grande. Flowers from April or May to October, and therefore, on account of its beautiful flower, one of the most valuable species for cultivation. — Plant 2-4 inches in diameter, and 1½-6 or 8 inches high, flowering when quite small, simple or (in cultivation at least) sometimes proliferous at base. Var. *α* is the larger southern form, with fewer, stouter, and longer spines (radial 6-16 lines, central 12-16 lines long). Var. *β* is the

smaller, more northern form, with more and thinner spines (radial 5-10, central 12-16 lines long). Flower from 20 to 35 lines long, and 24-30 in diameter when fully open; petals then often somewhat recurved: flowers open two days, only in bright forenoon sunshine. My specimens from the Rio Grande have 5 erect stigmata and a longer flower; all the others have 6-8 spreading or even recurved stigmata and a shorter flower-tube. Berry about 4 lines in diameter. Withered flower finally deciduous. Fruit often bursting, when the filamentous red pulp and the black, thimble-shaped, verrucose seeds are seen: this pulp is formed by the clavate, elongated, twisted funiculi, which most probably form the pulp of all the soft Cactus fruits, but they do not always remain as distinct as in this species.

ECHINOCACTUS TEXENSIS, *Hæpf.* (E. Lindheimeri, *Engelm. l. c.*) Mostly depressed, but sometimes globose. Common from the Colorado to the Rio Grande, and from thence to Saltillo (*Dr. Gregg*). Near New Braunfels it prefers the so-called Muskit-flats, or fertile level places with Muskit trees, overflowed in the rainy season. My specimens have several times fructified. Berry subglobose, pulpy, red, about 8 or 9 lines in diameter, covered with spiny bristles and soft wool, crowned by the woolly remains of the flower: seeds reniform, compressed, large, smooth and shining. Ribs in smaller specimens 13-14, in larger mostly 21, sometimes 24. Areolæ about 6 lines long, and 12 lines apart: spines from 6-10 lines long in some, 15-25 lines in others; sometimes the central spine is 2 or 3 lines broad. Flowers all open within a few days, in May (in St. Louis); unlike the last mentioned species.

CEREUS.

402. CEREUS CÆSPITOSUS, *Engelm. Pl. Lindh. l. c.* Common about New Braunfels; in flower in May. — This plant has been cultivated in Europe, as Prince Salm informs me, under the name of *Echinopsis Reichenbachiana*, Hortul., and has been confounded with *C. pectinatus*: compare *Wisliz.*

Rep. Appendix, note 45. This species has also been sent from Saltillo by Dr. Gregg. Mr. Lindheimer has sent from the granitic region of the Liano a beautiful variety with chestnut brown spines; β . CASTANEUS. — The characters given in *Pl. Lindh.* to this species have been corrected in *Wisliz. Rep. l. c.* I add here only that the fruit of this, as well as of all the other northern *Cerei* seen by me, ripens within a few weeks, contrary to what is observed in our *Mammillariæ* and *Opuntiæ*, and mostly bursts open longitudinally, when ripe. — I cannot omit an interesting morphological observation made on this species. The usual structure of the flower of all *Cerei* observed by me is the following. The ovary is covered with very short and (for the greater part) adnate sepals; the adnate part forms a protuberance (tubercle); the free part is mostly very small, often only a minute deciduous scale. In the axil of the scale we find the *areola*, covered with a short tomentum, long wool, and almost always with bristles or spines. All this together forms the *pulvillus* of authors. Next in order follow those sepals which form the tube of the flower. The lower of these are entirely similar to the sepals on the ovary. In the upper or interior sepals the tip, or free part, becomes larger and larger, more herbaceous, and finally more or less petaloid; the wool and bristles become scarcer, but the latter longer, and are produced from an areola which is almost always situated in the axil of the sepal, where its free part separates from the common tube. Now in *C. cespitosus*, the free upper part of these sepals of the tube is more and more elongated, somewhat terete, not foliaceous, and bears the areola with its wool and bristles just below the subulate or (in the innermost sepals) somewhat foliaceous tip, reminding us almost of the tubercles of a *Mammillaria*. The descriptions given in *Pl. Lindh.* and in *Wisliz. Rep.* have to be corrected accordingly.

CEREUS PROCUMBENS (*n. sp.*): humilis; caule subtereti s. angulato articulato ramosissimo; tuberculis aculeiferis distinctis 4–5-fariis; areolis parvis orbiculatis, junioribus breviter

albo-tomentosis; aculeis brevibus tenuibus albidis apice fuscis, 5-6 radiantibus, centrali singulo erecto paulo longiore; floribus diurnis; ovario tuboque brevi pulvillis sub-40 albidovillosis setas spinescentes breviores fuscas 6-9 gerentibus stipato; sepalis interioribus sub-15 lineari-lanceolatis acuminatis; petalis 18-20 oblongo-linearibus acutis mucronatis subintegris (violaceis); stigmatibus viridi infundibuliformi 10-partito stamina (pallide flavicantia) paulo superante. — On the lower Rio Grande, below Matamoras, collected by the St. Louis Volunteers, in 1846. — Plant spreading, 3-5 inches high: joints or branches $1\frac{1}{2}$ -2 inches long, $\frac{1}{2}$ inch in diameter, much contracted at the base: tubercles 4 or 5 lines distant from one another, often in 4 rows, whence the plant derives a distinctly quadrangular appearance, or in 5, when it is more cylindrical. Radial spines 6, or mostly only 5, the uppermost being frequently abortive, 1- $1\frac{1}{2}$ lines long; central spine $1\frac{1}{2}$ -2 lines as long, stouter, directed upwards. Flower 3 inches long, and as wide when fully expanded, of a delicate purple color: petals 4 lines wide, often, in a bright noonday sunshine, recurved. Bristles on the tube about twice as long as the wool, below $1\frac{1}{2}$ -2, above $2\frac{1}{2}$ -3, lines long. — We have in gardens in St. Louis a similar species in cultivation, under the name of *C. Deppii*; but, as Prince Salm informs me, widely different from the true *C. Deppii*. It is not known whence it was obtained. It is distinguished from *C. procumbens* by the larger, thicker, more cylindrical limbs: tubercles elevated, very distinct, in 5 or 6 rows; spines weaker and longer; 6-8 radial spines 5-6 lines long; ventral spine from 5 to 14 lines long; flower with a shorter tube, fewer pulvilli, with shorter wool, but longer and weaker bristles.

CEREUS RÆMERI (*n. sp.*): ovatus, e basi ramosus; costis sub-8 (7-9) tuberculatis interruptis; areolis orbiculatis, junioribus breviter tomentosis; aculeis albidis s. flavidulis demum cinereis teretibus, radialibus sub-8, centrali singulo robustiori porrecto; floribus diu noctuque apertis infundibuliformibus, limbo erectiusculo; sepalis ovarii et tubi 17

squamosis in axillis ex tomento albo brevissimo setas spiniscentes albidas 3-5 gerentibus; sepalis interioribus 8 ovato-oblongis carinatis obtusis mucronatis; petalis 10 obovato-spathulatis obtusis integris concavis chartaceis (coccineis); stylo longe supra stamina numerosissima exserto; stigmatibus 7 acutiusculis erecto-patulis viridibus. — Granitic region about the Liano: flowers (in St. Louis) in May. — Named after my friend Dr. F. Roemer, of the University of Bonn, who was the first to explore the geology of Western Texas, and brought the first specimens of this species. Sent also in numerous specimens by Lindheimer. Heads 3-4 inches high, $1\frac{1}{2}$ - $2\frac{1}{2}$ inches in diameter, single, or mostly 3-5 or even 10 from the same base; ribs interrupted: areolæ 4-8 lines distant from one another: radial spines 5-12 lines long; lateral spines longest: upper ones usually shortest; central spine 10-15 lines long. Flower open by day and night, for 4 or 5, and in cool cloudy weather as much as 6 or 7 days, 2 inches long, and one wide: petals 8-9 lines long, 5 lines wide, stiff: bristles on the tube 2-3 lines long. — The stiff and almost parchmentaceous petals are uninfluenced by sunshine or darkness like those of most other Cactaceæ. Several other northern species most probably agree in this particular, as especially *C. coccineus* and *C. triglochidiatus* of New Mexico; while other nearly related species have certainly diurnal flowers. — *C. coccineus* differs by the more numerous ribs, more numerous spines, larger and more crowded areolæ, etc. *C. polyacanthus*, Engelm. in Wisliz. Rep., has more numerous spines, and ten ribs, *C. enneacanthus*, Engelm. l. c., is larger with the tubercles less distinct, ten ribs; spines larger, angular.

CEREUS VARIABILIS, Pfeiff., with its beautiful white nocturnal flowers, delighted our volunteers in their camps on the lower Rio Grande. Young plants are procumbent, with terete or rather clavate branches: adult plants several (3-10) feet high, mostly triangular, with very long and stout, or sometimes quite short spines. Fruit large, luscious, with red pulp: seeds large, smooth, shining.

OPUNTIA.

§ 1. *Applanatæ.*

O. MACRORHIZA (*n. sp.*): prostrata; articulis obovato-orbiculatis planiusculis; pulvillis setis fuscis et sæpe aculeis singulis binisve instructis; aculeis teretibus validis porrectis s. paulo deflexis basi apiceque fuscis ceterum albidis cum adventitio inferiore graciliore reflexo sæpe deficiente; floribus sulphureis basi intus rubellis; ovario sepalis subulatis deciduis 13 in axillis setulas fuscas brevissimas gerentibus stipato; sepalis interioribus 15–18 subulatis et (internis) ovatis acuminato-cuspidatis; petalis 8 sepala superantibus late obovato-spathulatis obtusis cuspidatis eroso-denticulatis; stigmatibus 5 obtusis, adpressis, stamina numerosa æquantibus; bacca subpulposa clavata glabrata; seminibus marginatis. — Naked, sterile, rocky places on the Upper Guadalupe. Flowers (in St. Louis) in June. Root a large and fleshy tuber, sometimes 2 or 3 inches in diameter; joints 3–4 inches long, about $2\frac{1}{2}$ – $3\frac{1}{2}$ wide, hardly attenuate at the base. Leaves subulate, about 5 lines long. Areolæ $\frac{3}{4}$ –1 inch distant, more crowded toward the base and on the edges: spines (often wanting) 1 inch long, the smaller 4–6 lines long. Flower 3 inches in diameter: ovary $1\frac{1}{4}$ inch long: petals 1 inch wide, $1\frac{1}{2}$ inch long, pale yellow, red at the base. Fruit $1\frac{1}{2}$ inches long; the strongly margined seeds comparatively few, $2\frac{1}{2}$ lines in diameter. — I have found the same plant in similar situations in Western Arkansas; and it is possible that it may be one of Nuttall's new species (*O. mesacantha*, *O. cæspitosa*, or *O. humifusa*) of which I cannot find a description. — Nearly related to *O. vulgaris*.

O. INTERMEDIA, Salm. The species mentioned in *Pl. Lindh. l. c.* No. 1. has since produced abundant flowers and fruit, and proves to be the above plant. It is near *O. vulgaris*, but more erect, or ascending; the joints much larger; flowers larger ($4\frac{1}{2}$ –5 inches in diameter); ovary more slender, 2– $2\frac{1}{4}$ inches long, with 20–25 subulate sepals; petals obcor-

date; stigma 5-lobed, erect; fruit $2\frac{1}{2}$ inches long, 6–8 lines wide at the top, deeply umbilicate. Lindheimer's specimens are from Industry, south of the Brazos. I believe I have seen the same species near Natchitoches on Red River.

