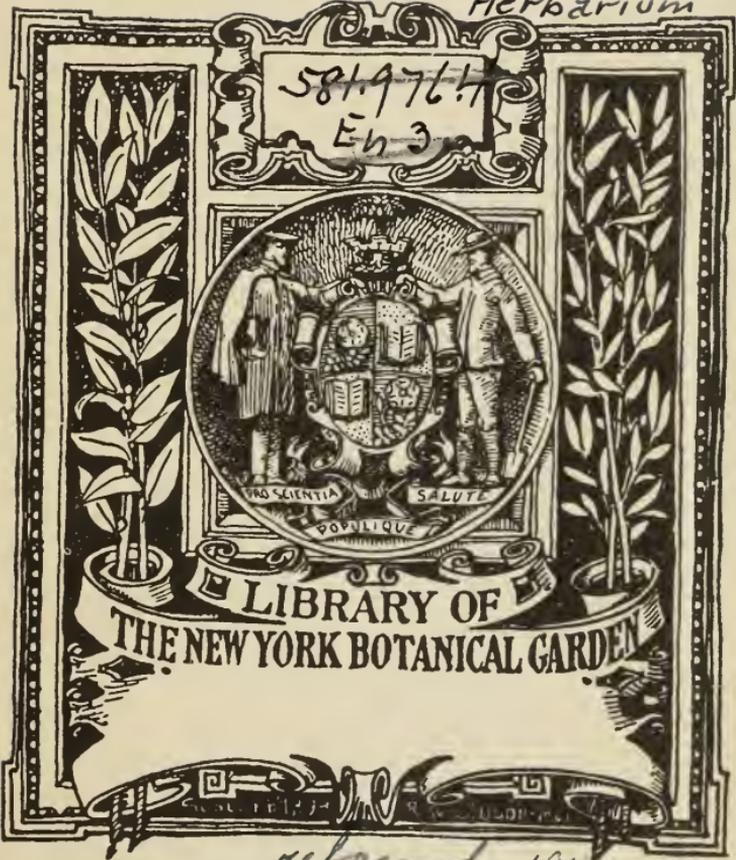


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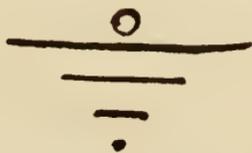
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(No 1)

PLANTÆ

LINDHEIMERIANÆ

EXTRACTED FROM

JOUR. BOSTON SOC. NAT. HIST.

VOL. V, VI.

— 0 —

ENGELMANN AND GRAY.

ART. XV. — PLANTÆ LINDHEIMERIANÆ; AN ENUMERATION OF THE PLANTS COLLECTED IN TEXAS, AND DISTRIBUTED TO SUBSCRIBERS, BY F. LINDHEIMER, WITH REMARKS, AND DESCRIPTIONS OF NEW SPECIES, &c. By GEORGE ENGELMANN and ASA GRAY.

MR. LINDHEIMER'S plan for exploring the botany of Texas, and preparing specimens of dried plants for distribution, was announced in Silliman's Journal for July, 1843. The collection of that season, owing to various misfortunes, having been much smaller than was anticipated, it was thought best to defer its distribution until that for the year 1844 should come to hand. A part of the second collection was lost in the course of transmission to St. Louis; those which were received in sufficient quantity for distribution extend the number to 318. Mr. Lindheimer is now entering upon an unexplored field west of the Colorado River, and we may confidently expect that a rich harvest of peculiar plants will reward his efforts during the present season. This collection will be assorted and distributed without delay, and our account of them duly published in the pages of this journal.

The collection of 1843 was made on Galveston Island, around Houston, on the Brazos, &c. The series commences with some species of *RANUNCULUS*, allied to *R. pusillus*, which, having been long since distinguished by Dr. Engelmann, and communicated to various botanists under the following names, the characters as assigned by him are here given.

1. *RANUNCULUS TEXENSIS* (*Engel. MSS.*): caule erecto ramosissimo basi hispido; foliis petiolatis, inferioribus ovatis subcordatis denticulatis, superioribus lineari-lanceolatis, basi petiolorum membranaceo-dilatata bracteisque ciliatis; petalis 5 oblongis sepala ovata obtusa longe superantibus; staminibus plurimis; carpellis subglobosis acutis minutim tuberculosis in capitulum globosum congestis. — Margin of ponds, &c. near

Houston. April. A span to a foot high, with conspicuous bright yellow petals.

2. *R. TRACHYSPERMUS* (*Engel. MSS.*): caule ramoso glabro; foliis petiolatis, inferioribus plerumque orbiculato-ovatis obtusis subintegris, superioribus lanceolatis lineari-lanceolatisve denticulatis, basi petiolorum membranaceo-dilatata bracteisque subciliatis; sepalis 3-4 ovatis reflexis petala 3-5 minima lineari-spathulata superantibus; staminibus 5-10; carpellis compressis obtusis undique tuberculis in capitulum oblongum seu cylindricum congestis. — Margin of ponds near Houston, &c. April, May.

3. *R. TRACHYSPERMUS*, β *ANGUSTIFOLIUS* (*Engel. MSS.*): foliis omnibus lanceolatis lineari-lanceolatisve; — and γ ? (an spec.?) *LINDHEIMERI* (*Engel. MSS.*): foliis inferioribus ovatis; sepalis 3-5 ovatis obtusis patentibus petala 3 lineari-spathulata æquantibus; carpellis compressis obtusiusculis tuberculis in capitulum globosum congestis. — Near Houston, &c. but not growing together with No. 2.

4. *CLEMATIS CYLINDRICA*, *Sims.* A narrow-leaved variety; the herbaceous stem beginning to flower in April, when only a foot or so in height. Houston.

5. *C. RETICULATA*, *Walt.* Houston. June.

6. *ANEMONE CAROLINIANA*, *Walt.* Prairies, Houston. February, March.

7. *COCCULUS CAROLINUS*, *DC.* Houston. June.

8. *STREPTANTHUS HYACINTHOIDES*, *Hook. Bot. Mag. t. 3516.* West of the Brazos. July.

9. *CRISTATILLA EROSA*, *Nutt.; Torr. & Gr. Fl. I. p. 123.* Sandy prairies on the Brazos. August.

10. *CLEOMELLA MEXICANA*, *DC.* High prairies west of the Houston. April, August.

11. *POLYGALA LEPTOCAULIS*, *Torr. & Gr. Fl. I. p. 130.* West of the Brazos. August. — More or less branched. Capsules ovate, with glands along the dissepiment on the face of the valves.

12. *P. INCARNATA*, *Linn.* Houston. April.

13. *KRAMERIA LANCEOLATA*, Torr. in *Ann. Lyc. New York*, II. p. 168. The root of *Krameria lanceolata* is ligneous, 2 to 3 lines thick, and very long, of a dark red color, and has the same chemical and medicinal properties as the South American *Ratanha*, (root of *K. triandra*, R. & P.) As the plant appears to be common in some parts of Texas, it might become valuable for collection and export.¹

14. *DROSERA BREVIFOLIA*, Pursh. Galveston Island. April.

15. *HELIANTHEMUM CAPITATUM*, Nutt. (ex Torr. & Gr. Fl. I. p. 151.) *H. polifolium*, Torr. & Gr. l. c., which name is preoccupied in the genus. The clusters are seldom capitate. May.

16. *LECHEA DRUMMONDII*, Torr. & Gr. Fl. I. p. 154. With the preceding.

17. *HYPERICUM GYMNANTHUM* (*n. sp.*): annuum, caule simplici vel superne ramoso erecto quadrangulari; foliis e basi cordata ovatis ovati-oblongisve amplexicaulibus 5-7-nerviis pellucido-punctatis; cyma dichotoma pedunculata strictiuscula laxiflora aphylla, nempe foliis floralibus in bracteis parvis lanceolato-subulatis diminutis; floribus pedicellatis; sepalis lanceolatis acutis petala superantibus; staminibus 10-12;

¹ Professor A. Braun, after examining the flowers of species of this genus, has suggested that the natural affinity of *Krameria* is with *Leguminosæ*, rather than with *Polygalacææ*. And, indeed, at least in this species, the two lateral glandulous petals cover in æstivation the stamens; they cannot therefore belong to an interior circle, as Bentham supposes. The ovary is one-carpellary (against the type of *Polygalacææ*) and irregularly one-sided, like the ovary of *Leguminosæ*; it is imperfectly bilocular, by the inflection of the placenta, as in some *Leguminosæ*; but in both cases are the cells always side by side; on the contrary, in *Polygalacææ* one is before the other. *Krameria* may, then, be considered a pentandrous *Leguminosa*, where one or two stamens are abortive. In *K. lanceolata*, it is the lowest stamen, opposite the three connected petals, which is wanting; but, in some flowers, a sterile filament occupies this place; it corresponds with the free 10th stamen of most papilionaceous flowers, as the four others, which are united in *K. lanceolata*, are analogous to the tube of nine connected filaments. The lateral sessile petals correspond with the carina, and the three others, whose claws are connected, with the alæ and carina; the five sepals alternate with them, as the stamens alternate with the petals. The fruit resembles somewhat the indehiscent spiny legume of an *Onobrychis*; and, in all the specimens we have examined, it is one-seeded when ripe. *Engel. MSS.*

capsula ovato-conica calycem vix superante uniloculari; seminibus flavis longitudinaliter costatis. — Clayey soil in pine woods near Houston. June. Also in Louisiana, Arkansas, &c. not uncommon. This is the plant mentioned in *Torr. & Gr. Fl. N. Amer.* under *H. mutilum*. It appears so different from the ordinary form of that species, that we are obliged to separate it. It varies from 6 to 20 inches in height.

18. *PARONYCHIA DRUMMONDII*, *Torr. & Gr. Fl. I.* p. 170. July.

19. *P. SETACEA*, *Torr. & Gr. l. c.* West of the Brazos, with the preceding, &c.

20. *SILENE ANTIRRHINA*, *Linn.* var. *SUBGLABRA*; and

21. var. *LÆVIGATA*; the leaves smooth, and with smooth margins. Galveston.

22. *LINUM BERENDIERI*, *Hook. Bot. Mag.* t. 3480. Sandy downs of Galveston Island. April, May. Perennial? No doubt distinct from *L. rigidum*. Styles connate above the middle. The name should, if we mistake not, be *L. Berlandieri*.

23. *XANTHOXYLUM CAROLINIANUM*, *Lam.* “*Pepper-tree, Toothache-tree.*” March.