O. LINDHEIMERI (*n. sp.*): erecta, robusta; caule lignoso; articulis (magnis) ellipticis basi attenuatis planis; pulvillis remotis ad margines confertioribus griseo-tomentosis, setis flavidis aculeisque paucis instructis 1–3 compressis validis deflexis varie divergentibus stramineis, nunc cum 1–2 aculeis adventitiis gracilioribus; flore . . . bacca clavata elongata subpulposa glabrata; seminibus late marginatis.—About New Braunfels. Plant erect, often 6–8 feet high: stems terete ligneous, sometimes 6 inches in diameter, with gray bark, and very light, spongy wood. Larger joints 9–12 inches long, 5–7 broad. Areolæ $1\frac{1}{2}$ –2 inches distant on old joints; bristles on them 1–3 lines long. Spines all pale yellow, much compressed, indistinctly annulated, $\frac{1}{2}$ –1 inch long, various; the 3 longer spines, or the one longer, with one or two shorter spines. The fruit, which Lindheimer has sent as belonging to this species, resembles very much that of *O. vulgaris*, 2– $2\frac{1}{2}$ inches long, slender, with a deep umbilicus, very different from that of the following species. Seeds 2– $2\frac{1}{4}$ lines in diameter, not numerous. Young plants grown from this seed have the same compressed spines, but are brown at the base; the lower areolæ produce no spines, but a quantity of long, coarse hair.—I add here the following species, though not properly belonging to the flora of Texas, because I suspect that it is also found at the mouth of the Rio Grande, within the limits of Texas. There, and especially on the barren sand islands at the Brazos, near Point Isabel, the St. Louis Volunteers found large and impenetrable thickets formed by an *Opuntia* with large joints, covered with almost globose fruits, with innumerable small seeds, and a very luscious deep red pulp. The fruit and seed are before me, but unfortunately I did not obtain a living specimen.

O. ENGELMANNI (*Salm. Mss.*): erecta; articulis orbiculato-

obovatis planiusculis; pulvillis remotis ad margines confertioribus griseo-tomentosis setis flavidis aculeisque paucis compressis ancipitibus instructis, 1-4 validis sæpe inæqualibus plus minus deflexis varie divergentibus basi rufis, ceterum stramineis cum adventitio infimo graciliore albido sæpe deficiente; fl. . . . bacca ovata subglobosa late umbilicata pulvillis pluribus tomentosis stipata; seminibus minoribus anguste marginatis. — From El Paso to Chihuahua, indigenous and cultivated, *Dr. Wislizenus*. No doubt, also, on the Texan side of the Rio del Norte. — Erect, 5-6 feet high. Upper and larger older joints 12 inches long by 9 broad. Areolæ $1\frac{1}{2}$ -2 inches distant: bristles 2-6 lines long: spines 1- $1\frac{3}{4}$ inches long, very stout. Fruit $1\frac{1}{2}$ - $1\frac{3}{4}$ inches long, about $1\frac{1}{2}$ in diameter; umbilicus large, (10-12 lines) flat; pulvilli on the fruit about 5 lines distant. Seeds very numerous, about half as large in *O. vulgaris*, $1\frac{1}{2}$ - $1\frac{3}{4}$ lines in diameter, of an irregular shape. — Near *O. Dillenii* and *O. polyantha*, as Prince Salm informs me.

§ 2. *Cylindricæ.*

O. FRUTESCENS, *Engelm. in Pl. Lindh. l. c.* under *O. fragilis*, from which it widely differs, stands near *O. gracilis*, Salm. (raised from Mexican seeds), but is sufficiently distinct. (Salm.) Fruit by the abortion of the seeds very often sterile. — I had occasion to observe this species in blossom, and add the description of the flowers:

Floribus ex ramis anni prioris convenientibus; ovario clavato basi 5-gono sepalis subulatis sub-13 stipato; sepalis interioribus 8 lanceolatis ex viridi sulphureis; petalis 8 obovato-lanceolatis cuspidatis (sulphureis s. subvirescentibus); staminibus numerosis (40-50) inæqualibus (externis majoribus); stylo exserto; stigmatibus 5 adpressis albidis. — The flower cannot be distinguished from that of the *Opuntia appplanatæ*, but it is only 8-10 lines in diameter: ovary 9-12 lines long. Flowers (in St. Louis) July and August.

O. ARBORESCENS, *Engelm. in Wisl. Rep.*, is recognized by Prince Salm as identical with his *O. stellata*; but as no de-

scription of his plant has ever been published, he adopts the above name. G. E.

CRASSULACEÆ.

(245.) *SEDUM SPARSIFLORUM*, Nutt. Rocky soil, on the Upper Guadalupe. May, June.

UMBELLIFERÆ.

† *HYDROCOTYLE INTERRUPTA*, Muhl.; Torr. & Gray, *Fl.* 1. p. 599. Swamps, along the Guadalupe. July.

† *H. UMBELLATA*, Linn.; Torr. & Gray, *l. c.* In pools and clear streamlets on the Liano. October.

(613.) *H. REPANDA*, Pers.; Torr. & Gray, *l. c.* Near Fredericksburg, in moist places along creeks, creeping among high grass. September.

(614.) *SANICULA CANADENSIS*, Linn.; Torr. *Fl. New York*, 1. p. 265. t. 32.

403. *ERYNGIUM LEAVENWORTHII*, Torr. & Gray, *Fl.* 1. p. 604. Margin of woods, on clayey prairies, Comale Creek and San Marco. August.—Plant annual, ornamental in cultivation, when the heads turn red or purple.¹

¹ Lamarck first properly distinguished from *Eryngium aquaticum*, Linn., the var. β ., and characterized it as a distinct species, under the name of *E. Virginianum*. Later, Michaux, giving to the original *E. aquaticum* of Linnæus the name of *E. yuccaefolium*, described under the name of *E. aquaticum*, a plant which appears to be, not the *E. Virginianum* of Lamarck (which is described as only a foot or so in height, with long and narrow, ensiform, radical leaves, finely striate and ciliate, with distant spinules, Lamarck moreover citing the figure of *Pluk. Alm. t. 396*), but the much larger and broader-leaved plant which Elliott has well characterized under that name. Elliott's *E. Plukenetii* is truly *E. Virginianum*, Lam. I am indebted to H. W. Ravenel, Esq., of St. Johns, Berkley, S. Carolina, for full specimens and notes, accurately distinguishing these species, and another, which perhaps has also been confounded with *E. Virginianum*, but which may properly bear the name of this acute and zealous botanist, who has directed my attention to its characters. The latter should stand next *E. aquaticum*, L.

1. *E. RAVENELII* (*sp. nov.*): caule simplici; foliis linearibus elongatis *complicato-equitantibus subteretis* nervulosis obsolete denticulatis, involucralibus trifidis capitulo æqualibus; paleis receptaculi uninervatis æqualiter 3-spinosis calycis lobos mucronato-acuminatos superantibus.—In flat and damp Pine land; common at Black Oak, St. Johns, Berkley District, South Carolina. September, October.—Stem from 1½–3 feet high, slender. I possess no strictly radical leaves; those from near the base of the stem are from 12–18 inches long, conduplicate in the dried plant, and

(615.) *CICUTA MACULATA*, Linn. Banks of Comale Creek. July. Plant 4 to 7 feet high.

404. *DAUCOSMA*, Engelm. & Gray.

Calycis dentes 5 subulati, persistentes. Petala obovata, emarginata, cum lacinula apice emarginato-biloba inflexa. Stylopodium conicum, persistens; stylis elongatis reflexis. Fructus ovoideus, ala angustissima crassa cinctus: mericarpia jugis 5 crassis obtusis (in fruct. juniore subduplicibus aut dorso exaratis). Valleculæ univittatæ: commissura plana bivittata; vittis latis rectis. Semen semiteres. Carpophorum bipartitum.—Herba annua, glabra, odore forte Dauci (unde nomen); caulibus 2-3-pedalibus ramosis striatis farctis; foliis ternati-quinatisectis, segmentis tripartitis, lobis laciniatis venosis lanceolatis, seu fol. supremorum lineari-setaceis; involucri et involucelli phyllis plurimis 3-5-partitis setaceis

3 or 4 lines wide at the base, thence tapering gradually to the apex. Ravenel describes them from the living plant as "terete, solid, but soft and spongy, with a deep groove in the upper surface, and a few obsolete spinulose serratures." He remarks, that "the tube of the calyx is not entirely clothed with lanceolate vesicles," as in *E. Virginianum*, etc.; but I find that this character is not uniform. The paleæ of the receptacle are larger; their three spiny cusps stronger and of equal length, and the calyx-lobes much less pointed than in *E. Virginianum*, but more so than in *E. aquaticum*.

2. *E. VIRGINIANUM* (Lam. Dict 4. p. 759): caule simplice vel apice cymoso; foliis lineari-lanceolatis planis, inferioribus venulosis subspinuloso-serratis dentibus uncinatis, radicalibusve fere integerrimis, superioribus spinulosis seu laciniatis, involucralibus trifidis vel 3-5-cuspidatis capitulo fructifero subæqualibus; paleis receptaculi trinervatis, tricuspidatis, cusptide medio longiore lobos calycis fructiferi acuminato-aristatos subæquantibus. — *E. lacustre Virginianum*, &c., *Pluk. Alm.* t. 396, f. 3. *E. aquaticum* β. Linn. *E. Plukenetii*, *Ell. Sk.* 1. p. 582. Wet places, margin of ponds and streams, New Jersey to Florida and Texas. Flowers in August and September in the Northern States; in July and June farther south. Plant one or two feet high.

3. *E. PRÆALTUM*: caule 4-6-pedali superne ramoso; foliis lanceolatis planis venosis serratis utrinque attenuatis, radicalibus magnis longe petiolatis costa valida, summis linearibus spinuloso-dentatis incisive, involucralibus capitulo 2-3-plo longioribus; paleis receptaculi trinervatis breviter tricuspidatis lobos calycis fructiferi subulato-acuminatos vix æquantibus. — *E. aquaticum*, *Michx. Fl.* 1. p. 163, non Linn. *E. Virginianum*, *Ell. Sk.* 1. p. 343, non Lam. — In tide swamps, S. Carolina and Georgia; August. Michaux states he found it especially on Goose Creek, a tributary of Cooper River, in the tide swamps of which it was gathered by Mr. Ravenel. The lowest leaves are from one to two feet in length, and from 2½-3 inches in breadth, not unlike those of a *Rumex* in appearance, on petioles a foot or 18 inches in length. The paleæ are nearly as in *E. Virginianum*.

radios umbellæ et umbellularum plurimos subæquantibus; floribus albis. — Genus differt a proximo Cynosiadio petalis inflexis, ab Æthusa calyce 5-dentato, ab Cœnanthi carpophoro distincto, etc.

404. DAUCOSMA LACINIATUM, *Engelm. & Gray*. High valleys near New Braunfels and on the Upper Guadalupe, covering large patches of moist prairie land, and along the margin of thickets. Flowering in July. — The specimens have only half grown fruit. The carpological characters of the genus are derived from fruiting specimens of Lindheimer's collection in 1849, just received, and from others gathered by Mr. Wright the same year, on sand bars of the upper part of the Nueces. — The whole plant exhales a strong odor of Carrot.

(616.) CHÆROPHYLLUM TEINTURIERI, *Hook. & Arn.*: β. fructu pubescente, *Torr. & Gray, Fl. 1. p. 638*. Shady woods, New Braunfels. April, May. "Less rigid and erect than the form with glabrous fruit, from the same locality."¹

¹ From Mr. Wright, gathered in Western Texas, we have specimens of an evident congener of *Tauschia nudicaulis*, except that its fruit shows about 20 small vittæ, instead of six rather large ones. In this and many other respects, it accords with *Musenium*, *Nutt.*, of which I have no specimens (since No. 220 of Geyer's Oregon Collection does not agree with the generic character).

TAUSCHIA (MUSENIOPSIS) TEXANA (*sp. nov.*): glaberrima; foliis omnibus radicalibus utrinque viridibus pinnato-decompositis, nempe pinnis 3-5 cum impari, inferioribus petiolulatis (petiolulis ac petiolo gracili apteris) pinnato-3-5-partitis, segmentis cuneiformibus 3-5-fidis, lobis oblongis obtusissimis; scapo simplicissimo nudo; involucrio parvo 1-2-phyllo aut nullo; involucello dimidiato e phyllo unico palmati 3-5-fido; radiis umbellulæ fructu didymo brevioribus; mericarpiis lævigatis 18-20-vittatis, jugis obsolete. — Western Texas, near Austin? *Mr. Charles Wright*. — Root thick, perennial. Scape in fruit from 5 to 8 inches high, longer than the leaves. Umbel 5-7-rayed. Fruits a line and a half long, very smooth; the filiform jugæ nearly obsolete at maturity. — No. 120 of Coulter's Mexican Collection is *Tauschia nudicaulis*, as appears from an original specimen from Schlechtendal, in flower only. No. 121 is apparently a distinct species, viz.:

TAUSCHIA COULTERI (*Gray & Harv. ined.*): breviter caulescens; foliis ternatis-quinatisectis subtus glaucescentibus; segmentis ovalibus basi subcordatis cuneatisve sæpius trilobatis duplicato-dentatis, dentibus mucronatis; involucrio et involucello e phyllo unico lineari integerrimo aut nullo; radiis umbellulæ fructu plus duplo longioribus. — Scapes in flower and fruit from 5 to 12 inches long, soon exceeding the leaves. Petioles much dilated and sheathing at the base, as in *T. nudicaulis*. The larger leaflets an inch and a half long. Pedicels in fruit 4 or 5 lines in length. Fruit fully two lines long; the jugæ rather prominent; vittæ 6 in each mericarp, rather large.

405. ATREMA AMERICANA, DC. *Prodr.* 4. p. 250. Margin of woods, in rocky, dry prairies, New Braunfels. May.

LORANTHACÆ.

406. PHORADENDRON FLAVESCENS, Nutt.; Engelm. in *Pl. Fendl.* p. 59, in not.: var. β . PUBESCENS, Engelm. *Mss.* On Muskit trees, Upper Guadaloupe, Elms, &c.¹

¹ Dr. Engelmann communicates the subjoined revised character and remarks.

"PHORADENDRON FLAVESCENS (Nutt.): ramis teretibus; foliis oblanceolatis obovatis nunc orbiculatis obtusis in petiolum brevem attenuatis trinerviis; spicis masculis subverticillatis folium æquantibus, articulis 4-5, 15-35-floris; fœmineis suboppositis folio brevioribus, articulis 3-4 4-10-floris; floribus depresso-globosis annulato-carinatis ciliatis subtrifidis. — Var. α . GLABRIUSCULUM: foliis oblanceolatis seu obovatis 3-nerviis in petiolum sensim attenuatis glabris; ramis junioribus puberulis: — β . PUBESCENS: foliis ut in α , sed puberulis; ramulis canescentibus: — γ . ORBICULATUM (Ph. orbiculatum, Engelm. *Pl. Fendl.*): foliis obovato-orbiculatis in petiolum brevem abrupte contractis vix trinerviis subpubescentibus. — New Jersey to Southern Missouri and New Mexico, and south to Texas. Var. α . is the more northern form, mostly in low woods along water courses; β . in damp places on Ulmus, Algarobia, and also Quercus falcata, near New Braunfels, San Antonio, etc. γ . in Texas and Arkansas on dry sterile land, on Quercus nigra and other Oaks. Flowers, December to March; fruit ripens the following winter.

"The nearly related *Phoradendron tomentosum*, from South of the Rio Grande, has smaller leaves, longer spikes, etc. *Phoradendron villosum* of Oregon has much smaller and spatulate tomentose leaves, etc.

"I take this opportunity to make some corrections and additions to my paper on *Viscum* and the related genera, printed as a note in *Plantæ Fendlerianæ*, pp. 58, 59.

"I. VISCUM. Bacca globosa, pulposa, semipellucida, monosperma, corolla persistente coronata.

"II. PHORADENDRON, Nutt. Flores diœci, globosi. *Fl. masc.* Perianthium 3-(raro 2-s. 4-) lobum: antheræ loborum basi adnatæ, transversæ, biloculares, poris s. rimis verticalibus duabus dehiscentes. *Fl. fœm.* Perianthium 3-(rare 2-s. 4-) lobum: ovarium inferum, tubo adnatum, uniloculare; ovulo unico pendulo. Stigma sessile, plus minus bilobum. Bacca globosa, pulposa, semipellucida, monosperma, perigonio persistente coronata. — Frutices Americani, etc.

"* *Foliosa*; foliis lamina dilatata basi attenuatis; spicis fœmineis plus minus elongatis ex articulis pluribus plurifloris constitutis.

"1. PHORADENDRON FLAVESCENS, Pursh, sub Visco. Vide supra.

"2. PH. TOMENTOSUM, DC., sub Visco.

"3. PH. VILLOSUM, Nutt., sub Visco: tomentosum; ramis teretibus; foliis oblanceolatis s. spatulatis obtusis in petiolum brevem attenuatis obscure trinerviis s. subnerviis; spicis fœmineis oppositis s. verticillatis abbreviatis 2-3-articulatis; bracteis truncatis; articulis brevibus, inferiore 6-8-floro, superiore 2-floro; floribus depresso-globosis annulato-carinatis puberulis 3-fidis. — Wahlamet Woods, Oregon, Nuttall. — Leaves 8-12 lines long, 3-4 lines wide. Spikes 3-4 lines long. Flowers 0.5-0.6 of a line in diameter, like those of the two foregoing species de-

CAPRIFOLIACEÆ.

† LONICERA ALBIFLORA, *Torr. & Gray, Fl. 2. p. 6.*
 Var. β . tubo corollæ limbo paulo longiore aut æquali. L.
 anelica, *Lindh. ined.*—High rocky prairies between the

pressed, with an almost annular, ciliate carina. Stigma conspicuously bifid.—
 The narrow, long, attenuate leaves and the short spikes distinguish it from *Ph.*
tomentosum.

"5. PH. LANCEOLATUM, *Engelm. in Plant. Fendl.*

"* * *Squamosa*; foliis in squamulas connatas pelviformes reductis; spicis
 fœmineis ex articulis paucis 1-2 floris constitutis.

"6. PH. CALIFORNICUM (Nutt.): glabrum; ramis elongatis strictis gracilibus
 teretibus; squamis ovato-lanceolatis patentibus basi connatis tenuiter ciliatis;
 spicis fœmineis lateralibus oppositis 3-4-floris; floribus globosis trifidis glabris in
 quovis articulo singulis s. binis cupulæ ciliatæ immersis; spicis fructiferis elonga-
 tis; baccis globosis.—Sierra Nevada of California, on some species of *Strombocarpus*,
Dr. Gambel. Intermediate and connecting the leafy and scaly species of this
 genus, though properly belonging to the latter. Scales longer than the diameter
 of the branch, patulous. Branches a foot or more long (Nuttall); ultimate joints
 7-9 lines long; flowering spikes about 3 lines, and fruiting spikes 9 lines long.
 Fruit 3 lines in diameter. Flowering spikes with 2 lateral linear-lanceolate ciliate
 bracts at base, consisting of 3 joints, the lower being always sterile, the two upper
 ones producing each two or by abortion single flowers. In the fruit-bearing spike
 these joints are in such a manner elongated that the (typically axillary) fruit is car-
 ried up to the top of the joint, just below the next pair of leaves (or scales). Stigma
 globose, very slightly bilobed.

"7. PHORADENDRON JUNIPERINUM, *Englm. in Plant. Fendl.*

"III. ARCEUTHOBIUM, *M. Bieb.* Flores diœci, ovati, compressi. *Fl.*
masc. Perianthium 3- (raro 4-) partitum. Antheræ lobis mediis adnatæ, unicellu-
 losæ, rima transversa dehiscentes. *Fl. Fœm.* Perianthium breviter pedicellatum,
 2- (raro 3-) dentatum: ovarium inferum, tubo adnatum, unicelulare; ovulo unico
 pendulo. Stigma sessile, conicum. Bacca carnosa, opaca, ovata, compressa, peri-
 gonio persistente coronata.—Frutices gerontogei et Americani glaberrimi, aphylli,
 articulati; foliis squamæformibus in vaginulas pelviformes s. cupuliformes connatis;
 floribus axillaribus terminalibusque sæpe spicam simplicem s. compositam
 mentientibus; fl. masculis 1-3 sessilibus, fœmineis plerumque singulis brevissime
 incluso-pedicellatis; baccis perigonio aucto plerumque discolore coronatis sæpius
 exserto-pedicellatis extus carnosus intus viscidis.

"1. A. OXYCEDRI (*M. Bieb.*): caule ramisque oppositis s. dichotomis com-
 presso-teretibus gracilibus strictis; ramulis ultimis compresso-sub-quadrangulatis;
 squamis triangularibus in vaginulas pelviformes connatis; floribus fœmineis in
 ultimis ramulorum articulis axillaribus terminalibusque in quavis axilla singulis s.
 binis; baccis exserto-pedicellatis, erectis.—Southern Europe, etc. The specimen
 before me is from Fiume.—Lowest joints of the ultimate branchlets sterile; the
 next joint producing two leaf buds; the 2 to 4 following joints bearing flowers, one
 of which is terminal. The usual state probably is, where only the two last joints
 bear flowers, the ultimate one a terminal, and the next below two lateral flowers;
 that is the state described by Decandolle; 'floribus fœmineis ad ramulorum apices
 tribus.' But in the specimen before me most branchlets bear from 5 to 9 flowers,

Guadaloupe and Pierdenales. Comanche Spring. April.
 "A rough, unsightly shrub, from 4 to 6 feet high; only the young shoots show any inclination to climb or twine. Flow-

on the three or four last joints, one or two in each axilla. Flowers minute, 0.3 of a line wide and 0.4 long, on very short, enclosed pedicels, which apparently are elongated immediately after flowering. Pedicel of the young fruit (ripe fruits not seen) half the length of the fruit.

"2. *A. AMERICANUM* (Nutt.): caule ramisque fasciculatis teretibus gracilibus patulis; squamis truncatis in vaginulas dilatatas cupuliformes connatis; floribus masculis axillaribus terminalibusque nec spicatis. — Oregon, on Pinus, Nuttall. — Considerably resembling the slender forms of var. *α*. of the next species, but smaller, slenderer, and at once distinguished by the terete branches, the fasciculated branchlets, and much dilated vaginulæ. Female plant and fruit unknown to me.