24. *SIDA LINDHEIMERI* (*n. sp.*): annua? puberula; caule erecto ramoso; foliis linearibus vel oblongo-linearibus serratis basi subcordatis; stipulis lanceolato-setaceis petiolum subæquantibus; pedunculis folium demum æquantibus; carpellis 10–12 reticulato-rugosis, apice breviter birostratis extus pubescentibus et angulo interno in dentem subuncinatum brevem introrsum productis. — Prairies east of the Brazos. June to August. (Also collected in Louisiana by Dr. Carpenter.) About 2 feet high; the leaves 1–2 inches long, and 2–4 lines wide. Peduncles articulated about three-fourths of an inch below the fruit. Flowers (the yellow corolla an inch or more in diameter) and fruit larger than in *S. rhombifolia*, from which the carpels of the present species differ by their shorter and blunter horns, reticulated sides, and by the tooth project-

ing from the internal angle at the summit. *S. Elliottii* has narrower leaves, shorter peduncles, and about 9 orbicular carpels, which are only slightly bimucronate.

25. *MALVAVICUS DRUMMONDII*, *Torr. & Gr. Fl. I. p. 230.* Wet places, Houston. August. Leaves 4 or 5 inches in breadth. This proves to be a very ornamental plant in cultivation.

26. *VITIS BIPINNATA*, *Torr. & Gr.* Prairies, Houston. June.

27. *VICIA LUDOVICIANA*, *Nutt.* Galveston and Houston. April.

28. *VIGNA GLABRA*. Savi? Thickets, Houston, &c. June, July. — The plant is hirsute, but the leaves are almost glabrous when old; the flowers hardly larger than those of the garden bean; the vexillum pale yellow, the carina deep yellow. Legume compressed, somewhat torulose, black, hirsute with whitish hairs; the seed black, with a white hilum. The leaflets are broadly oval; but there is a variety β *ANGUSTIFOLIA*, which has lanceolate or linear-lanceolate leaves. Near brackish water on the coast of Galveston Bay. July.

29. *RHYNCHOSIA MINIMA*, *DC.; Torr. & Gr. Fl. I. p. 687.* Houston. September.

30. *R. MENISPERMOIDEA*, *DC.* With the preceding, in hard, clayey soil.

31. *DAUBENTONIA LONGIFOLIA*, *DC.* Houston. August.

32. *TEPHROSIA ONOBRYCHOIDES*, *Nutt.* A variety with silvery pubescence, and somewhat persistent stipules. Flowers white, soon turning to pale scarlet; the vexillum green in the middle. Prairies from Houston to the Brazos. April, August.

33. *T. VIRGINIANA*, *Pers.*, and

34. *INDIGOFERA LEPTOSEPALA*, *Nutt.* Houston and the Brazos. June, July.

35. *PSORALEA RHOMBIFOLIA*, *Torr. & Gr. Fl. I. p. 303.* Sandy places, Galveston Island, May. (Also collected by Dr.

Wright.) Stems diffuse, decumbent, from a filiform, often tuberiferous root. Leaflets of the lower leaves orbicular, of the upper rhombic-ovate and mostly acute. Peduncles in our specimens commonly shorter than the leaves. Legume membranous, suborbicular, rostrate, *transversely dehiscent*; the upper part strigose-pubescent, the lower glabrous and somewhat rugose. Seeds orbicular, compressed. The singular transverse dehiscence of the pod appears to confirm the opinion that *Psoralea* belongs to the tribe *Hedysarææ*.

36. *P. obtusiloba*, Torr. & Gr. l. c. Dry prairies east of the Brazos, flowering early in the season. Legumes glandular. The allied, but distinct, *P. floribunda* is wrongly described as "canescent but not glandular," whereas the plant is generally glandular, often very much so.

37. *AMORPHA PANICULATA*, Torr. & Gr. Fl. I. p. 306. Thickets, Galveston Bay, and west of the Brazos. June, July. A stately plant, 6 to 9 feet high, the long spikes clustered in ample panicles.

38. *A. GLABRA*, Desf.; DC. prodr. 2. p. 256. Wet prairies, Houston, &c.

39. *DALEA AUREA*, Nutt. West of the Brazos. June to August.

40. *PETALOSTEMON OBOVATUM*, Torr. & Gr. Fl. I. p. 310. Brazos. August.

41. *P. PHLEOIDES* β *MICROPHYLLUM*, Torr. & Gr. l. c. Sandy elevations in the prairies west of the Brazos. July.

42. *P. VIOLACEUM*, Michx.: a pubescent variety.

43. *P. MULTIFLORUM*, Nutt. On the Brazos. August.

44. *TRIFOLIUM REFLEXUM*, Linn. Galveston. May.

45. *ASTRAGALUS NUTTALLIANUS* β *TRICHOCARPUS*, Torr. & Gr. Fl. I. p. 334. Coast of Galveston Island, on soil composed of fragments of shells; while *A. Nuttallianus* is found in prairies in the interior of the island. The present variety, if such it be, has rather shorter as well as hairy pods, with usually 7-8 seeds in each cell, while in the true *A. Nuttallianus* there are commonly 10-12.

46. *A. LEPTOCARPUS*, *Torr. & Gr. l. c.* April, with the preceding.

47. *MINOSA STRIGILLOSA*, *Torr. & Gr. Fl. I. p. 399.* Tetramerous, octandrous. Hard clayey soil. April, June. — We have this plant in cultivation. The foliage is nearly as sensitive to the touch as *M. pudica*.

48. *NEPTUNIA LUTEA*, *Benth. in Hook. Jour. Bot. IV. p. 356.* *Acacia lutea*, *Leav.*; *Torr. & Gr. l. c.* Moist prairies, April — June.

49. *ACACIA HIRTA*, *Nutt. in Torr. & Gr. l. c.*; and

50. β *GLABRIOR*. Dry, open woods around Houston; May, June, and frequently flowering again in September.

51. *ACACIA FARNESIANA*, *Willd.*; *Benth.* Nearly the only shrub on Galveston Island, where it attains the height of 6 or 7 feet, and forms considerable thickets. Its odorous flowers are produced in April or May. Certainly indigenous to Texas, and probably also to Florida.

52. *LYTHRUM ALATUM*, var. γ , *Torr. & Gr. Fl. I. p. 482.* "*L. foliosum*, n. sp." *Engel. MSS.* (who has noticed two states, viz., 1. *stamineum*; filaments as long as the darker colored petals, the style not exceeding the calyx, and the ovary frequently sterile? 2. *stylosum*; filaments as long as the calyx only, the style as long as the apparently smaller and paler petals, or longer.) But, if a distinct species, it will fall under *L. lanceolatum*, *Ell.*

53. *CENOTHERA DRUMMONDII*, *Hook.* Downs of Galveston. April, May; also in the autumn.

54. *C. LINIFOLIA*, *Nutt.* Galveston Island.

55. *C. SPECIOSA*, *Nutt.* Houston. April, May.

56. *C. RHOMBIPETALA*, *Nutt. in Torr. & Gr. Fl. I. p. 493.* This handsome species, so remarkable for its acute or acuminate petals, has been cultivated in the botanic garden of Harvard University from seeds received from Mr. Lindheimer. His specimens have broader leaves and petals than those from Arkansas; the upper leaves ovate-lanceolate, closely sessile and somewhat cordate. The pods are cylindrical-prismatic, some-

what hairy and often incurved. (*Æ. bifrons*, Don, has rounded petals.) Galveston to the Brazos. June, July.

57. *LUDWIGIA HIRTELLA*, Raf. ; Torr. & Gr. l. c. Houston.

58. *L. LINEARIS*, var. *PUBERULA*: caule ramosissimo angulato foliisque junioribus minutim puberulis ; lobis calycis triangulari-lanceolatis acuminatis tubum æquantibus capsula elongato-turbinata subpedicillata dimidio brevioribus ; petalis flavis conspicuis. — Prairies and road-sides, Houston. June, September. Also in Alabama, Louisiana, &c. ; these characters gradually shading away into the ordinary *L. linearis*, in its branching forms, so that we cannot consider it as a distinct species.

59. *JUSSIEA DECURRENS*, DC. Houston, &c.

60. *GAURA SINUATA*, Nutt. Steep river-banks, &c., west of the Brazos. August.

61. *GAURA LINDHEIMERI* (*n. sp.*): perennis, erecta, virgato-ramosa, strigoso-pubescent vel hirsuta ; foliis infimis spathulatis lyrato-pinnatifidis sinuatisve, caulinis sessilibus lanceolatis acutis sinuato-dentatis vel undulatis, supremis plerumque integris ; bracteis ovato-lanceolatis acuminatis scariosis caducis ; calycis tubo ovarium sessile æquante segmentis (in alabastro hirsutis) multo brevioribus ; petalis 4 spathulato-rhomboides breviter unguiculatis subadscendentibus staminibus 8 styloque deflexis paulo brevioribus ; nuce tetraquetra circumscriptione ovali utrinque acuta, faciebus usque ad medium carinato-costatis fere lævigatis. — Prairies from Houston to the Brazos, flowering from April to May, and through the summer. In the botanic garden of Harvard University, where it is cultivated from seeds collected by Mr. Lindheimer, it also flowers through the whole summer, and proves to be a very showy and elegant species. It attains the height of from 3 to 6 feet, and its copious racemose branches produce a long succession of blossoms which are of a large size for this genus. The petals, which are often three-fourths of an inch long, are pure white changing to rose color ; the calyx is reddish. Flowers always tetramerous and octandrous. This is probably the

same as the Texan plant referred by Spach to *G. tripetala*, Cav. ; but it does not agree with the figure of Cavanilles, nor exhibit any trimerous flowers.

62. *ERYNGIUM CORONATUM*, Torr. & Gr. *Fl.* I. p. 604. Bottom woodlands on the Brazos. August.

63. *CYNOSCIADIUM PINNATUM*, DC. β *PUMILUM*. Differs from the larger and erect form (which is usually a foot or two in height,) in its low and diffuse stems, its umbellets with only four or five rays, and few or no involucreal leaves. Prairies, Galveston. April, May.

64. *LEPTOCAULIS ECHINATUS*, Nutt. Galveston Island.

65. *DISCOPELEURA CAPILLACEA*, DC. Galveston. May.

66. *SPERMACOCE GLABRA*, Michx. Near Houston. Sept.

67. *MITREOLA PETIOLATA*, Torr. & Gr. Swampy thickets west of Houston.

68. *POLYPREMUM PROCUMBENS*, Linn. Houston. June.

69. *HEDYOTIS BOSCHII*, DC. Houston. May and June.

70. *VERNONIA ANGUSTIFOLIA*, var. γ Torr. & Gr. Wet prairies west of the Brazos. July.

71. *LIATRIS ELEGANS*, Willd. Houston to the Brazos.