"3. *A. CAMPYLOPODUM* (n. sp.): ramis oppositis seu dichotomis compresso-quadrangulatis; squamis truncatis breviter cuspidatis in vaginulas subcylindricas cupuliformes connatis; floribus axillaribus terminalibusque plerumque in spicam simplicem s. compositam aggregatis, masculis singulis vel binis ternisve, fœmineis in quavis axilla singulis; baccis exserto-pedicellatis patulis s. recurvis. — Var. *α*. *MACRARTHON*: caule compresso vix angulato; ramis plerumque gracilioribus; articulis plus minus elongatis; floribus fœmineis sparsis et in ramulis brevibus paucis seu in spicas simplices aggregatis. — *β*.? *BRACHYARTHON*: caule tereti robusto; ramis robustis articulis abbreviatis diametro vix longioribus; floribus fœmineis in spicas densas compositas aggregatis. — I have comprised under this name different forms, which, when better known, will probably have to be separated as distinct species. My specimens are so incomplete that I can not even satisfactorily determine whether the different forms which constitute the first of the two varieties will finally be retained under one species. — Var. *α*. has been found in Oregon (only on Pinus ponderosa), Geyer; in New Mexico (only on Pinus edulis,) Fendler, 282; and in California, Douglas. — The specimens from New Mexico (only male and female flowers seen) have short female spikes, bearing 2 to 5 flowers, or the flowers are scattered on the branchlets: the flowers are elliptical, 0.4 lines wide and 0.5 long, almost sessile. Geyer's Oregon plant (I have seen only a fruiting specimen) has more elongated many-flowered female spikes; the flowers apparently ovate; pedicel hardly one third the length of the (not quite ripe) fruit. The Californian plant (male and female flowers and fruit) is much stouter: male flowers twice as large as in the specimens from New Mexico, and not rarely 4-parted; female flowers in more elongated spikes, elliptico-orbicular, small, 0.4 to 0.5 line in diameter; the recurved pedicel more than half the length of the fruit, which is 2 lines long and 1.3 wide. — Var. ? *β*. has been collected in Mexico by Coulter. I can hardly doubt it to be a distinct species; but my means to distinguish it are at present too limited. The stout terete stem, the short joints which are hardly longer than wide, the crowded compound or paniced spikes which resemble those of the following species, and the larger ovate (not elliptical) flowers appear to indicate specific distinction. Fem. flowers 0.6 lines wide and 0.8 lines long: fruit 2 lines long and 1.2 lines in transverse diameter, the pedicel more than half as long as the fruit: male flowers not seen.

"4. *A. CRYPTOPODUM* (n. sp.): caule ramisque acute quadrangulatis robustis articulis brevioribus; squamis truncatis in vaginulas cupulatas connatis; floribus in spicas densas compositas congestis, fœmineis ovatis in quavis axilla singulis;

ers dirty white." — Mr. Wright has sent the same plant from near Austin. The leaves on the flowering branches are from an inch to an inch and a half long; those of young sterile shoots larger. Tube of the corolla 5 lines long. — I possess no specimen of the original *L. albiflora*; from which this apparently differs only as the *L. flava* β . *Torr. & Gray, l. c.* differs from the type of that species.¹

RUBIACEÆ.

(617.) *GALIUM VIRGATUM*, *Nutt. in Torr. & Gr. Fl. 2. p. 20*: var. *caulibus laxioribus*. — New Braunfels; "covering large patches of naked prairie, mixed with little grass. April. To this species plainly belongs the *Galium Texanum*, *Scheele in Linnæa, 21. p. 597*, gathered by Rœmer.

(618.) *G. TRIFLORUM*, *Michx.*: forma pusilla, junior, foliis subspathulatis. New Braunfels. April.

(619.) *G. UNCINULATUM*, *DC. Prodr. 4. p. 600?* *G. Californicum* γ . *Texanum*, *Torr. & Gray, Fl. 2. p. 20*. New Braunfels. April. Allied to this is *G. hypadenium*, *Schauer*.

(247.) *DIODIA TRICOCCA*, *Torr. & Gray, Fl. 2. p. 30*. Sterile soil in high places, near New Braunfels. June.

(620.) *HEDYOTIS (AMPHIOTIS) STENOPHYLLA*, *Torr. &*

baccis brevissime incluso-pedicellatis erectis. — Santa Fe, only on *Pinus brachyptera*, *A. Fendler*, No. 283. — Hooker's *A. Oxycedri* from the Hudson Bay country appears to belong here: the figure shows at least subsessile, erect fruits; but the segments of the male flowers are broadly oval, while those of the New Mexican plant are lanceolate." G. ENGELMANN.

¹ From the collection made by Lindheimer in 1849, Dr. Engelmann communicates the following:

SYMPHORICARPUS SPICATUS (Engelm. Mss.): foliis obovatis obtusis brevissime petiolatis supra demum glabratis subtus pubescentibus pallidis; floribus (15-30) in spicas axillares arcte glomeratas congestis; corollis intus barbatis; baccis rubris. — Shady bottom woods, New Braunfels. A small shrub, 2 or 3 feet high, with numerous slender branches. Leaves about three fourths of an inch long, half an inch wide; the lower leaves wider, almost orbicular. Spikes from 4 to 6, or in fruit 8 or 10, lines long. Flowers a little smaller than in *S. glomeratus*, to which our species bears a strong affinity. It is, however, distinguished by its smaller, obtuse leaves, the spiked flowers, the larger and apparently more juicy fruit, and the broader, more compressed seeds. Of the numerous flowers in each spike only a few mature fruit." *Engelm.*

Gray, *Fl.* 2. p. 41. Var. corollis minoribus. — Rocky soil on the plateau above New Braunfels. June.

(621.) HEDYOTIS (HOUSTONIA) HUMIFUSA (*n. sp.*): annua, dichotome ramosissima, depressa, glutinoso-puberula; foliis lineari-lanceolatis imis in petiolum attenuatis mucronatis crassiusculis; stipulis dilatatis scariosis setaceo-dentatis; floribus in dichotomiis solitariis binisve breviter pedunculatis; tubo corollæ infundibuliformis lobis oblongis supra puberulis sublongiore laciniis calycis 4-partiti subulato-setaceas paulo superantibus; capsula pendula didyma puberula basi tantum calyci accreta; seminibus in loculis paucis ovoideis. — Open gravelly banks of streamlets, near Fredericksburg. May. (Also in sandy prairies at Austin, *Mr. Charles Wright.*) — Stems 3 or 4 inches long, fastigate, very leafy, in cultivation (in the Cambridge Botanic Garden) close pressed to the ground, and forming a dense patch, flowering through the summer. Lower leaves somewhat spatulate, an inch long; the others linear and smaller. Corolla pale purple or nearly white, 3 lines long; the lobes more or less downy inside. Stigma two-lobed. The flowers are diœcio-dimorphous, after the manner of the genus and its allies; one plant having the linear anthers deeply included, and a long style with the stigma exerted; the other with a short, included style, and with the stamens inserted in the throat of the corolla. Both forms are abundantly fertile. The seeds are not hollowed on the inner face. — This species is intermediate in characters between *Houstonia*, *Amphiotis*, and *Ereicotis*, and should perhaps stand in a separate section, along with *H. rubra*, although the latter is in some respects quite a different plant. I was mistaken in stating (in *Pl. Fendl.* p. 61), that *H. rubra* had been met with in Texas. No. 621 is the form with sub-exserted stamens, and short style.

(622.) The same species with subexserted style and included stamens. Sandy prairies on the Pierdenales. May.

407. FEDIA (VALERIANELLA) STENOCARPA (*Engelm. Mss.*): fructu glabro anguste oblongo, loculis sterilibus paral-

lelis semine multo minoribus: cæet. *F. radiatæ* sed fructu minore. — Thickets in light soil, near San Antonio, New Braunfels, &c. March. This, Dr. Engelmann, probably with good reason, considers as distinct from the *F. radiata* with glabrous fruit (the form that alone occurs around St. Louis.) “The fruit is not only much smaller and more slender than that of *F. radiata*, but the proportion of the empty cells is different; these being much smaller than the seed; while in the former they are about equal, and in *F. carinata* (which has a different habit) larger. Cauline leaves often deeply dentate at the base, or almost pinnatifid, but sometimes entire.” *Engelm.*¹

COMPOSITÆ.

408. *VERNONIA LINDHEIMERI*: perennis, bipedalis; foliis anguste linearibus confertis sessilibus uninerviis margine revolutis supra glabris punctatis subtus cauleque simplici sericeo-tomentosis; capitulis corymbosis breviter pedunculatis 30–40-floris; squamis involucris cano-tomentosi pappo rubiginoso brevioribus conformibus appressis oblongis obtusis exappendiculatis; acheniis glabris 10-costatis glandulosis; pappo exteriori multisquamellato. *Gray & Engelm. in Proceed. Amer. Acad.* 1. p. 46. — Rocky hill sides, and high rocky plains, near New Braunfels, &c. July, August. Also near Seguin, &c. *Mr. Wright*. A very well-marked and handsome species. In cultivation in the Cambridge Botanic Garden, it does not blossom until near the end of September.

¹ From the collection of 1849, Dr. Engelmann has communicated the characters of another species, viz.

FEDIA AMARELLA (*Lindh. Mss.*): “glaberrima, erecta, versus apicem dichotomo-cymosa; foliis inferioribus spathulatis basi longe attenuatis, superioribus oblongo-linearibus sessilibus vel basi subcordatis, omnibus integris obtusis; fructibus minimis subgloboso-ovatis obtuse auriculatis hispidis, loculis sterilibus fertili subgloboso multo angustioribus brevioribusque pene oblitteratis. — Comanche Spring; flowering in May. — Plant 8 to 12 inches high, in habit similar to *F. radiata* and *F. stenocarpa*; but the leaves are entire in all the specimens; and the fresh herb has a bitter taste, which the other species have not. The fruit is much smaller than in any other species known to me; the sterile cells many times smaller than the seed, their cavity almost obliterated.” *Engelm.*

The appropriate name of *V. rosmarinifolia*, given to this species by Mr. Lindheimer, is preoccupied by Lessing.

409. CLAVIGERA RIDDELLII, *Torr. & Gray, Fl. 2. p. 77.* Gravelly banks of the Upper Pieddenales, and of the Guadalupe. September, October. — Plants 3 or 4 feet high, suffruticose.

410. KUHNIA EUPATORIOIDES, *Linn. β. CORYMBULOSA*: forma humilis. *K. suaveolens, Fresenius.* *K. Maximiliani, Sinning in Neuwied, Trav.* Dry, rocky prairies near New Braunfels. November. Also, Comanche Spring, "with beautiful red or yellow flowers." *Lindh.*

411. *K. EUPATORIOIDES, δ. GRACILLIMA*: foliis angustissime linearibus marginibus revolutis seu filiformibus. Dry, gravelly bed of the Pieddenales and Cibolo Rivers. October. — The same as No. 305 of *Pl. Fendlerianæ* (also found by *Mr. Wright* on the Rio Grande), but with still narrower leaves. It would seem to be distinct from *K. eupatorioides γ. Torr. & Gray*; yet I find no characters besides the more attenuated leaves. I notice that it is the *Kuhnia leptophylla, Scheele in Linnæa, 21. p. 598*, described from Lindheimer's specimens.

† LIATRIS PUNCTATA, *Hook. Fl. Bor. Am. 1. p. 206. t. 55. Torr. & Gray, Fl. 2. p. 69.* Var. *β.* Rocky prairies between the Rio Colorado and Guadalupe. July.

412. BRICKELLIA (BULBOSTYLIS) CYLINDRACEA: cinereo-pubescens et resinoso-atomifera, herbacea e radice lignea; foliis plerisque oppositis triplinerviis subtus reticulato-venosis oblongo-ovatis obtusiusculis grosse serratis brevissime petiolatis, ramealibus subsessilibus; capitulis pedunculatis in paniculam foliosam laxe corymbosam digestis; involucri 10-flori cylindrici squamis 4-seriatim imbricatis arachnoideo-ciliatis striatis mucronato-acuminatis, intimis linearibus pappum barbellato-serrulatum æquantibus, exterioribus multo brevioribus ovalibus appressis; achæniis puberulis. *Gray & Englm. in Proceed. Amer. Acad. l. c.* — In stony thickets on the Upper Guadalupe. September, October. Also near Fredericks-

burg; and in the same region, by *Mr. Wright*.—Stems numerous, from a woody perennial root, two to four feet high. Heads 7 lines long.—Differs from *Clavigera* only in the merely serrulate pappus. Can it be *C. dentata*, *DC.*?

413. *EUPATORIUM AGERATIFOLIUM*, *DC.*, β . *TEXENSE*. *Torr. & Gray, Fl. 2.* p. 90.—*E. Lindheimerianum*, *Scheele, in Linnæa*, 21. p. 599. Rocky, Cedar woods, New Braunsfels. October. Also gathered by *Mr. Wright* in Western Texas.—A shrubby plant, with slender branches, from four to ten feet high. In the cultivated plant the copious and showy blossoms are pure white.

† *E. SEROTINUM*, *Michx.* Margin of woods, New Braunsfels. August.

† *ASTER SERICEUS*, *Vent. Hort. Cels.* t. 33. Banks of the Upper Pierdenales. October.

(249.) *A. DRUMMONDII*, *Lindl.*; *DC. Prodr.* 5. p. 234; *Torr. & Gray, Fl. 2.* p. 121. Thickets, on rocky banks of the Upper Pierdenales. October.

† *A. MULTIFLORUS*, *Ait.*; *Torr. & Gray, Fl. 2.* p. 124. Dry prairies of the Upper Guadalupe and Pierdenales. October.

A. VIRGATUS, *Ell. Sk.* 2. p. 253; *Torr. & Gray, Fl. 2.* p. 116. Thickets on the Cibolo River. October.

† *A. CARNEUS*, *Nees.*; *Torr. & Gray, Fl. 2.* p. 133. Upper Pierdenales. October, 1845.

† *A. CARNEUS*. *Nees.* Var. *foliis angustioribus linearibus*. On the Pierdenales.

(624.) *A. CARNEUS* β . *SUBASPER*, *Torr. & Gray, l. c.* Thickets and along streamlets, on the Pierdenales and Liano. October.

† *A. SIMPLEX*, β . *Torr. & Gray, Fl. 2.* p. 132. Rocky soil, margin of thickets. October.

† *A. DIVARICATUS*, *Torr. & Gray, Fl. 2.* p. 163. On the Pierdenales and Liano; in moist, fertile soil. Stems 2–4 feet high, sometimes leafless. Rays light blue.

(623.) *A. SPINOSUS*, *Benth. Pl. Hartw.* p. 20; *Torr. &*

Gray, Fl. 2. p. 165. Banks of the Liano. October. Also on the Brazos. "Shrubby, 6 to 8 feet high; the perennial stems half an inch thick, branching above [the branches herbaceous]. Leaves few and small, [scale-like or subulate], spinescent or soft, or none." *Lindh.*

(626.) ERIGERON CANADENSE β . GLABRATUM. *E. strictum*, *DC.!* *Prodr. 5. p. 289*, sed panicula composita expansa. Prairies north of the Liano, among granite rocks. October. — De Candolle's *E. strictum* is certainly not to be distinguished as a species from *E. Canadense*.

(627.) *E. MODESTUM*, *Gray, Pl. Fendl. in Mem. Amer. Acad. n. ser. 4. p. 68.* *Distasis modesta*, *DC., Prodr. 5. p. 279?* Rocky soil, north of New Braunfels, and near the sources of the Pierdenales. June and October. — The squamellæ and the fragile setæ of the pappus are more numerous than in the character of *Distasis modesta*, *DC.* Our plant is an undoubted *Erigeron*. Had it more numerous rays it would fall into the section *Phalacroloma*, before *E. tenue*. As it is, it belongs rather to *Pseuderigeron*.

414. EGLETES RAMOSISSIMA, *Gray, Pl. Fendl. p. 71.* *Aphanostephus ramosissimus*, *DC. Prodr. 5. p. 310.* *A. Riddellii*, *Torr. & Gray, Fl. 2. p. 189.* Dry, sandy, or stony prairies of the Guadalupe and Pierdenales. April to August. — In cultivation this plant flowers abundantly through the whole summer, and is quite ornamental. The heads droop before anthesis; and the white rays are usually tinged with pink or purple underneath.

415. KEERLIA BELLIDIFOLIA (*Gray & Engelm. in Proceed. Amer. Acad. 1. p. 47*): annua, diffusa, hirsutulo-pubescentis; caulibus foliosis dichotomo-ramosis; ramis ramulisque monocephalis; foliis spathulatis obtusis mucronulatis integerrimis, summis sublinearibus, omnibus inferne attenuatis, radicalibus obovatis petiolatis; involucri campanulati squamis biserialibus oblongis membranaceis nitidis mucronato-acuminatis marginibus late scariosis; ligulis (cyaneis) 9–14 lineari-oblongis; fl. disci plusquam 20 plerisque fertilibus; acheniis clavato-

fusiformibus vix compressis 7-9-nerviis hirtellis coronula integra sæpius obsoleta superatis. — Margin of woods and thickets, in sterile soil, Comale Creek and near New Braunfels (also 628.) April to June. A summer state, very much branched and with smaller capituli, was gathered in Western Texas by *Mr. Wright*. The plant has much the aspect of *Bellis integrifolia*, though the heads are rather smaller, and it branches diffusely in the same way, the branches terminated by single capituli. — The type of the genus *Keerlia* must be *K. ramosa*, *DC.*, a Mexican plant collected by Keerl himself, and with which the present plant appears to be a true congener. *K. linearifolia*, *DC.* is thought to have yellow rays, which leaves its position doubtful. *K. skirrobasis*, *DC.*, and of Delessert's as well as of Hooker's figure, is doubtless *Leucopsidium Arkansanum*, *DC.*, the *Egletes Arkansana*, *Nutt.*, as I have already remarked in *Proceed. Amer. Acad. l. c.*, and in *Plantæ Fendlerianæ*, p. 71. The genus, as it thus stands, takes the place in this country of *Brachycome*, from which, as well as from *Bellis*, it is well distinguished by its flat receptacle. Mr. Lindheimer's recent collection enables us to add another Texan species, of a peculiar aspect, and remarkable for its fewer-flowered heads, its flattened ray-achenia, and entirely sterile disk,¹ viz.

¹ An amended character of the genus is subjoined: —

KEERLIA, *DC. Prodr.* 5. p. 309. excl. sp. 2. et forte 1.

Capitulum multiflorum radiatum; ligulis 6-25 uniserialibus femineis; fl. disci hermaphroditis vel abortu masculis 5-dentatis. Involucrum campanulatum aut turbinatum, pauci-pluriseriale; squamis oblongis mucronatis vel acuminatis margine late scariosis. Receptaculum planum nudum. Achenia subteretia vel compressa, disci omnia aut centralia sæpe inania. Pappus parvus coroniformis. — Herbaræ Mexicanæ et Texanæ, humiles, ramosæ; foliis alternis sessilibus integris; capitulis parvulis solitariis vel paniculatis; ligulis albis vel cæruleis.

§ 1. Achenia subteretia, fusiformia vel obpyramidata, nervosa: styli fl. disci appendice brevi obtusa superati. — Caules dichotome ramosi, ramis apice nudis monocephalis, capitulis multifloris.

1. *K. RAMOSA*, *DC.* 2. *K. BELLIDIFOLIA*, *Gray & Engelm. supra.* ?*K. LINEARIFOLIA*, *DC.*

§ 2. Achenia radii plano-compressa callosomarginata, disci omnia inania gra-

(629.) *K. EFFUSA* (*sp. nov.*): perennis? caule virgato ad apicem usque folioso hirsuto; foliis utrinque hispidis oblongis obtusis integerrimis e basi lata arcte sessilibus, infimis subspatulatis basi attenuatis, costa supra impressa subtus prominula; panicula decomposita patentissima, ramulis pedunculisque filiformibus; bracteis minimis subulatis; involucri turbinati squamis gradatim imbricatis oblongis marginibus scariosis obtusissimis cuspidato-mucronatis; ligulis albis 5-7 oblongis; fl. disci 7-10 sterilibus; acheniis radii plano-compressis ovalibus calloso-marginatis ad margines præsertim hirtellis faciebus fere enerviis apice acutatis pappo minimo setuloso-coroniformi superatis, disci omnibus abortivis gracilibus, pappo ut in radio. — Shady declivities, on the banks of the Upper Guadalupe, near Comanche Spring. August, September. Stem from 18 to 30 inches high, very leafy to the top; the leaves about an inch long, not unlike those of *Aster patens*, but not clasping. Heads very numerous: involucre scarcely more than two lines long.

416. *GYMNOSPERMUM CORYMBOSUM*, *DC. Prodr.* 5. p. 312; *Torr. & Gray, Fl.* 2. p. 192. Rocky and naked limestone terraces between the headwaters of the San Antonio and Guadalupe rivers. August-October. — The leaves are nearly lanceolate.

(80.) *GUTIERREZIA TEXANA*, *Torr. & Gray, l. c.* New Braunfels, in large masses on sterile soil. July, August.

417. *SOLIDAGO SPECIOSA* γ . *RIGIDIUSCULA*, *Torr. & Gray*: foliis angustioribus, capitulis majusculis. *S. Lindheimeriana*, *Scheele in Linnæa*, 21. p. 599. On limestone gravel in the dry bed of the Cibolo, between New Braunfels and San Antonio. October.¹

cilia: styli fl. disci steril. appendice gracili lanceolata hispida superati. — Caulis strictus, panicula polycephala composita, pedunculis pedicellisque filiformibus patentissimis, capitulis paucifloris.

3. *K. EFFUSA*: vide *supra*. — Like *Brachycome*, which it represents in America, *Keeria* as thus constituted exhibits both terete and compressed achenia.

¹ *Solidago cylindrica*, *Scheele in Linnæa, l. c.*, from Virginia, appears to be *S. speciosa* β . *angustata*, *Torr. & Gray*.

† *S. NEMORALIS*, *Ait.*; *Torr. & Gray, Fl. 2. p. 220.* Prairies, Upper Pierdenales. October.

† *S. INCANA* β ? *Torr. & Gray, Fl. 2. p. 221.* On declivities, Upper Pierdenales. October.

† *S. DECEMFLORA*, *DC. Prodr. 5. p. 332.* Prairies, Upper Pierdenales. October.—This, if rightly identified, must stand next to *S. Radula*, from which it differs in having considerably larger heads, narrower involucre scales, and cinereous entire triplinerved leaves.—It has been abundantly collected at Comanche Spring, in October, 1849.

(253.) *ISOPAPPUS DIVARICATUS*, *Torr. & Gray, Fl. 2. p. 239:* pedunculis brevioribus. On granite along the Liano. November.

† *APLOPAPPUS SPINULOSUS*, *DC.*; *Torr. & Gray, l. c.* Var. *segmentis foliorum rachique filiformi-setaceis.* Sandy soil under Muskit bushes, on the Liano.

(630.) *CENTAURIDIUM DRUMMONDII*, *Torr. & Gray, Fl. 2. p. 246.* Dry, rocky prairies on the Liano. November.—Raised from Texan seeds in the Cambridge Botanic Garden, this proves to be a very showy plant. Its numerous, golden yellow rays are fully an inch in length. The radical and lowest cauline leaves are strongly laciniate-pinnatifid or even bipinnatifid.

418. *GRINDELIA SQUARROSA*, *Dunal*; *DC. Prodr. 5. p. 314.* *G. Texana*, *Scheele, in Linnæa, 21. p. 60.* Stony prairies, New Braunfels. August. Plant 2 to 4 feet high, branching above; the heads nearly an inch in diameter, larger, indeed, than ordinary for *G. squarrosa*, to which, however, it clearly belongs.