72. *L. ACIDOTA*. = *L. mucronata*, Torr. & Gr. *Fl.* II. p. 70, non DC. Houston to the Brazos, in wet prairies. August, September. In the Flora of North America, this species, which is apparently common in Western Louisiana and Texas, was hesitatingly referred to *L. mucronata*, DC., from the character of which it differs in some respects, principally in the form of the involucreal scales. But among Lindheimer's plants, some specimens of what is no doubt the true *L. mucronata*, DC. occur, (which have been distributed in some sets, probably mixed with *L. acidota*,) and which render it clear that the present is a different, although very nearly allied species. We have accordingly given a new name. The diagnosis may be expressed as follows; the habit, foliage, &c. being nearly the same in both; and the involucreal scales more or less ciliate when young.

L. mucronata : capitulis in spicam strictam arcte digestis ;

invol. squamis ovalibus obtusis abrupte mucronatis; pappo plumoso achænio pubescente vix longiore; caudice globoso. — Capitula (3–5 flora) et flores magnitudinis illorum *L. tenuifloræ*. Texas, *Berlandier*, *Lindheimer*; near Houston, and near the mouth of the Brazos.

L. acidota: capitulis in spicam strictiusculam sæpius elongatam digestis; invol. squamis oblongo-lanceolatis (extimis tantum ovatis) purpurascentibus, sensim acuminato-cuspidatis; pappo plumoso achænio puberulo subglabrove longiore; caudice perpendiculari incrassato e corno globoso. — Capitula (sæpius 3-flora) squamæ floresque iisdem *L. mucronata* duplo majora. Western Louisiana, *Hale*. Texas, *Drummond*, *Lindheimer*.

73. *L. ACIDOTA*, β VERNALIS: caulibus humilibus (spitham. — pedal.) multicipitibus; spicis brevibus laxiusculis; capitulis sæpius 4–5-floris. — Wet, sandy prairies, near Houston. April, May.

74. *L. PYCNOSTACHYA*, *Michx.* Houston to the Brazos. August.

75. *EUPATORIUM ROTUNDIFOLIUM*, *Linn.* Houston. Aug.

76. *E. INCARNATUM*, *Walt.* Thickets near Houston. September — October. (This delicate species, which is quite rare in herbaria, grows abundantly on the rocky banks of the French Broad River, North Carolina, about ten miles below Asheville.)

77. *MIKANIA SCANDENS*, *Willd.* Houston, &c.

78. *ASTER PHYLLOLEPIS*, *Torr. & Gr. Fl. II. p. 113.* Prairies, Houston. June — October.

79. *ERIGERON SCAPOSUM*, *DC.* Quicksands of the downs of Galveston Island. April, and continuing to flower until October.

80. *GUTIERREZIA TEXANA*, *Torr. & Gr. Fl. II. p. 194.* Dry, barren soil, Houston. September — October.

81. *SOLIDAGO NITIDA*, *Torr. & Gr. l. c.* Prairies on Chocolate Bayou, 50 miles south of Houston. September, October.

82. *S. TENUIFOLIA*, *Pursh.* Wet prairies. October.

83. *S. LEPTOCEPHALA*, *Torr. & Gr. l. c.* Wet prairies, Houston. September.—We have two forms; one with broader leaves and larger heads, bearing about 5 disk and 11 ray-flowers; another, with narrower leaves and smaller heads, which have about 3 disk and 10 ray-flowers.

84. *S. BOOTHII*, *Hook. ; Torr. & Gr. l. c.* Houston. July—September.

85. *S. TORTIFOLIA*, *Ell.* With the preceding.

86. *BIGELOVIA NUDATA*, β *VIRGATA*, *Torr. & Gr. l. c.* Prairies on Chocolate Bayou. September.

87. *BRADBURIA HIRTELLA*, *Torr. & Gr. Fl. II. p. 250.* Prairies, in hard, clayey soil, west of the Brazos. July, August.—The flowers of this very interesting and pretty plant are certainly yellow (a point which could not be positively determined from Drummond's specimens,) and the genus was therefore rightly placed in the homochromous series.

88. *HETEROTHECA SCABRA*, *DC.* Houston, &c. July.

89. *CHRYSOPSIS GRAMINIFOLIA*, *Nutt. ; and*

90. *C. PILOSA*, *Nutt.* Houston, &c.

91. *AMBROSIA CORONOPIFOLIA*, *Torr. & Gr. l. c.* Sub-saline prairies, Galveston Bay, &c. July.

92. *BERLANDIERA TOMENTOSA*, β *DEALBATA*, *Torr. & Gr. l. c.* Sandy prairies west of the Brazos. June.

93. *ZINNIA MULTIFLORA*, *Linn.* With the preceding.

94. *ECHINACEA ANGUSTIFOLIA*, *DC.* Pine woods near Houston. April, May. The slender and original form of this species, which varies much as does *E. purpurea*. The peduncles are scarcely incrassated at the summit, the head hemispherical, with 8 to 13 narrow, rose-colored rays. The northern form, (*E. sanguinea*, *Nutt.*) is a much stouter plant, the peduncle much thickened at the summit, the head twice the size, and at length conical, with 12 to 16 dark red rays. Both forms are quite variable.

95. *RUDBECKIA ALISMÆFOLIA*, *Torr. & Gr. l. c.* Houston to the Brazos.

96. *HELIANTHUS CUCUMERIFOLIUS*, *Torr. & Gr. Fl. H.* p. 319. Sandy soil, west of the Brazos. July, August. The mottled stems, with the leaves all cordate and coarsely toothed, and the narrow involucral scales quite reflexed and tapering gradually into long subulate points, are uniform in all the specimens. The foliage is deep green.

97. *H. PRÆCOX* (*n. sp.*): annuus vel biennis; caule hispido ramoso; foliis alternis longe petiolatis (subcinereis) leviter serratis deltoideo-ovatis in petiolum abrupte attenuatis, infimis tantum cordatis; pedunculis elongatis monocephalis; involucri foliolis lanceolatis, subulato-acuminatis discum vix superantibus; corolla fl. disci atro-purpurea gracili; achenio piloso; paleis pappi lanceolatis puberulis. — In loose sandy soil impregnated with salt, Galveston Island. April and May; in cultivation flowering from June to October. Plant $1\frac{1}{2}$ – $2\frac{1}{2}$ feet high; the heads about as large as in *H. cucumerifolius*, to which it is nearly allied; but from which it is constantly distinguished by its smaller size, the slightly toothed and seldom cordate leaves, the broader and more abruptly pointed involucral scales, the slender disk-corollas, the nearly flat (instead of hemispherical) disk in fruit, &c., &c.

98. *H. OCCIDENTALIS* β *PLANTAGINEUS*, *Torr. & Gr. l. c.* Bottom lands, south of Houston. August, September.

99. *H. RIGIDUS*, *Desf.* Fertile prairies. June—August.

100. *H. ANGUSTIFOLIUS*, *Linn.* Wet prairies. June—Aug.

101. *COREOPSIS DRUMMONDII*, *Torr. & Gr. l. c.* Sandy downs of Galveston Island. May—October.

102. *C. TINCTORIA*, *Nutt.* Prairies on Galveston Island.

103. *GAILLARDIA PICTA*, *Don.* Galveston Island, on a soil formed of fragments of shells. May.

104. *G. AMBLYODON*, *Gay.* In sandy or gravelly soil, west of the Brazos. May—July. This species is equally showy with the preceding in cultivation: the copious rays are deep reddish-flame-color, with brown-purple at the base, and underneath.

105. *G. LANCEOLATA*, *Michx.* Galveston Island, &c.

106. *PALAFOXIA TEXANA*, DC. Wet prairies, Houston. August. Annual, as is *P. Hookeriana* also.

107. *HYMENOPAPPUS ARTEMISIEFOLIUS*, DC. Open oak woods, &c.; west of Houston, &c.; flowering from March to September. Radical leaves very variable.

108. *HELENIUM TENUIFOLIUM*, Nutt. Open woods. September.

109. *LEPTOPODA BRACHYPODA*, β (purpurea.) Torr. & Gr. *Fl.* II. p. 388. May.

110. *MARSHALLIA CÆSPITOSA*, Nutt. Dry prairies, Houston, &c. The specific name is singularly inappropriate, at least as applied to the Texan plant; for the stems are single, scattered, and not at all cæspitose. The lowest leaves are often lanceolate-oblong or spatulate.

111. *EGLITES ARKANSANA*, Nutt.; Torr. & Gr. *Fl.* II. p. 411. (*E. Texana*, Engel. MSS., but agrees very well with the original Arkansan plant. A. Gr.) Downs of Galveston Island, April, May, and also in November, when it has very diffuse and decumbent stems, somewhat woody at the base; but the plant is surely annual. After flowering, the tube of the corolla of the outer disk-flowers, as well as those of the ray, become enlarged and corky at the base; and the inner part of the disk is sterile. It is quite a handsome plant in cultivation. The numerous rays are pure white above, and usually marked with pink underneath.

112. *GNAPHALIUM PURPUREUM*, Linn. var. (*G. spicatum*, Lam.?) April.

113. *CIRSIUM VIRGINIANUM*, Michx. Open woods. March to May.

114. *CENTAUREA AMERICANA*, Nutt. Moist fertile prairies, Houston. July.

115. *PYRRHOPAPPUS CAROLINIANUS*, DC. Dry prairies. May, June.

116. *LOBELIA GLANDULOSA*, Walt. Wet prairies and woods. September. A more or less scabrous form: bracts lanceolate from a broad base; the sinuses of the calyx very slightly re-

flexed. The specimens collected in shady places are less rough; the tube of the calyx is either hispid or nearly glabrous.

117. *VACCINIUM ARBOREUM*, *Marsh.* Woods. April.

118. *ASCLEPIAS PAUPERCULA*, *Michx.* Swamps near the coast. Stem 4–6 feet high. Root tuberous. June.

119. *SEUTERA MARITIMA*, *Reichenb., Decaisne.* (Lyonia, *Ell.*) Wet, saline prairies, Galveston, &c. May.

120. *SABBATIA CANPESTRIS*, *Nutt. Contrib. Fl. Arkans. &c.* Flowers April to May, and again in August and September; in dry prairies.

121. *S. CALYCOSA*, *Pursh*: a variety with rather longer calyx lobes than usual. Shady margins of streams near Houston. May, June.

122. *GILIA CORONOPIFOLIA*, *Pers.; Benth. in DC. Prodr.* VIII. p. 313. Dry prairies and open woods. June, July.

123. *CUSCUTA NEUROPETALA*, *Engel. in Sill. Jour.* XLV. p. 75. β MINOR. A smaller, earlier flowering form, growing in drier places, mostly on *Petalostemon multiflorum*, but also on *Liatris*, and even on *Euphorbia corollata*. It approaches *C. hispidula* so much that, not improbably, further investigation of living plants may prove both to be only varieties of a single species, for which the name of *C. porphyrostigma* would be most appropriate, as all the forms that would belong to it, are distinguished from every other known North American species by the purplish-brown stigmas. Another remarkable variety is:

124. *C. NEUROPETALA*, *Engel. γ LITTORALIS*: cymis paniculatis; floribus majoribus pedunculatis; tubo corollæ late campanulato calycis segmenta late ovata acutiuscula subcarnata et lacinias limbi enervias ovatas abrupte acuminatas crenulatas patentes subæquante; squamis tubum subæquantibus. — Seashore of Galveston Island, on *Lycium Carolinianum*, *Borrichia frutescens*, *Iva frutescens*, &c. Flowers in May. Different from the inland form by the much larger, more openly campanulate flowers, expanding in spring; by the hardly carinate, broader, and not so acute sepals, and the broad lobes of the

corolla, which are rarely somewhat nerved; stigmata also purple, and anthers purple or yellow. (*Engel.*)

125. *C. CUSPIDATA* (*Engel. n. sp.*): caule filiformi ramosissimo; floribus pedunculatis in cymas laxas bracteosas dispositis 5-fidis; tubo corollæ cylindrico sepala usque ad basin libera ovata concava (exteriora cuspidata) et lacinias limbi ovatas acutiusculas uninervias erectas s. patentes superante; staminibus limbo brevioribus; squamis ovatis fimbriatis tubum subæquantibus; stylis filiformibus ovario (minuto) globoso pluries longioribus; capsula globosa corolla marcescente oblecta. — Var. *α. PRATENSIS*: floribus minoribus; calyce bracteis paucis involucrato; tubo corollæ subcylindrico calycis et corollæ segmentibus paulo longiore; staminibus limbi laciniis ovatis acutiusculis duplo brevioribus; stylis ovarium parvum duplo superantibus. — Dry prairies west of the Brazos, on *Tephrosia*, *Bradburia*, *Ambrosia*, &c. June. — Var. *β. HUMIDA*: floribus majoribus; calyce bracteis pluribus involucrato; tubo corollæ infundibuliformi calycis et corollæ segmenta duplo superante; staminibus laciniis limbi lanceolatis acutis paulo brevioribus; stylis ovarium minutum quater superantibus. Bottom lands of the Colorado, on *Iva ciliata*, *Ambrosia trifida*, &c. August, 1844, (No. 276, *infra.*) — A remarkable species. The stems are very much branched, filiform; inflorescence loose paniculate, pedicels with many cuspidate bracts, some of them surrounding the calyx like an involucre, similar in shape but smaller than the sepals; sepals somewhat lacerate or crenulate, ovate, carinate, (the carina less distinct in the var. *β.*) cuspidate, interior ones rather obtuse, all concave, loosely imbricated. Lobes of corolla thin membranaceous, with a strong middle nerve, formed by large oblong or linear cells; when dry, convolute; the exterior ones generally somewhat cuspidate, the interior ones obtuse; at the base the lobes are dilated and cover one another, more than in any other North American species. Styles remarkably slender and long, about the length of the stamens, but elongated after flowering, when the corolla assumes an urceolate shape, and finally covers like a

hood the upper part of the globose capsule.—It appears to be an intermediate form between *Cuscuta* proper and *Lepidanche*. The var. β has larger and thinner flowers, of paler color, and the lobes of the corolla lanceolate and acute. *Engel.*

126. *C. PENTAGONA*, β *CALYCINA*, *Engel.* Wet prairies. June.

127. *C. VERRUCOSA*, *Engel. l. c.* Dry prairies. July.¹

¹ An undescribed North American species, collected in the Alleghanies of Virginia and North Carolina by Dr. Gray and Mr. Sullivan, in the autumn of 1843, is here appended. (This was named *C. oxycarpa*, n. sp.; but, just as these sheets are going to press, Dr. Engelmann writes that Mr. Shuttleworth has distributed the same plant from Rugel's collection, with a printed label, under the name of *C. rostrata*, which he therefore now substitutes for his own. A. GR.)

C. ROSTRATA (*Shuttlew. in coll. Rugel*): caule ramoso; floribus pedunculatis cymoso umbellatis 5-partitis; tubo corollæ globoso-campanulato calycis segmenta ovata obtusa leviter crenulata et lacinias limbi ovatas obtusas patentes (demum reflexas) duplo superante; staminibus limbum subæquantibus; squamis fimbriatis (convergentibus?) basi inter se connatis; styli filiformibus ovarium stylopodii ejusdem longitudinis coronatum pyriforme subæquantibus; corolla marcescente ad basin capsulæ (maximæ) acutatæ persistente.—Alleghany Mountains from Virginia to South Carolina, (*Mr. Buckley!* 1842.) *Prof. Gray* and *Mr Sullivan!* 1843.—August to October.—Particular localities recorded by Messrs. Gray and Sullivan are: Grandfather and Negro Mountains, N. Carol.; Tygart's Valley, Va.; and "common in moist, shady ravines in western Virginia." The specimens which came under my observation grow on *Urtica*, *Rubus*, *Aster*, *Solidago*, *Rudbeckia*, and some other plants.

After repeated and careful investigation, and with some hesitation, I have admitted this mountain plant as a distinct species, different from *C. vulgivaga*. The large pointed capsule would seem to characterize it at once; but *C. vulgivaga* offers so many different forms and sizes of the capsule, that other characters were necessary; and they are found in the tissue of the corolla, which is ever destitute of the large pellucid dots constantly observed in *C. vulgivaga*, but is composed, especially about the tube, of regular, somewhat elongated, hexangular cells, easily distinguishable in dried specimens with a common glass. In the common species, the cells are linear, mostly much elongated, interspersed with the large air-cells, which have been frequently mentioned. The flowers are mostly twice as large as in *C. vulgivaga*, but of the same shape and proportion, about 2, and sometimes (especially in Tygart's Valley specimens) 3 lines long; but the elongated ovary, whose stylopodium is nearly as long, though only half as thick, as the ovary proper, distinguishes it at once even from those forms of *C. vulgivaga* where the stylopodium is unusually large. The filiform styles are at first about the length of the stamina, but soon after they are long exerted. The capsule is very large, fully 3 lines long, globose, attenuated to a bifid point; it is larger and more acute than in any other known American species.—During the same journey, the following species was abundantly collected:

C. (LEPIDANCHE) COMPACTA (*Choisy*): caule ramoso; floribus sessilibus glomeratis 5-partitis; sepalis sub-novem leviter crenulatis orbiculatis concavis adpressis,

128. *IPOMÆA SAGITTATA*, *Desf.*; *Choisy*. June — Sept.
129. *CONVOLVULUS AQUATICUS*, *Walt.* Wet prairies west of the Brazos. Often 10 feet long. July.
130. *NAMA JAMAICENSIS*, *Linn.?* Sandy prairies, &c. near the Brazos. June. Annual.
131. *LITHOSPERMUM TENELLUM*, *Nutt. in Trans. Amer. Phil. Soc. (n. ser.)* V. p. 88. On the Brazos, &c. April — August.
132. *HELIOTROPIUM CURASSAVICUM*, *Linn.* Galveston, &c.
133. *H. INUNDATUM*, *Swartz*; *DC. prodr.* 9, p. 539. Banks of the Brazos. June.
134. *EUTOCA HIRSUTA* = *Phacelia hirsuta*, *Nutt. in Trans. Amer. Phil. Soc. l. c.* p. 191. Pine woods near Houston. March and April. Corolla with 5 very obscure pairs of squamellæ at the base of the tube. Ovary 5–10-ovuled. (Vide No. 279, 280, *infra*.) Also Texas, Drummond's Coll. 3, No. 299.

interioribus minoribus; tubo corollæ cylindrico calycem et lacinias limbi lineari-oblongas obtusas duplo superante; staminibus limbo brevioribus; squamis pinnatifido-laciniatis; ovario cum stylopedio stylos subæquante; capsula globosa subacuta corolla marcescente obtecta 1–4-sperma.—North Carolina to Alabama, in the mountains, on shrubs, frequently on evergreens; on *Corylus rostrata*, Buncombe Co., N. Carol.; on the same, and on *Andromeda axillaris* or *spinulosa*, on the sides of Negro Mountain, N. Carol., *Prof. A. Gray* and *Mr. W. S. Sullivant*; in Alabama, on *Prinos glaber*, *Dr. Gates*, (*Herb. Gray*.)

This is clearly the *Cuscuta compacta* of Choisy's monograph, (and of *DC. prodr. excl. syn.*) described after specimens collected in Alabama and Georgia; the notice in Silliman's Journal, Vol. XLIV. p. 195, must therefore be corrected.—It is very near *Cuscuta (Lepidanche) adpressa*, which thus far has only been found on the bottom lands of the Mississippi and Illinois Rivers. This is again a remarkable instance of two nearly allied species, one growing in the mountainous region of the Southern States, the other one in the western lowlands. Analogies offer in *Baptisia alba* and *leucantha*, *Phacelia fimbriata* and *Purshii*, and others. The mountain species is distinguished from its western relative by the closer and compacter glomerules, and much more slender and mostly smaller flowers. The tube of the corolla exceeds the compact scales of the calyx considerably, and is much narrower in proportion to its length; it gives, therefore, to the capsule which it covers, a much more pointed appearance, though the capsule itself is nearly globose. This appearance of the vestiges of the corolla on the capsule distinguishes this species from *C. adpressa* just after flowering. The corolla appears to be more membranaceous than in the western species, and remains whitish when well preserved in the herbarium; the other usually turns reddish-brown.

135. SOLANUM TEXENSE (*n. sp.*): perenne, inerme, tomento stellato incanum; caule (pedali) herbaceo erecto ramoso; foliis (2-4-unc.) petiolatis lanceolatis undulatis sinuato-dentatis integerrimisve sparsis; racemis terminalibus; pedunculis flore longioribus fructiferis deflexis; calyce 5-fido; corolla violacea extus ad carinas stellato-pubescente; staminibus æqualibus; baccis flavis. — Road-sides, prairies, &c., Houston to the Brazos. June — September. (This is also No. 200 of Drummond's Third Texan Collection. We likewise have specimens from Dr. Wright.)

136. PHYSALIS PUBESCENS? (*P. maritima*, *M. A. Curtis*, *MSS.*) Coast of Galveston Island. April — November.

137. HERPESTIS MONNIERA, *Humb. & Kunth*. Wet places. June, July.

138. CONOBEA MULTIFIDA, *Benth. in DC. prodr. & Torr. & Gr. Fl. ined.* (*Capraria*, *Michx.*) Brazos. July.

139. BUCHNERA ELONGATA, *Swartz, Benth. l. c.* Galveston to the Brazos. April, May, and again in July. Flowers smaller than in *B. Americana*, the teeth of the calyx and bracts less acuminate.