(631.) *CHRYOPSIS HISPIDA*, *Hook. Fl. Bor.-Am. 2. p. 22*; *Torr. & Gray, Fl. 2. p. 255.* Var. *STENOPHYLLA*: foliis lineari-spathulatis. On the Liano growing, from strong ligneous roots, in the crevices of smooth granite rocks. November.

419. *C. CANESCENS*, *Torr. & Gray, Fl. 2. p. 256.* Rocky prairies, on the Comale and Upper Guadaloupe. June—August.

(625.) *BACCHARIS TEXANA*, Gray, *Pl. Fendl.* p. 75. *Linosyris Texana*, Torr. & Gray, *Fl. 2.* p. 232. Dry, granitic prairies, and on granite rocks on the Liano; often exclusively covering large patches. November.

(634.) *B. ANGUSTIFOLIA*, Michx. *Fl. 2.* p. 125; Torr. & Gray, *Fl. 2.* p. 258. pl. masc. Banks of the Liano, in granitic gravel. October.—Shrub 6 to 10 feet high. The larger leaves are three inches long, two or three lines wide, and beset with a few salient teeth. Mr. Wright gathered the same plant on the Rio Grande, along with *B. cærulescens*. It seems to be the *B. angustifolia*; but it is remarkable that it should occur so far inland.

(635.) *B. ANGUSTIFOLIA*, Michx.: pl. fœm. fructifera. With the preceding.

(420.) *PLUCHEA CAMPHORATA*, DC.; Torr. & Gray, *Fl. 2.* p. 261. Var. *involucris floribusque rubescentibus*. Banks of Comale Creek, in clayey prairie soil. September. (Some few specimens of *P. fætida* are distributed under this number.)

(421.) *FILAGINOPSIS MULTICAULIS*, Torr. & Gray, *Fl. 2.* p. 263. Dry prairies, New Braunfels, &c. April.¹

(632.) A variety of the last, from the same region, more branched and depressed, the chaff all woolly.

(633.) *DIAPERIA PROLIFERA*, Nutt.; Torr. & Gray, *Fl. 2.* p. 264. *Evax prolifera*, Nutt. in DC. *Prodr.* 5. p. 459. Dry prairies, New Braunfels. April.

(422.) *AMPHIACHYRIS DRACUNCULOIDES*, DC. *Prodr.* 5. p. 313; Torr. & Gray, *Fl. 2.* p. 192. *Gutierrezia Lindheimeriana*, Scheele in *Linnæa*, 22. p. 351. Rocky prairies of the

¹ It is hard to say upon what plants (from a Texan collection, made by Ræmer,) Mr. Scheele has founded two new species of *Filago*, viz. *Filago repens*, and *F. Texana*, Scheele in *Linnæa*, 22, p. 164. If they are rightly described as having "Flosculi centrales tubulosi perfecti pappo capillari instructi," they are not our species of *Filaginopsis*, nor *Diaperia*. We know of no indigenous North American *Filago* this side of California, nor of any naturalized species except *F. Germanica*. It may be seen, moreover, that no great reliance can be placed on this writer's determinations.

Guadaloupe, north of New Braunfels, in large patches. September.

(636.) MELAMPODIUM CINEREUM, *DC. Prodr.* 5. p. 518; *Gray, Pl. Fendl.* p. 78. *M. leucanthum*, *Torr. & Gray, Fl.* 2. p. 271. Rocky declivities, Upper Pierdenales. May — October. — The plant is ornamental in cultivation, and bears a profusion of blossoms through the whole season.

(637.) POLYMNIA UVEDALIA, *Linn.*; *Torr. & Gray, Fl.* 2. p. 273. Bottom woods of the Guadaloupe. September. "Rays short, rarely seen." But plants raised from the seeds in the Botanic Garden, develop rays of nearly the usual size for this species.

423. BERLANDIERA TEXANA, *DC. Prodr.* 5. p. 517. Margin of woods, in dry, stony soil, New Braunfels. May.

424 (638). LINDHEIMERA, *Gray & Engelm.*

Capitulum multiflorum, monoicum; floribus radii 4–5 ligulatis, fœmineis, ad axillas squamarum involucri interiorum sitis; fl. disci circiter 20, tubulosis, sterilibus. Involucrum duplex; exterius e squamis 4–5 laxis linearibus foliaceis; interius totidem membranaceo-foliaceis oblongis planis disco longioribus. Receptaculum planum, paleis chartaceis ovaria sterilia amplectentibus onustum, binis exterioribus basi cujusque squam. inter. invol. adnatis, persistentibus. Ligulæ ovaies, breviter tubulatæ, involucrum vix superantes: corolla disci 4–5-dentata. Styli fl. ster. filiformes, indivisi, hispidi. Achenia radii ovalia, obcompressa-plana, marginato-alata, intus subcarinata, carina apice in dentem parvum reflexum producta, alis in pappum 2-dentatum extensis; disci abortiva. — Herba monocarpica, erecta, scabro-hispida; caule dichotomo; pedunculis subcymoso-paniculatis gracilibus monocephalis; capitulis nutantibus; foliis imis alternis grosse dentatis, cæteris oppositis sessilibus oblongo-ovatis basi hinc inde dentatis, summis pedunculisque glandulis patelliformibus

conspersis. Flores aurei. — Genus eximium, Berlandieræ et Engelmanniæ cognatum, diximus in honorem ejus acerrimi inventoris, qui floram Texanam largiter indagavit.

424. *L. TEXANA*, Gray & Engelm. in *Proceed. Amer. Acad.* 1. p. 47. In thickets and rocky Cedar woods, New Braunfels; also Comanche Spring, &c. (638). Also gathered in Western Texas by *Mr. Wright*. This has been cultivated now for two seasons in the Cambridge Botanic Garden as an annual: it copiously produces its neat flowers through the summer, and until killed by autumnal frosts.

† *SILPHIUM LACINIATUM*, Linn. Prairies and open woods, New Braunfels. July.

425. *ENGELMANNIA PINNATIFIDA*, Torr. & Gray, *Fl.* 2. p. 283. E. Texana, Scheele in *Linnæa*, 22. p. 155. Upper Guadalupe, on rocky hillsides, and in dry and hard prairie soil. April.

(639.) *E. PINNATIFIDA*; var. foliis majoribus submembranaceis. Comanche Spring, and New Braunfels.

426. *PARTHENIUM HYSTEROPHORUS*, Linn.; Torr. & Gray, *Fl.* 2. p. 248. Muskit Flats, near San Antonio, and in the streets of that town. April to October.

427. *IVA ANGUSTIFOLIA*, Nutt. in *DC. Prodr.* 5. p. 529; Torr. & Gray, *Fl.* 2. p. 279. Comanche Spring, &c., in rocky, moist soil, and in the dry bed of streams, in large masses. "Used in brewing beer, in place of hops."

428. *AMBROSIA APTERA*, DC. *Prodr.* 5. p. 527. *A. trifida* β. Texana, Scheele in *Linnæa*, 22. p. 156. Low grounds, New Braunfels. August. Closely allied to *A. trifida*, but readily distinguished by the marginless petioles, terete stems, and the quite different fruit. The fruit is much smaller, generally 8-ribbed, and merely 4–6-tuberculate.

429. *A. CORONOPIFOLIA*, Torr. & Gray, *Fl.* 2. p. 291; var. *asperula*, capitulis minoribus, fructibus interdum 6-tuberculatis. *A. Lindheimeriana*, Scheele in *Linnæa*, 22. p. 156. Moist prairies, near New Braunfels. August.

430. *A. CORONOPIFOLIA*, var. *gracilis*, foliis minus divisis, capitulis minoribus. *A. glandulosa*, Scheele, *l. c.* p. 157. In the gravel of the dry bed of the Cibolo. September.

(640.) *FRANSERIA TENUIFOLIA*, Gray & Harv. in *Pl. Fendl.* p. 80; var. *TRIPINNATIFIDA*: segmentis foliorum crebris brevioribus. — Mountain prairies of the Liano, along the margin of thickets. November. — This pretty clearly belongs to the same species as the plant which Fendler collected at Santa Fe; but all the lower leaves are tripinnately parted, their segments shorter and broader; and only the upper bipinnately parted leaves have the terminal lobes prolonged. The fertile involucre, in the specimens examined, is only one-celled and one-flowered; and so it sometimes is in Fendler's specimen. It is, like that, minutely scabrous-pubescent, and the spines, which are more developed and more numerous than in Fendler's plant, but much shorter than in *F. Hookeriana*, all have uncinat points.

431. *HALEA TEXANA*, Gray, *Pl. Fendl.* p. 83. *Tetragonotheca Texana*, Gray & Engelm. in *Proceed. Amer. Acad.* 1. p. 48. *Tetragonosperma lyratifolium*, Scheele in *Linnaea*, 22. p. 167. Upper Guadalupe and Cibolo Rivers, on rocky ridges. April. Also gathered by Mr. Wright. — In cultivation here it blossoms through the summer. The minute pappus is apt to escape notice, except in the living plant.

(94.) *ECHINACEA ANGUSTIFOLIA*, DC. On the Pierdenales, Comanche Spring, &c. May. "Root very pungent. Flowers somewhat fragrant."

† *RUDBECKIA BICOLOR*, Nutt. Pierdenales. June. In cultivation, the brown-purple color is commonly obsolete or wanting on the ligules of all the later heads.

(641.) *DRACOPIS AMPLEXICAULIS*, Cass.; DC. *Prodr.* 5. p. 558; var. *ligulis basi atropurpureis*. On the Pierdenales. June.

(642.) *LEPACHYS COLUMNARIS* β. *PULCHERRIMA*, Torr. & Gray, *Fl.* 2. p. 315. Rich, clayey prairies, New Braunfels. June.

432. *ALDAMA UNISERIALIS*. *Gymnopsis uniserialis*, *Hook. Ic. Pl.* t. 145; *Torr. & Gray, Fl.* 2. p. 317. Shady woods, On Comale Creek. June — August. In this and the allied species, united by De Candolle with *Gymnolomia*, *H. B. K.*, under the common name of *Gymnopsis*, “the remarkable manner in which the fertile achenia of the disk are inclosed in the paleæ of the receptacle, like those of the ray-flowers in *Melampodium*, seems fully to warrant the retaining for them Llave and Lexarsa’s generic name, *Aldama*.” *Benth. Voy. Sulph.* p. 116.

433. *SIMSIA* (*BARRATTIA*: achenia calva glabra) *CALVA*. *Barrattia calva*, *Gray & Engelm. in Proceed. Amer. Acad.* 1. p. 40. Rocky hills and terraces, often under shrubby live oak, along the Guadalupe and Pierdenales. July — October. — Root fleshy, perennial. Size and number of the rays very variable. — The discovery of an allied species with a slightly biaristulate or bidentate pappus, as described in *Plantæ Fendlerianæ*, p. 85., invalidates the character of the genus *Barrattia*, which we had established on this plant. Although the want of a pappus would refer it to a different Candollean division of *Helianthæ*, it cannot now be generically distinguished from the genus *Simsia*.

† *VIGUIERA BREVIPES*, *DC. Prodr.* 5. p. 578. Rocky hill tops, on the Upper Guadalupe. October. — The same form was collected in Western Texas by *Mr. Wright*. It agrees with the character in the *Prodromus*.

434. *V. BREVIPES*, β . foliis plerisque rhomboideo-ovatis membranaceis. *V. Texana*, *Torr. & Gray, Fl.* 2. p. 318. *Helianthella latifolia*, *Scheele in Linnæa*, 22. p. 160. Margin of woods and on bushy slopes, New Braunfels. July — October.

(96.) *HELIANTHUS CUCUMERIFOLIUS*, *Torr. & Gray, Fl.* 2. p. 320. New Braunfels. — This is probably *H. Lindheimerianus*, *Scheele in Linnæa*, 22. p. 159. But it is not perennial.