140. HERPESTIS NIGRESCENS, *Benth.* Brazos, &c. August.

141. GERARDIA SPICIFLORA, *Engel. MSS.* *G. maritima* β grandiflora, *Benth. in DC. prodr. ined.* Margin of brackish ponds, Galveston Island.

142. PENTSTEMON COBÆA, *Nutt. in Trans. Amer. Phil. Soc. (n. ser.)* V. p. 182. Ravines near Houston. May.

143. SCUTELLARIA DRUMMONDII, *Benth. Lab.* p. 441. On soil composed of fragments of shells, on the coast of Galveston Island. May. Apparently annual: stems 10 to 29 inches high.

144. S. CARDIOPHYLLA (*n. sp.*): puberula; caule erecto (1-2-pedali) ramoso; foliis omnibus petiolatis cordato-triangularibus obtusiusculis caulinis, grosse crenatis, floralibus gradatim minoribus integrioribusque lato-cordatis vel deltoideis, summis bracteiformibus; floribus axillaribus oppositis; corollis pubescentibus calyce pedicello longiore plus triplo longioribus. — Var. β . humilior, foliis omnibus parvulis. — Open woods,

&c. near Houston. Flowering through the summer. Dr. Engelmann has likewise collected the smaller variety at the Hot Springs, in Arkansas. Fruiting specimens of this well-marked species also exist in Drummond's Texan Collection, (No. 209, Coll. 3,) but we find no allusion to it in Bentham's fine Monograph of the Labiatæ. The smaller forms might be confounded with *S. parvula*, but even the floral leaves are distinctly petioliate, broadly triangular-ovate, or cordate, and more or less crenate-toothed; all are shorter than the corolla, which is three-fourths of an inch long; the uppermost scarcely exceeding the calyx. The cauline leaves are from one to nearly two inches in length, and considerably resembling those of *S. saxatilis*, Riddell: those of the elongated flower branches scarcely half an inch long. Achenia strongly tuberculate. Root apparently annual.

145. *SALVIA AZUREA*, *Lam.* Houston. May to September.

146. *HYPTIS RADIATA*, *Willd.* Houston. September.

147. *PHYSOSTEGIA VIRGINIANA*, *Benth.*, var. *foliis ovalibus oblongisve subdenticulatis.* (*Dracocephalum variegatum*, *Vent., Ell.*) Wet prairies west of the Brazos. July.

148. *P. VIRGINIANA*, var. *foliis lanceolatis argute serratis.* Dry, sandy soil. Houston. September.

149. *TRICHOSTEMMA DICHOTOMUM*, *Linn.* September.

150. *TEUCRIUM CUBENSE*, *Linn., Benth. Lab.* p. 668. Galveston Island. April, May.

151. *MONARDA LINDHEIMERI*, (*n. sp.*): caule glabro superne piloso subsimplici; foliis ovatis acuminatis subeordatis grosse serratis glabris glandulosis margine scabris, petioliis brevibus basi pilosis; bracteis acuminatis integris capitulum laxum subæquantibus; calycibus glandulosis, dentibus subulatis diametrum tubi subæquantibus, fauce villosa; corolla glandulosa et villosa.—Prairies and margin of woods, in clayey soil. April to June, and again in October.—According to Mr. Bentham's view, this would probably be deemed a variety of *M. clinopodia*.

152. *M. PUNCTATA*, *Linn.* Houston. July.

153. *M. ARISTATA*, *Nutt. in Benth. Lab.* p. 318, in *Mem. Amer. Phil. Soc. (n. ser.)* V. p. 186. Prairies east of the Brazos. June.

154. *VERBENA STRIGOSA*, *Hook. Compan. to Bot. Mag.* I. p. 176. Roadsides, near Houston. April—July. Lower leaves obovate and tapering into a winged petiole, doubly incisely toothed; the upper tri-multifid. The hispid pubescence of the stem is not appressed. The foliage, the more slender spikes, and the much shorter fruit distinguish the species readily from *V. stricta*.

155. *V. SPURIA*, var. *caulibus erectis; bracteis brevioribus.* Dry prairies, Galveston, to the Brazos. March to July.

156. *ZAPANIA NODIFLORA*, *Lam. var. foliis lanceolato-cuneiformibus.* Downs of Galveston Island. April.

157. *DIPTERACANTHUS* (*PANICULARIA*, folia floralia in bracteis parvas reducta, ideo cyma trichotoma terminalis) *NUDIFLORUS* (*n. sp.*): parce pilosus, demum glabratus; caule erecto herbaceo; foliis ovalibus ovato-oblongisve obtusis margine obsolete repandis basi in petiolum attenuatis; cymulis trifloris in cymam laxam glanduloso-puberulam congestis; bracteis lineari-lanceolatis pedunculis multo brevioribus; tubo corollæ apicem versus sensim dilatato calycis laciniis attenuato-subulatas duplo triplove longiore; capsulis puberulis subclavato-cylindræis vel oblongis utrinque acutis 8–12-spermis calycem æquantibus. — Open woods at Sim's Bayou, near Houston. May to July. Also, in Drummond's Texan Collection, (Coll. 2, No. 221, and 3, No. 257.) Stems one to two feet high, simple or branched from the base, slender, pubescent when young, as well as the leaves and petioles, with scattered hairs. Corolla two inches long. Anthers somewhat included; the lobes slightly mucronate at the base. Stigma a simple lamella, with a mere rudiment of the second lobe. — This well marked species differs from the rest of the genus in its inconspicuous bracts, and naked, more explicate inflorescence, which entitle it to the rank of a distinct section.

158. *D. CILIOSUS*, *N. ab E. in Linn. XVI. p. 294.* = *Ruellia ciliosa*, *Pursh.* Open woods, Houston. June.

159. *DIANTHERA HUMILIS.* In clear water. June.

160. *DICLIPTERA BRACHIATA*, *Spreng.* Shady woods, Houston. June — September. Seeds hispid, with short, minutely glochidiate bristles.¹

161. *UTRICULARIA SUBULATA*, *Linn.* Wet prairies of Galveston Island. April.

162. *SAMOLUS EBRACTEATUS*, *H. B. K.* Sandy brackish soil, Galveston. April. It is singular that this should have been overlooked by DUBY, in *DC. Prodr.*, as a North American plant. It was recorded as such by TORREY in the report on the plants collected in Major Long's Expedition, and is not uncommon along the coast from Florida to Texas. The leaves in the Texan plant, as generally in our specimens, are obovate or broadly spatulate, tapering into pretty long winged petioles, which are decurrent on the stem.

163. *PLANTAGO GNAPHALOIDES*, *Nutt.* Galveston Island.

164. *P. ARISTATA*, *Michx.* Houston, &c. April.

165. *IREGINE CELOSIOIDES*, *Linn.* Houston. September.

166. *OPLOTHECA FLORIDANA*, *Nutt.* Prairies and open woods in loose sandy soil, west of the Brazos. August.

167. *ERIOGONUM LONGIFOLIUM*, *Nutt., Benth.* β *PLANTAGINEUM*: foliis brevioribus latioribusque. Dry prairies west of the Brazos. July, August. The same form occurs in Drummond's Third Texan Collection, No. 352.

168. *POLYGONELLA ERICOIDES.* = *Gonopyrum Americanum*, *Fisch. & Meyer, in Mem. Acad. St. Petersb. (ser. 6.) IV. p. 144.* Prairies, west of San Felipe, on the Brazos.

¹ Among Lindheimer's plants a few specimens were received of the *Ruellia justiciæflora*, *Hook. Comp. to Bot. Mag. I. p. 176*, which has also been distributed by Dr. Riddell, under the name of *Eberlea*. We refer it to the genus *Hygrophila*, R. Br. To the character given by Hooker, for the most part excellent, we may add, that the stem and leaves are somewhat fleshy, and that the upper lip of the corolla is not entire, but 2-cleft. The anthers of the shorter pair of stamens are smaller than the others, but are polliniferous and 2-celled. The plant grows in wet swamps, and flowers in the autumn.

July. A low shrubby plant, 1–2 feet high, with the aspect of a heath.¹

¹ This plant also occurs in Drummond's Texan Collection (No. 19 & 348 of 3d Coll.); from which source doubtless Fischer and Meyer obtained the specimens, upon which they established the genus *Gonopyrum*. But their genus must be reduced to *Polygonella*, from which it differs only in the hermaphrodite, instead of dioico-polygamous flowers, a character which would be insufficient, even if constant, which it probably is not. The filaments of *Polygonella polygama* (which are more correctly described than figured by Ventenat) are not materially different from those of the new Texan species. The generic character, &c. should properly stand as follows:

POLYGONELLA, *Michx.* (Trib. Rumicææ, *Meyer.*)

Polygonella and *Gonopyrum*, *Meyer l. c. supr.*

Flores dioico-polygami vel hermaphroditi. Perigonium pentaphyllum, petaloideum; phyllis seriei exterioris 2 immutatis fructif. reflexis, seriei interioris 3 erectis planis post anthesin ampliatis conniventibus fructum triquetrum includentibus. Stamina 8: filamenta dimorpha; nempe, tria phyllis perigonii interioribus opposita inferne dilatata et sæpe bidentata; cætera subulato-setacea. Styli 3: stigmata capitata. Embryo in axi albuminis rectiusculus. — Fruticuli ramosissimi glabri, in planitiibus aridissimis Amer. Bor.-Orient. calidioribus vigentes; ramis hornotinis herbaceis foliosis ochreatis (ochreis brevibus nudis unidentatis); foliis crassiusculis parvulis linearibus spathulatisve subsessilibus sparsis vel in axillis pl. m. fasciculatis; floribus (albis vel roseis) parvis spicato-racemosis; rachi dense et appresse imbricatim ochreato-bracteati quasi articulati; pedicellis solitariis articulatis, fructiferis pendulis; racemis sæpius paniculatis.

1. *P. polygama*: foliis cuneato-linearibus spathulatisve; floribus dioico-polygami; sepalis ovalibus ad anthesin subæqualibus; filamentis tribus basi ovato-dilatatis vix aut ne vix dentatis; stylis brevissimis. — *Polygamum polygamum*, *Vent. Hort. Cels. t. 65; Ell. Sk. I. p. 458.* *Polygonella parvifolia*, *Michx. ! Fl. II. p. 240; Nutt. Gen. I. p. 256* (sub *Polygono*); *Meisn. Gen. Vase. Comm. p. 228.* *Polygonum* (*Polygonella*) *gracile*, *Nutt. Gen. l. c. ?* — In arenosis (sandy pine-barrens.) Carolinæ! Georgiæ! Floridæ (*Bartram! Leavenworth!*) et, fide *Nutt.*, in Arkansas.

2. *P. ericoides*: foliis linearibus vel anguste spathulato-linearibus fasciculatis; floribus (an semper?) hermaphroditis; sepalis orbiculatis, interioribus subcordatis exteriora virido-carinata ad anthesin superantibus; filamentis tribus basi valde bidentato-dilatatis quasi obcordatis; stylis longiusculis. — *Gonopyrum Americanum*, *Fisch. & Meyer, in Mem. Acad. St. Petersb. l. c. supra.* — In planitiibus aridis Texas, *Drummond! Lindheimer! Wright!* Flores duplo majores quam in præcedente, ramis crassioribus, etc.

For the first species we have adopted the older specific name of Ventenat, in place of that of Michaux, chiefly because it is the largest-leaved species of the genus.

Polygonum articulatum, *Linn.*, which is joined, by Nuttall and Meisner, to *Polygonella*, with which, indeed, it nearly accords in habit (though an annual herb) and inflorescence, has all the sepals uniform and erect in fruit, the three inner not at all enlarged, and the embryo is lateral as in *Polygonum*.

169. *STILLINGIA SYLVATICA*, *Linn.* Prairies. April—June.

170. *S. LIGUSTRINA*, *Michx.* Thickets near water-courses, Houston. May. — The staminate flowers are rather conspicuously pedicellate, not *brevissime pedicellatis*, as described by Michaux.

171. *PILINOPHYTUM LINDHEIMERI* (*n. sp.*): annuus, stellato-tomentosus; caule (4–5-pedali) erecto ramoso; foliis longe petiolatis e basi ovata subcordatave lanceolatis sæpe acutato-mucronatis, inferioribus denticulatis; floribus fœmineis paucis ad basin spicæ masculæ; staminibus sub-12; stigmatibus plerumque 12; seminibus vix compressis. — Dry prairies, Houston to the Brazos. Also, Texas, *Drummond*, and Western Louisiana, *Leavenworth*. A taller, more upright plant than *P. capitatum* (*Croton, Michx.*) with larger and less canescent leaves; the lower 4–5 inches long, and gradually acuminate to an usually sharp point, on petioles 3 inches long. The spike in fruit is less capitate, and the seeds are smaller and less compressed. Something like intermediate specimens between this and the *P. capitatum*, which also grows in

A remaining species, the *Polygonum fimbriatum* of Elliott, which has been deemed a near ally of *Polygonum polygamum*, may be taken as the type of a new genus, viz.:

THYSANELLA, *A. Gr.*

Flores dioico-polygami. Perigonium pentaphyllum petaloideum; phyllis omnibus erectis margine scariosis et eroso-fimbriatis, duobus exterioribus cordato-sagittatis post anthesin auctis, interioribus minoribus ovato-lanceolatis pectinato-fimbriatis. Stamina 8: filamenta filiformia perigonium adæquantia. Ovarium (infertile) trigonum: styli 3, filiformes; stigmatibus simplicibus. Fructus Semen — Herba ramosa, glabra, (bipedalis,) in arenosis Georgiae vigens, caulibus virgatis strictis; foliis angusto-linearibus elongatis acutatis striatulis sessilibus; ochreis truncatis setis capillaribus longissime barbatis; floribus (incarnatis) racemoso-spicatis; spicis solitariis vel geminis, paniculatis, dense imbricatim ochreato-bracteatis; ochreis oblique truncatis in acumen aristiforme productis; pedicellis in medio articulatis.

T. FIMBRIATA. = *Polygonum fimbriatum*, *Ell. Sk.* I. p. 538.

Elliott seems to have described from specimens with hermaphrodite flowers; but in mine (which were collected by Dr. Leavenworth either in Georgia or Florida) the ovaries are apparently all sterile. The fruit and seed is, therefore, unknown to me, and I am not certain that the outer sepals increase in size after flowering.

A. GR.

Texas, render it doubtful, however, whether this plant is specifically different.

172. GEISELERIA GLANDULOSA, *Klotzsch, in Erichs. Archiv. I.* (1841) p. 254. Dry woods, Houston. May, June. The calyx of the sterile flowers is 5-parted, and the stamens 9 or 10.

173. CROTON ARGYRANTHEMUM, *Michx.* Margin of woods, Houston. April—June. The ovary is on an orbicular, not 5-glandular disk.

174. EUPHORBIA BICOLOR (*n. sp.*): annua; caule erecto foliis bracteisque undique villosis seu pilosis; foliis subsessilibus oblongo-lanceolatis vel lineari-oblongis cuspidatis basi obtusis; bracteis lineari-ligulatis elongatis basi attenuatis margine membranaceis decolorato-albidis; glandulis involucri villosi margine petaloideis suborbiculatis; capsulis dense lanatis; seminibus sparsim rugulosis. β CONCOLOR: marginibus decoloratis bractearum angustissimis aut subnullis; foliis latoribus. Prairies near Houston. June—September. Also Texas, *Drummond.* Arkansas, *Beyrich, &c.* A handsome species, resembling *E. marginata*, but distinguished by the narrower hairy leaves, much narrower bracts, &c.

175. APHORA MERCURIALINA, *Nutt. in Trans. Amer. Phil. Soc. (N. Ser.) 5,* p. 174. Serophyton pilosissimum, *Benth. Bot. Voy. Sulphur,* p. 53. In denudated soil, dry prairies, &c. Arkansas and Texas. May—July. Endlicher having entirely overlooked this genus of Nuttall's, Mr. Bentham has lately characterized it anew under the name of Serophyton. To his excellent character we have only to add, that the plants are sometimes diœcious, or subdiœcious, as, indeed, is mentioned by Nuttall in the case of the original species. What Nuttall takes for sterile filaments in the fertile flowers, Bentham describes as petals, and so Nuttall's name becomes unmeaning, which, however, is no great objection. Mr. Bentham's Californian species must, therefore, bear the name of *Aphora lanceolata*. His remaining Texan species, the *Aphora Drummondii*, was also collected by Lindheimer, but

not in sufficient abundance for distribution. It is a less hairy plant. Under No. 306 we describe a fourth species, *A. humilis*, which we also find in Drummond's second collection, No. 230. The leaves in *A. mercurialina*, as in *A. Drummondii*, often turn purplish, in drying. In No. 322 of Drummond's third collection, the leaves are oblong-ovate, or ovate-lanceolate, and often acute or acuminate, as in Lindheimer's specimens. In No. 263 of the second collection they are mostly ovate-orbicular.

176. *TRAGIA URTICÆFOLIA*, Michx. Houston, &c. April. *T. betonicaefolia*, Nutt.?

177. *PHYLLANTHUS POLYGONOIDES*, Nutt. (*Maschalanthus*, Nutt. = *Phyllanthus* proper, Linn., Juss., etc.) Grassy banks. July.

178. *CNIDOSCOLUS STIMULOSUS*. = *Jatropha stimulosa*, Linn. Houston. July.

179. *URTICA PURPURASCENS*, Nutt. in *Trans. Amer. Phil. Soc.* (N. Ser.) V. p. 169. Thickets, Galveston Island.

180. *QUERCUS VIRENS*, Ait. Moist woods along the coast.

181. *TAXODIUM DISTICHUM*, Rich. Houston, &c.

182. *SAGITTARIA SIMPLEX*, Pursh.? Ponds in clayey soil, near Houston. June—September. Our plant has rather rigid linear-lanceolate leaves; the calyx as well as the ovate acute bracts are a little pubescent; the fertile flowers are on short, the sterile on rather long peduncles; the stamens from 20 to 30; and the carpels in fruit are compressed, rostrate, and falcate. Larger specimens, collected near the coast, with broader leaves, &c. bear larger flowers, with 40 to 50 stamens.

183. *S. STOLONIFERA* (*n. sp.*): stolonibus radicantibus; foliis submersis lato-linearibus acutis, emersis lineari-lanceolatis 3-5-nerviis; scapo simplici; bracteis ovatis acutis vel obtusiusculis brevibus; pedunculis subternatis omnibus elongatis; staminibus 12-16; carpellis compressis oblique suborbiculatis breviter mucronatis. — *S. graminea*, Nutt. in *Trans.*

Amer. Phil. Soc. l. c. p. 159. Ponds near Houston. September, &c.

184. *COMMELYNA ANGUSTIFOLIA*, *Michx.* Houston. May.

185. *XYRIS CAROLINIANA*, *Walt. β?* SCABRA: scapo apice magis ancipiti, aciebus subtilissime serrulato-scabris. *X. scabra*, *Engel. MSS.* Prairies, west of the Brazos. July.

186. *X. BULBOSA*, *Kunth, enum. IV. p. 11*, (ex descr.) With the preceding. The North American species still need thorough revision.

187. *HYPOXIS ERECTA*, *β. ÆSTIVALIS*: scapo subuniflora folia subæquante; capsulis subglobosis, (ut in *α.*) In prairies which have been burned over in spring. July.

188. *II. ERECTA*, *γ. LEPTOCARPA* (*H. leptocarpa*, *Engel. MSS.*): floribus minoribus; capsulis prismatico-oblongis ellipticisve; seminibus in singulis loculis uniserialibus 4-6. Sandy soil, along rivulets, June — August.

189. *EUSTYLIS PURPUREA*. (*Nemostylis? purpurea*, *Herbert, in Bot. Mag. sub. t. 3779.*) Open woods and prairies, from Houston to the Brazos. June, July. Also, Texas, *Drummond*, and Western Louisiana, *Dr. Hale*. The diagnostic characters of this genus and *Nemostylis* are subjoined. *Alophia*, *Herb.* differs, according to the character,¹ in having the inner divisions of the much more unequal perigonium naviculate, and differently shaped from the outer, in the very short filaments, &c., and in being tuberiferous instead of bulbiferous.

NEMOSTYLIS, *Nutt.* Perigonium hexaphyllo-partitum, conforme, patens, segmentis fere æqualibus, tubo nullo. Filamenta distincta, e basi lato subulata, antheris elongato-linearibus (connectivo angusto) post anthesin spiraliter convolutis

¹ The specimens of several of these Iridaceous plants, of very similar appearance in the dried state, appear to have been somewhat confused in the distribution of Drummond's Texan Collection. Under No. 414 of the Third Collection, we have, instead of *Alophia*, specimens of the *Herbertia cærulea*. Under No. 415, we have *Nemostylis acuta* (*geminiflora*, *Nutt.* *Ixia acuta*, *Barton*), as well as *Gelasine Texana*. In the latter the filaments are certainly monadelphous, and the style has two or three short and simple lobes.

multo breviora. Stylus brevis (filamenta adæquans,) tenuis, apice trilobus; lobis bipartitis, partitionibus in stigmata filiformia radiatim productis.