(259.) *HELIANTHUS LENTICULARIS*, *Dougl.; Torr. & Gray, Fl.* 2. p. 319. Prairies on the Guadalupe. July.

(643.) *ACTINOMERIS (ACHETA) WRIGHTII*, Gray, *Pl. Fendl.* p. 85. Upper Guadalupe, at Pinta's Crossing, on rocky soil, in open woods. June.—Plant 1–3 feet high, with few branches and heads, rigid.

† *COREOPSIS DRUMMONDII*, Torr. & Gray, *Fl.* 2. p. 345. Bottom woods near Victoria. February.

† *C. TINCTORIA*, Nutt.; Torr. & Gray, *l. c.* Margin of woods and praries, Comale Creek; common. July.—The plant, No. 441, noticed under 397, in *Pl. Fendlerianæ* as *C. tinctoria*, is not that species, but *C. cardaminefolia*, DC., which species we have also in cultivation, from Texas.

435. *BIDENS CHRYSANTHEMOIDES*, Michx.; Torr. & Gray, *Fl.* 2. p. 352. Banks of streams, New Braunfels. October.

436. *LIPOCHETA TEXANA*, Torr. & Gray, *Fl.* 2. p. 357. Naked hills and margin of woods, New Braunfels and Upper Guadalupe. June–September.—Ray-achenia three-angled, more or less three-winged; the conspicuous wings of the lateral angles confluent at the summit; the ventral wing narrow, dilated at the summit. Achenia of the disk narrowly two-winged at the apex. Awns fragile, thickened at the base and united with the confluent, firm, chaffy scales.

(644.) *HYMENATHERUM WRIGHTII*, Gray, *Pl. Fendl.* p. 89. Sandy soil, in Post-Oak woods, on the Pierdenales. June.

437. (646.) *AGASSIZIA*, Gray & Engelm.

Capitulum globosum, multiflorum, radiatum; ligulis fœminis nunc difformibus. Involucrum disco brevius, circa biserialale; squamis exterioribus lineari-oblongis appendicula spathulata vel obtusa foliacea patente instructis, intimis lineari-acuminatis. Receptaculum globosum, alveolatum; alveolis valde dentatis fimbriiferis. Ligulæ cuneatæ, palmato-3–4-fidæ, sæpe irregulares seu tubuloso-difformes, vestigia staminum gerentes. Corolla disci Gaillardicæ, dentibus triangularilanceolatis. Styli rami ligularum lineares, subulato-apiculati; fl. disci ad basin appendicis brevissimæ nudæ clavato-obtusæ penicillati! Achenia turbinata, sericeo-villosissima. Pappus

radii et disci conformis, e paleis 9 hyalinis ovatis uninerviis constans, nervo in aristam capillarem corollam adæquantem longe producto. — Herba biennis, acaulis; radice fusiformi; foliis varie 1–2-pinnatifidis, nunc sinuatis lyratisve; scapo 1–2-pedali, toto nudo, monocephalo. Capitulum Gaillardiaë, speciosum. Flores suaveolentes, disci flavi et purpurei, radii rubescentes vel atrorubri.

437. A. SUAVIS, *Gray & Engelm. in Proceed. Amer. Acad.* 1. p. 50. *Gaillardia odorata, Lindh. ined.* G. simplex, *Scheele in Linnæa*, 22. p. 160. Rocky prairies, near San Antonio and New Braunfels. April and May (646). — The genus is very near *Gaillardia*, from which it is distinguished by the fertile but usually deformed rays, the globose and alveolate receptacle, and by the style, the branches of which are tipped with a penicillate tuft, but not prolonged into a filiform hispid appendage; and the habit is peculiar. The flowers are deliciously sweet-scented, the fragrance much like that of the Heliotrope; the short rays are cherry-red or dark purple, and yellow only at the tip, as in several species of *Gaillardia*; the earliest heads are rayless. The leaves vary from lyrate-pinnately parted, with linear segments, to obovate and barely-toothed or incised towards the base. — *Agassizia, Chavannes*, is *Galvesia, Dombey*. *Agassizia, Spach*, is *Sphærostigma, Seringe*, and *Holostigma, Spach*, by most authors received only as a subgenus of *Cenothera*.

(103.) GAILLARDIA PICTA, *Don*. Near Victoria. More upright, and the deeply incised rays more cuneate than in the plant from Galveston.¹

438. HYMENOPAPPUS CORYMBOSUS, *Torr. & Gray, Fl.* 2. p. 372. H. *Engelmannianus, Kunth. in Ann. Sci. Nat.* 3 Ser. 11. p. 229. (April, 1849) ex char. Prairies and margin of woods, in fertile, rather heavy soil, New Braunfels, &c. April, May. Biennial.

¹ I cannot make out what *Gaillardia tuberculata, Scheele, l. c. p. 349*, (described from Roemer's collection) can be; neither *G. Roemeriana, Scheele, l. c. p. 161*, unless it be *Actinella scaposa*.

(645.) HELENIUM AUTUMNALE, *Linn.*: var. foliis rigidis. Grassy banks of Streamlets, Fredericksburg. October.

439. ACTINELLA SCAPOSA, *Nutt.*; *Torr. & Gray, Fl. 2.* p. 382. Gaillardia Rœmeriana, *Scheele in Linnæa*, 22. p. 161? Rocky prairies, Victoria and San Antonio. February – May.

(648.) A. LINEARIFOLIA, *Torr. & Gray, Fl. 2.* p. 283. On sterile, rocky soil, New Braunfels. May. Prairies on the Pierdenales, in patches, on sandy soil. June.

(647.) MARSHALLIA CÆSPITOSA, *Nutt. in DC. Prodr.* 5. p. 680. (*Pl. Lindh. supra*, No. 110.) Var. caule folioso! Rocky soil on the Upper Guadalupe. April.

(649.) ACHILLEA MILLEFOLIUM, *Linn.*: var. floribus roseis. Post Oak openings, on the Pierdenales. June.

440. ARTEMISIA DRACUNCULOIDES, *Pursh. Fl. 2.* p. 521; *Torr. & Gray, Fl. 2.* p. 416. In patches, near New Braunfels. October.

441. A. DRACUNCULOIDES, var. foliis infimis trifidis vel incisis. Dry prairies, Upper Guadalupe. September.

† A. CAUDATA, *Michx. Fl. 2.* p. 129; *Torr. & Gray, Fl. 2.* p. 417. Sandy prairies of the Upper Pierdenales. October.

442. A. LUDOVICIANA, *Nutt. Gen. 2.* p. 143; *Torr. & Gray, Fl. 2.* p. 420. A. cuneifolia, *Scheele in Linnæa*, 22. p. 162. Dry and high prairies, especially on old ant hills. September.

443. A. VULGARIS δ. MEXICANA, *Torr. & Gray, l. c.*; var. foliis superioribus integerrimis angusto-lanceolatis linearibus supra glabris. (A. Lindheimeriana, *Scheele in Linnæa*, 22. p. 163.) In patches in dry praries near New Braunfels. September. — The specimens accord with Texan ones of Drummond, cited in the Flora of North America. It is one of the forms that connect *A. Ludoviciana* with *A. Vulgaris*.

444. A. VULGARIS δ. MEXICANA, *Torr. & Gray, l. c.* Nearly the same form as the last; the lower leaves all fallen; the upper entire. Dry bed of the Cibolo. September.

† GNAPHALIUM POLYCEPHALUM, *Michx.* New Braunfels, &c.

445. SENECIO AUREUS ε. BALSAMITÆ, *Torr. & Gray, Fl. 2.* p. 442. High, rocky plains, Upper Guadalupe. March.

† S. RIDDELLII, *Torr. & Gray. Fl.* 2. p. 444. Rocky hill-tops, between the Upper Guadalupe and the Pierdenales, and in open Post-Oak woods. October.

446. LERIA NUTANS, *DC. Prodr.* 7. p. 42. Cedar woods, in rocky soil, New Braunfels. March.

447. APOGON GRACILIS, *DC. Prodr.* 7. p. 78. In patches, on high, rocky prairies, New Braunfels. April. — Larger in all its parts than the ordinary *A. humilis*, and perhaps to be distinguished from it.

448 (& 650). PINAROPAPPUS ROSEUS, *Less. Syn.* p. 143; *DC. Prodr.* 5. p. 99. Troximon Rœmerianum, *Scheele in Linnæa*, 22. p. 165. High, rocky prairies, between Bexar and New Braunfels. April. Ligulæ white, a little reddish on the back. Roots penetrating very deeply.

(651.) LYGOESMIA APHYLLA β . TEXANA, *Torr. & Gray, Fl.* 2. p. 485. Calcareous soil, New Braunfels. May. — It often bears a tuber at the apex of the long root. The marginal achenia are more or less attenuated upwards, as is also the case in the Florida plant.

* * No. 337, "*Linum Boottii* γ . *rupestre*, p. 155, is certainly a distinct species, as Dr. Engelmann had stated. It may be characterized as follows: —

337. LINUM RUPESTRE (*Engelm. ined.*): perenne, glaberrimum; caulibus e radice lignescente plurimis strictis gracilibus (1–2-pedalibus) striato-angulatis superne corymbosopaniculatis; foliis lineari-subulatis mucronulatis; glandulis stipularibus conspicuis post lapsum foliorum persistentibus; pedicellis calyce subbrevioribus; sepalis ovatis cuspidato-acuminatis margine glanduloso-ciliatis petalis flavis multoties brevioribus; filamentis sterilibus dentibusque plane nullis; stylis a basi discretis; capsula ovato-globosa calycem æquantibus, loculis bilocellatis. — Growing from the crevices of naked rocks, New Braunfels, also gathered at Comanche Spring,

July, 1849, in fruit. The leaves fall away early from the fructiferous plant, leaving the conspicuous stipular glands. Petals one third of an inch long. Capsule scarcely over a line in diameter.

The collection of 1849 furnishes an undescribed *Passiflora*, viz.: —

PASSIFLORA AFFINIS (*Engelm. Mss.*): “herbacea, scandens, elata, glabra; foliis trilobis subtus glaucis petiolisque eglandulosis, inferioribus subcordatis, superioribus basi subacutis, lobis subæqualibus obovatis obtusis setaceo-mucronatis integris; stipulis setaceis; pedunculis binis petiolum æquantibus vel superantibus 3-bracteatis, cirrho intermedio elongato simplici; petalis calycis lobis obtusis brevioribus et angustioribus (flavescentibus); baccis (cæruleo-atris) stipitem æquantibus. — Comanche Spring, climbing high over trees, in shady places. August–September. — Near *P. lutea* in aspect; from which it is distinguished by the bracteate peduncles, the deeply lobed leaves, the larger flowers, smaller seeds, &c. Lower leaves 3 inches long, and 4 wide, less deeply lobed than the upper, which are deeply divided. Petioles 4–12 lines long. Peduncles 12–15 lines long. Bracts 3, rarely 2, subulate, oblanceolate, or obovate, mucronate, often distant. Flowers 16 lines in diameter; the fimbriæ as long as sepals. Stipe half an inch in length, longer in proportion than in any other of our species. Berry of the same diameter. Seeds ovate, mucronate, transversely rugose, smaller and more turgid than in *P. lutea*. — De Candolle’s division of the genus, which would separate this species from *P. lutea* on account of the bracts, must be erroneous; moreover, *P. lutea* has not “perigonium s. calycem 5-lobum, but 10-lobum, as well as our species.” — *Engelm.*

[To be continued.]

The following brief account of the region in which the present collection of plants was made, drawn up by Dr. Engelmann as a preface to this article, having been received too late to take its proper place, is here subjoined.