EUSTYLIS. Perigonium hexaphyllo-partitum, conforme, patens; tubo nullo; segmentis obovatis planis, tribus interioribus modice minoribus. Filamenta distincta, e basi lato subulata, antheras subpanduriformes post anthesin immutatas æquantia: connectivum latum basi apicemque versus præsertim dilatatum, oculis marginalibus. Stylus elongatus (stamina adæquans,) ad apicem infundibuliformis, trifidus; lobis bifidis, partitionibus in stigmata filiformia recurvia attenuatis.—Habitus, bulbus, capsula, etc., omnino Nemostylis.

190. GYMNADENIA NIVEA. (*Orchis nivea*, *Nutt.*) Moist prairies near Houston; April to June. The ovary remains straight; the labellum is therefore posterior. The outer lateral divisions of the perianth are also produced at the base on the upper side into a triangular blunt auricle, which is not noticed in Nuttall's description. The anther-cells are parallel and approximated.

191. SPIRANTHES VERNALIS (*n. sp.*): radice fasciculata; caule foliato; foliis linearibus, superioribus sensim minoribus vaginantibus lanceolato-subulatis; sepalis petalisque basi cohærentibus oblongo-linearibus, lateralibus angustioribus labello reflexum crenulatum apice non dilatatum æquantibus vel superantibus. — Moist prairies, Galveston and Houston; April, May. — Stem 1 to 2 feet high, slender; lower leaves often 5 to 6 inches long, 2 lines wide; bracts ovate, acuminate. Flowers much as in *S. cernua*, from which it is distinguished by its short lip, &c.

192. THALIA DEALBATA, *Fraser*. Swamps on the Brazos; September. — The seed appears to contain three embryos, of which only the central one is fully developed.

193. JUNCUS HETERANTHOS, *Nutt. in Trans. Amer. Phil. Soc. (N. Ser.)* V. p. 153. Galveston Island. May.

194. PONTEDERIA LANCIFOLIA, *Muhl.* July.

195. SMILAX LANCEOLATA, *Linn.* Rich shady soil near

water-courses. July.—Climbing to a great height. The rhizoma bears tubers which are called “Indian bread” in Texas. Leaves varying from narrowly lanceolate to almost ovate. Stem prickly below.

196. *COOPERIA DRUMMONDII*, *Herbert*. Dry prairies from Galveston to the Brazos; flowering from June to November, but mostly in July, and only after heavy rains.

197. *ALETIS AUREA*, *Walt*. Houston. April.

198. *SCILLA* (Kamassa, sed perigonium regulare) *ANGUSTA* (*n. sp.*): *gracilis*; foliis linearibus apice longe attenuato-setaceis flaccidis scapo brevioribus; bracteis e basi lanceolata membranacea subulatis pedicellos erecto-patentes subæquantibus; alabastris oblongo-linearibus; foliolis perigonii linearibus obtusis stamina duplo superantibus.—Open woods and prairies, in south-western Missouri and Arkansas, as well as Texas: flowering from April to May in Texas, but from May to the middle of June in Missouri and Arkansas, when *S. esculenta*, growing in the same region, has matured its seeds. The present plant is more slender than *S. esculenta*, with narrower leaves, sepals, etc.; but perhaps it is only a variety.—We are slow to believe that the Oregon species belongs to a different genus from the eastern.

199. *ALLIUM MUTABILE*, *Michx*. Dry open woods, Houston. April. The capsule, in all our specimens, is one-seeded; the flowers usually rose-red, but sometimes white.

200. *RUPPIA MARITIMA*, *Linn*. Salt water ponds, Galveston Island.

201. *CYPERUS VEGETUS*, *Linn*. Wet prairies. May.

202. *C. OVULARIS*, *Torr*. In dry and wet places. April to June.

203. *C. TETRAGONUS*, *Ell*. Dry prairies near Houston. May and June. Style 3-cleft.

204. *FUIRENA HISPIDA*, *Ell*. Springy places west of the Brazos. August.

205. *ELEOCHARIS ARENICOLA*, (*Torr. MSS.*): culmis subsphamæis compressis sulcatis e rhizomate repente prælongo;

spicis ovatis obtusis multifloris; squamis rufescentibus membranaceis obtusis margine scariosis; stylo trifido; achenio obovato compresso triangulari opaco tuberculo distincto rostrato acuto multum majore setas 6 tenues subexcedente. — Galveston Island, May, creeping in the loose sand. (Also along the southern coast of the United States.)

206. SCIRPUS LACUSTRIS, *Linn.* Galveston. May.¹

207. SPARTINA JUNCIFORMIS (*n. sp.*): humilis (1–2 pedalis); foliis convolutis angustis, caulinis paucis brevibus, radicalibus cæspitosis culmum subæquantibus; spicis 8–10 oblongis sessilibus ad rachin læviuseulam adpressis; carina glumarum longitudine subæqualium paleæque inferioris ciliato-hispida. Saline prairies near the coast. May. — Plant with the foliage and much the aspect of *S. juncea*; but with the spikes and flowers different from that species, as well as from *S. lævigata*. A few specimens of a taller variety were collected in July.

208. KÆLERIA TRUNCATA, *Torr.* Woods, Houston. May.

209. UNIOLA GRACILIS, *Michx.* Variety with broad and hairy leaves, the florets undeveloped. Houston. June.

210. PANICUM (ORTHOPOGON) HIRTELLUM, *Michx.* Houston. June.

211. ANDROPOGON AVENACEUS, *Michx.* Houston. Sept.

¹ I wish to subjoin the character of a remarkable Scirpus, which has been discovered this season, near Providence, Rhode Island, by Mr. Olney (the author of a *Catalogue of Rhode Island Plants*, 1845,) whose name I am desirous it should bear.

SCIRPUS OLNEYI (*n. sp. A. Gr.*): culmis triquetro-alatis 2-7-pedalibus aphyllis basi vaginatis sub apice triangulari-subulato brevi capitulam sessilem, e spicis 6-12 ovato-oblongis, gerentibus; squamis orbiculatis mucronatis; antheris apice barbularis; stylo bifido; setis 6 retrorsum hispidulis achenium obovatum plano-convexum gibbosum apiculatum vix æquantibus. — In a salt marsh on the Seekonk river, Rhode Island, *Mr. S. T. Olney*. This species is most allied to *S. pungens*, *Vahl*, (*S. Americanus*, *Pers.*) from which it is especially distinguished by its remarkably 3-winged stem. The reëntering angles are so deep that the cross section presents the appearance of three rays, or plates with parallel sides, joined at a common centre. This species has just been detected on the coast of New Jersey by that very assiduous botanist, Dr. Kueskern, from whose specimens I have added the characters of the achenium; as the fruit has failed to ripen this year in the Rhode Island plant.

212. *LEPTOCHLOA MUCRONATA*, *Kunth.* August.

213. *POA* (*ERAGROSTIS*) *CAPITATA*, *Nutt. in Trans. Amer. Phil. Soc. (N. Ser.)* V. p. 147; the submasculine plant; and

214. The subfeminine plant of the same species, which has the spikelets much less crowded. Sandy places in the Brazos bottom. July.

COLLECTION SECOND, 1844.

Mr. Lindheimer's Collection of 1844, was made between the Brazos near San Felipe, and the Colorado River, in the neighborhood of Cat Spring of Mill Creek, the settlement of Industry, and thence westward towards the Colorado, and along its bottom lands. The prairies are partly of a light and even sterile sandy soil, and partly of a stiff clayey soil. The bottom lands consist of a stiff black soil. Near Industry, and on the Colorado, rocks of a secondary sandstone (probably a subcretaceous formation) appear, on which several species of Cactus are found. In the prairies ant-hills are not uncommon, and on old and deserted ones a rich harvest of peculiar plants may be made. The numbers run on consecutively from the end of the former year's collection. Additional specimens of the following plants of that collection, gathered again in 1844, are distributed to subscribers (without being reckoned) under their former numbers, namely: No. 7. *Cocculus Carolinus*, *DC.*, in fruit. — 8. *Streptanthus hyacinthoides*, *Hook.*, with linear leaves; the flowers nodding, the long siliques erect. — 18. *Paronychia Drummondii*; handsome specimens, gathered in May, just coming into flower. — 24. *Sida Lindheimeri*, *nob.*; specimens in finer state than before. — 29. *Rhynchosia minima*. — 39. *Dalea aurea*. — 40. *Petalostemon obovatum*. Root ligneous, perennial. The spikes, which are an inch in diameter, are at length prolonged to the length of six or eight inches. — 49. *Acacia hirta*, with ripe pods. — 51. *Acacia Farnesiana*; on the Brazos, &c. Undoubtedly indigenous, flowering in March. — 55. *Cœnothera*

speciosa. — 60. *Gaura sinuata*. — 80. *Gutierrezia Texana*. — 83. *Solidago leptcephala*. — 94. *Echinacea angustifolia*. — 96. *Helianthus cucumerifolius*. — 104. *Gaillardia amblyodon*. — 107. *Hymenopappus artemisiæfolius*; with the leaves, as usual, extremely variable; some of them occasionally obovate-lanceolate, and perfectly entire. — 110. *Marshallia cæpitosa*; growing in scattered plants on the dry prairies near the Mill Creek. — 137. *Herpestis cuneifolia*, in fruit. — 138. *Buchnera Americana* β . *parviflora*, in flower. — 145. *Salvia azurea*. — 153. *Monarda aristata*, which in the inland parts of Texas appears to take the place of *M. punctata* near the coast. — 161. *Utricularia subulata*. — 167. *Eriogonum longifolium* β . *plantagineum*. — 169. *Stillingia sylvatica*, in fruit. — 174. *Euphorbia bicolor*. — 175. *Aphora mercurialina*, in flower. — 184. *Commelyna angustifolia*. — 199. *Allium mutabile*. Shady moist places on Mill Creek. April, May. Larger specimens than those gathered in 1843, near Houston, 12 to 20 inches high, the umbel not bulbiferous. Ovary with a crown of three scales, which disappear as the capsule ripens, (in this respect unlike *A. stellatum* and *A. reticulatum*,) 6-ovuled; the capsule 1-3-seeded. — 189. *Eustylis purpurea*: rather common between the Brazos and the Colorado. April — August. — 198. *Scilla angusta*, *nob.* Dry prairies west of the Brazos. April.

215. *BRASENIA PELTATA*, *Pursh.* Specimens in fine fruit, gathered in July in clear rivulets between the Brazos and the Colorado.

216. *DRABA CUNEIFOLIA*, *Nutt. in Torr. & Gr. Fl. I.* 108. Dry grassy places, March. — In some specimens the silicles are almost, if not quite, glabrous. *D. micrantha*, *Nutt.*, which differs only in the like respect from *D. Caroliniana*, is probably therefore a mere variety of that species.