“In November, 1844, Mr. Lindheimer left the neighborhood of the Brazos River, where he had made his collections in 1843 and 1844, and reached in January, 1845, the shores of the Matagorda Bay. In this and the following month he collected on the lower Guadalupe. From thence he went up this river about one hundred miles. Here, where the Comale Creek empties into the Guadalupe, the Association of German emigrants, with whom he had for the present joined his fortunes, selected a place for settlement, and laid the foundation of New Braunfels, now a flourishing town, and the county seat of Comale county.

“The year 1845 was spent in exploring the country and making excursions in the mountainous region to the west and northwest, at that time very insecure, being the haunts of wild Indian tribes.

“In the following year, 1846, Mr. Lindheimer made large collections in the interesting country about New Braunfels, at the same time giving much of his time and attention to the affairs of the colony.

“The explorations of the year 1847 were extended northwest to the country watered by the Pierdenales River, where another German settlement, Friedrichsburg (or Frederiksburg), had been founded. Collections were made partly here and partly near New Braunfels. Late in the fall an excursion in a northern direction into the granitic region of the Liano river furnished some interesting plants not observed before.

“The year 1848 was spent principally on the Liano, where several new German settlements had been formed. But the country appeared to be less rich in botanical treasures than had been expected; the burning sun of the summer months had almost destroyed the vegetation on the granitic soil, not refreshed for months by any rains. The Comanches, Weckos,

Tonkeways, and other Indian tribes of the west of Texas, became troublesome, and the frontier settlements had to be abandoned.

“The spring of 1849 found Mr. Lindheimer farther south, at Comanche Spring, one of the headwaters of San Antonio River. He has now (in the spring of 1850) returned to New Braunfels, where he intends again to go over the as yet insufficiently explored country, the most diversified and richest in botanical treasures as yet seen by him in Texas.

“The collections now distributed comprise those made in 1845 and 1846 (fascicle III) and 1847 and 1848 (fascicle IV).

“I proceed now to give a short geographical and topographical sketch of the country explored by Mr. Lindheimer.

“Matagorda Bay, with its numerous branches, receives to the northeast the Colorado, one of the largest rivers of Texas. Southwest of the Colorado the smaller Guadalupe River empties into the same bay after receiving not far from its mouth its southern branch, the San Antonio River. The headwaters of these rivers, together with the southern branches of the upper Colorado, drain the country investigated by Mr. Lindheimer since 1845.

“The coast of the bay itself forms a level saline plain, sandy with comminuted shells. *Cakile*, *Oenothera Drummondii*, and *Teucrium Cubense* are characteristic plants: a little farther off are found *Berberis trifoliolata*, *Acacia Farnesiana*, a shrubby *Erythrina*, groves of *Sophora speciosa*, *Condalia*, some large *Yuccas*, and large *Opuntias* with humbler *Cactaceæ* beneath them.

“Some miles higher up the rivers, on clayey soil, solitary Elms and Palm trees are seen; the prairies have a stiff, black soil thickly matted with grass. The prevalent tree now becomes the Live Oak along the rivers, as well as in small groves on the prairies: higher up on the rivers the Water Oak and the Spanish Oak (*Q. falcata*) are found mixed with the Live

Oak. Swampy places are often densely covered with *Marsilea macropoda*, like fields of clover.

“Ten to twenty miles from the coast the country rises into the “rolling prairies.” Along the rivers *Quercus macrocarpa*, *Taxodium distichum*, and *Carya olivæformis* constitute large forests of vigorous growth. The groves of the prairies are principally formed by *Sophora speciosa*, *Condalia obovata*, and *Diospyros Texana*. The prairies themselves are richly studded by flowers, among which the blue and fragrant *Lupinus Texensis* and different species of red and yellow *Castillejas* are most conspicuous.

“About one hundred miles from the coast the country becomes hilly; conglomerate rocks are frequently seen; the streams are more rapid and clear and often expose horizontal strata of cretaceous rocks. Elm and Cypress are the principal trees along the rivers; Sycamores, Linden, and Hackberry are sparsely mixed with them. Many curious shrubs, among them the *Ungnadia*, are found in these river-forests. Here, also, the Muskit trees (*Algarobia*) make their first appearance, indicating the region of the Arborescent *Mimoseæ*; they form open woods, where the level ground, often overflowed in the rainy season, brings forth abundance of the thin and wiry but nutritious “Muskit grasses” (*Aristida*, *Atheropogon*, and others). Many other interesting plants are found in these “Muskit-flats.”

“In this region, and at the base of the first plateau, are located the towns of San Antonio, New Braunfels, and Austin, in a delightful climate, where snow or ice are rarely seen, and where the summer heat, tempered by the sea-breezes, never becomes uncomfortable. The spring, which at the coast sets in in January and early February, commences here a month or six weeks later. During the summer the weather is usually dry, and the vegetation languishes, but the rains of the latter part of August and September soon cause the whole country again to be clothed in fresh verdure.

Many plants then bloom a second time ; some, indeed, in this fertile climate, bloom oftener than that, almost after every period of rains.

“ A short distance north of this region, steep and sterile declivities, covered by loose rocks, rise to the first plateau, just mentioned. The high plains which are now reached are mostly sterile and stony, and often large faces of naked rocks are exposed. Many interesting plants mentioned in this catalogue, are peculiar to these plains : the smaller Cactaceæ, *Echinocactus setispinus*, *Cereus cæspitosus*, several *Mammillariæ*, and prostrate *Opuntia* grow here ; different species of *Yucca* are common ; the curious and stately *Dasylyrion* is here first met with. The trees of this region are Elms and Cedar among the rocks, and Cedar again, finely developed, along the banks of the streams, where *Cercis occidentalis*, the shrubby Red Bud, forms thickets. *Juglans fruticosa* and *Morus parvifolia* are here found ; the Live Oak dwindles down to a shrub ; and low bushes of *Vitis rupestris*, the mountain grape, cover large tracts of these plains.

“ Twenty to thirty miles farther northwest the country rises again and becomes more hilly, and regular conic or pyramidal elevations, often showing the horizontal strata of the cretaceous limestone exposed in naked terraces, rise one behind the other, producing many peculiar plants. The valleys between them are often wide, with a thin soil, covered with grass and often with sparse Post Oaks ; or they are narrower, without any timber, but more fertile. The springs are here numerous and beautifully limpid, of a temperature of about 67 or 68 degrees ; the streams clear and rapid. The beds of the larger watercourses are often entirely dry in summer, leaving a wide, stony, or pebbly bed or naked rocks, abounding with interesting plants. The banks of the deeper streams are thickly covered with stately Cypress trees.

“ A few miles north of the Pierdenales the first outlier of the granitic formation is seen, which is found extensively developed on the Liano. The vegetation here begins to show

analogies to that of New Mexico. Here the winters are pretty cold, the springs late, the summers excessively hot, the soil generally thin, and therefore the prospects of the settlers unfavorable.

“I add a few details of localities and distances, which may not be found on the common maps.

“Green Lake and Caritas River are in the low lands near Matagorda Bay. Victoria is a town a little higher up on the lower Guadalupe. New Braunfels on the Comale Creek and Guadalupe River, is about one hundred miles to the northwest of the Bay, twenty-five miles northeast of San Antonio, and forty-five miles southwest of Austin, the present capital of Texas. The road from New Braunfels to San Antonio crosses the Cibolo, one of the confluent of San Antonio River, which runs in a wide and pebbly, and often dry bed. The Salado, one of the heads of which is the often-mentioned Comanche Spring, is another branch of San Antonio river, and such, farther south, are the Leona and the Medina.

“In going west from New Braunfels we reach, fifty-five miles from that town, the upper waters of the Guadalupe, the so-called Guadalupe crossings on the Pinto-trail. Several small streams in this neighborhood, Spring Creek, Wasp Creek, Three Creeks, and Sabinas (or Cypress Creek) are often mentioned as localities of different plants.

“North of this the road crosses several high ridges, (where, among other plants, *Guajacum angustifolium*, and in deep, clear ponds *Chara translucens*, were discovered), and reaches, sixty miles from the Guadalupe, the Pierdenales, one of the branches of Colorado River. The town of Friedrichsburg is built near the Pierdenales in a rather barren, sandy region, thinly scattered with Post Oaks.

“About thirty-five miles north of this the granitic region of the Llano or Liano is reached. The San Saba runs thirty miles farther north.

“The Flora of the country east of the Brazos River bears

considerable resemblance to that of the southern United States. But south of the Brazos, and still more south of the Colorado, the character of the vegetation changes; it assumes the peculiarity of the flora of the Rio Grande valley, which I have tried to characterize in Wislizenus's Report. The flora of the Rio Grande connects the North American with the Mexican flora, and has also many peculiar plants of its own, some of which have for the first time been distributed in Lindheimer's collections: such are the interesting *Rutosma*, the only American Rutaceæ known; *Galphimia linifolia*, the most northern Malpighiaceæ; several shrubby Mimoseæ; an evergreen *Rhus*; *Sophora speciosa*; the *Eysenhardtia*; a number of Nyctaginaceæ; the *Dasyllirion*, and many others enumerated in this catalogue. The ligneous plants become shrubby and often thorny, and here the chaparals, so famous in northern Mexico, make their first appearance.

“Towards the northwest the granitic soil produces a number of plants, which indicate a connection with the flora of New Mexico, and again with that of our western plains.

“In the neighborhood of New Braunfels the effects of cultivation on the distribution of plants are already apparent. *Helianthus lenticularis*, *Verbesina Virginica*, *Croton ellipticum*, *Nycterium lobatum*, different Cenopodiaceæ and Amaranthaceæ are becoming very common in cultivated places; but others, *Digitaria sanguinalis*, for example, so common in eastern Texas, have not yet made their appearance. In Cedar woods *Leria nutans*, in damp bottom woods *Dicliptera brachiata*, on dry prairies the small blue *Evolvulus*, are getting much more abundant; while *Pinaropappus roseus*, *Fedia stenocarpa* and others are much rarer than they used to be in the first years of the settlement of the country.

“In the catalogue of the collections of 1843 and 1844,

mention is several times made of "deserted ant-hills." Further investigation has shown that these hills are formed by loose earth brought by these ants out of their subterranean excavations. These consist of oblique tubes, some eight or nine inches wide, others only half an inch in diameter; they sometimes reach a depth of thirty or forty feet. In the greatest depth are their granaries, containing often many bushels, and it is said, even wagon-loads, of corn and other grain. These ants are also common about New Braunfels, and this or another species has occasionally been found to be quite destructive to Mr. Lindheimer's collections."

G. ENGELMANN.

ERRATA.

- Page 148, line 17 for "brevioribus" read breviores.
 " " line 18, for "subæqualibus aut longioribus" read subæquali aut longiore.
 " 153, line 3, for "piloso" read folioso.
 " " line 18, for "stigma" read stigmata.
 " 155, line 7 from bottom, for "glandular, hairy" read glandular-hairy.
 " " line 11 " " for "axillæ" read axillas.
 " 158, line 10 " " for "TEXANA" read TEXANUM.
 " " lines 2 & 4 " for "foliis" read foliolis.
 " 160, line 22, for "M. WRIGHTII" read MALVASTRUM WRIGHTII.
 " 161, line 21, for "A. TEXENSE" read ABUTILON TEXENSE.
 " 163, line 8 from bottom, for "pedicellas solitarias s. fasciculatas" read pedicellos solitarios s. fasciculatos.
 " 174, line 10 from bottom, for "squamosis" read squarrosis.
 " 177, line 6 " " for "tomento" read lomento.
 " 179, line 13 " " for "24 - 30-juga" read 24 - 30-foliolata.