217. *VESICARIA AURICULATA* (*n. sp.*): annua, caulibus decumbentibus canescenti-hirsutis; foliis sparsim pilosis, infimis lyrato-pinnatifidis sinuato-dentatisve basi attenuatis, cæteris ovato-lanceolatis basi cordato-auriculata sessilibus vel semi-

amplexicaulibus repando-dentatis subintegrive; petalis obovato-spathulatis sepala pilosa colorata subduplo superantibus; filamentis e basi inflata abrupte subulatis; antheris linearibus; ovarii loculis 3-4-ovulatis; stylo cum stigmate globoso siliculis vix stipitatis globosis glabris brevioribus; seminibus subsex marginatis. — Dry prairies near San Felipe. Feb. — March.

218. *NASTURTIVM TANACETIFOLIUM*, *Hook. & Arn.* Sandy bottoms. February and March. — Siliques sometimes spreading or even reflexed: in other cases considerably incurved and erect.

219. *SISYMBRIUM CANESCENS*, *Nutt.* A very canescent form. April — May.

220. *POLYGALA ALBA*, *Nutt.* (*P. Beyrichii*, *Torr. & Gr.*) Prairies. April — May. Lower leaves sometimes obovate-spatulate.

221. *HYPERICUM MACULATUM*, *Walt., Torr. & Gr.* Margin of woods from Galveston to the Colorado. May.

222. *PARONYCHIA DICHOTOMA*, *Nutt.* Sandstone rocks near Industry. Sept. — Oct.

223. *ARENARIA PITCHERI*, *Nutt.* Prairies. March. Petals emarginate.

224. *PTELEA TRIFOLATA*, β . *MOLLIS*, *Torr. & Gr. Fl. I. p. 680.* Along water-courses. Houston to the Colorado. April.

225. *ÆSCULUS PAVIA*, β . *DISCOLOR*, *Torr. & Gr.* Thickets along the banks of Mill creek. March.

226. *SAPINDUS MARGINATUS*, *Willd.* Popularly called "Wild China-tree," forming trunks about a foot in diameter, in fertile woods. The specimens with ripe fruit were gathered in August.

227. *RHAMNUS CAROLINIANUS*, *Walt.* Small trees forming thickets in wet places on the prairie west of San Felipe; flowering in May. With it there is a small-leaved variety, with the flowers more crowded, &c.

228. *R. LANCEOLATUS*, *Pursh.* Thickets. March.

229. *TEPHROSIA ONOBRYCHOIDES*, *Nutt.*; with short and rusty pubescence, &c., differing somewhat from the variety distributed under No. 32. West of San Felipe. May.

230. *ASTRAGALUS CARYOCARPUS*, *Ker.* — Prairies west of San Felipe. April.

231. *LUPINUS SUBCARNOSUS*, *Hook.* Prairies. April. Plant 5 to 15 inches high, branching from the base, with rather smaller and paler flowers and more silky or woolly inflorescence than the nearly related *L. Texensis*, — of which a few specimens were intermixed in the collection.

232. *CASSIA CHAMÆCRISTA*, var. *CINEREA*, *Torr. & Gr.* Sandy places in woods along the Colorado. August. The leaves bear setaceous glands between the 4 to 6 lower pairs of leaflets; the gland below the lowest pair is stipitate; and the 5 alternate anthers are shorter.

233. *ALGAROBIA GLANDULOSA*, *Torr. & Gr. Fl. I. p. 399.* “This shrub, or small tree, about 10 feet high, with a stem 6–8 inches in diameter, either grows sparsely or forms thickets in the low prairies. It is called *musket-tree* by the Texans. It is first found as a low shrub on the San Bernardo prairie, west of San Felipe, but becomes larger and more frequent westwardly, giving a new character to the vegetation, as in the *musket-thickets* on the Colorado, along the borders of which several Cacti, hereafter enumerated, are abundantly met with. It ripens its pods at the end of August.” *Lindheimer.*—The leaflets vary, often on the same specimen, from narrow linear to oblong, and even broadly elliptical. Lindheimer’s specimens are some of them in fine fruit, showing that the species is totally distinct from *A. dulcis*, (of which Bentham conjectured it might perhaps be a variety,) and also presenting some peculiarities that call for more particular remark. The mature legumes are from 5 to 7 inches long, raised on a stipe which is often an inch in length: they are narrowly linear, more or less curved or falcate, very slightly compressed, strongly torose, and from 9 to 20-seeded: the epicarp is chartaceo-membranaceous, and contains a considerable quantity of sweet farinaceous pulp which surrounds the seeds, or rather the coriaceous investment in which the seeds are singly contained. For each seed is enclosed in a distinct and almost

bony almond-shaped *putamen*, derived, we suppose, from the endocarp or lining of the carpel, though, for the want of young pods, we are unable to trace its formation. But in the ripe legume, these several husks, which are perfectly closed, are entirely unconnected with each other. They are placed obliquely in the pod, of which they occupy nearly the whole breadth. The flattened, oval seeds (about 3 lines long) do not fill the cavity. On examining an *Algaroba* pod from South America (the fruit, as we presume, of *A. dulcis*.) we find that the seeds are invested by a similar covering, only that it is much thinner and paper-like, and apparently does not separate spontaneously from the pulp. We have not seen the fruit of *Prosopis spicigera*; but we hope that this character may help to sustain the genus *Algarobia*, which, after having been separated from *Prosopis* by Mr. Bentham, has since, by the same author, been again reduced to a section of that genus. Our own species, however, would still have to be distinguished subgenerically from the typical *Algarobia* thus. § PLEOPYRENA. Legumen lineare, subteres, torosum, polyspermum; seminibus singulis in nucleo endocarpico coriaceo inter pulpam nidulante clausis. — In a species of STROMBOCARPA, collected by Capt. Fremont, (the curious fruit of which should separate it generically from *Algarobia*.) this papery lining is continuous, or merely collapsed where the seeds are deficient.

234. *SCHRANKIA ANGUSTATA*, Torr. & Gr. l. c. May — August.

235. *DESMANTHUS BRACHYLOBUS*, Benth. (*Darlingtonia*, DC.); the var. *glandulosa*, Torr. & Gr. under *Darlingtonia*; — fruiting specimens, collected in July.

236. *PRUNUS GLANDULOSA*, Hook.; Torr. & Gr. l. c. “Low shrubs on sandy hills west of the Brazos, flowering in February. Fruit yellowish-red, as large as a middle-sized cherry.” *Lindheimer*. It is probably a *Prunus*, therefore, but the half-grown fruit upon one of our specimens is juiceless, and still clothed with the tomentum of the ovary.

237. *P. GRACILIS* (*n. sp.*): ramis subinermibus; foliis lan-

ceolato-oblongis vel ovato-lanceolatis utrinque acutis grosse serratis (serraturis plerumque patentibus mucronulatis eglandulosis) supra puberulis subtus cum petiolis brevibus eglandulosis tomentoso-pubescentibus; stipulis setaceis glanduliferis petiolum æquantibus; umbellulis 2-3-floris; pedicellis calycibusque (laciniis ovatis obtusiusculis) pubescentibus; petalis orbiculatis; ovario glabro. — *P. Chicasa* β ? normalis, *Torr. & Gr. Fl. I.* p. 467. Open *post-oak* woods west of the Brazos, where it is called *Post-Oak Plum*. A low shrub, with leaves only one to two inches long. Doubtless a distinct species, which should stand between *P. Chicasa* and *P. glandulosa*.

238. *CENOTHERA SERRULATA*, δ . *SPINULOSA*, *Torr. & Gr.* An unusually large-flowered form; the petals an inch in length. Sandy, dry, or moist prairies. May — June.

239. *GAURA LONGIFLORA* (*Spach*): *elata*, pilis brevibus undique canescenti-puberula; caule erecto paniculato-ramosissimo; foliis lanceolatis lineari-lanceolatisve utrinque angustatis mucronato-acuminatis, sparsim repando-denticulatis, rameis multo minoribus linearibus integerrimis; spicis ramosis laxifloris; bracteis linearibus deciduis; calycis segmentis tubum plerumque superantibus; petalis spathulatis longe unguiculatis calyce et staminibus brevioribus; nuce sessili ovata canescente 4-carinata nervis 4 intermediis leviter notata. — *G. exaltata*, *Engel. MSS.* *G. biennis*, β . *Pitcheri*, *Torr. & Gr. Fl. I.* p. 517. — Prairies at the margin of woods between the Brazos and the Colorado, &c., where it often exclusively covers large spaces of ground; flowering in August and September. Plant taller and much more branching than *G. biennis* (6-9 feet high) with narrower leaves, smaller flowers (the petals turning from white to reddish,) and much smaller and, when ripe, rounder fruit. The *G. filipes*, β . *major*, *Torr. & Gr. l. c.*, is confused with this species. *Spach* described from an imperfect specimen collected in Louisiana, by *Drummond*. The specific name has no particular applicability.

240. *G. DRUMMONDII*, *Torr. & Gr. l. c.* Dry banks and road sides. Canescently pubescent; the leaves often sinuate-

toothed, calyx-segments longer than the tube. Petals deep red in the dried specimens.

241. *G. PARVIFLORA*, *Dougl.* Sandy prairies, &c. July — August. Ovaries and fruit clothed with a close, soft pubescence.

242. *STENOSIPHON VIRGATUS*, *Spach.* High prairies on the Colorado, and on rocky soil.

243. *JUSSIEA OCCIDENTALIS*, *Nutt.* Along rivulets. July. Petals obcordate.

244. *OPUNTIA FRAGILIS*, *Nutt.*, var. *FRUTESCENS*. (*O. frutescens*, *Engel. MSS.*) Near the *Musket-thickets*, (vide No. 233,) on the Colorado; often acquiring the height of four or five feet, with a branching ligneous stem, covered with light gray bark, and sometimes with lichens. It bears bunches of small capillary spines, with one larger one (4–5 lines long;) these disappear from the older stems. The wood is hard and close-grained. The younger branches are green and terete, (or angular when withered,) and bear the ultimate articulations, which are about an inch long, and very easily break off. These bear when young, like other *Opuntia*, short terete subulate leaves, with a single spine in their axils, and above this a bunch of small ones. The specimens are not in flower, but are covered with the obovate umbilicate scarlet fruits, which are about eight lines long, fleshy, but not juicy, and contain very few (2–5) white, compressed seeds. What is most remarkable, these fruits are often proliferous, and bear from one to four or five new branches from the upper bunches of spines. The fruit either falls off with these branches, or else dries up, persists and finally forms part of the stem.¹

¹ Though unable to institute a proper comparison, I have little doubt that this is *O. fragilis* of Nuttall, attaining a fuller growth in that warm region than on the Missouri. The following species, collected in the same localities by Lindheimer, though not in sufficient quantity for distribution, have been studied in a living and (most of them) in a flowering state, by Dr. Engelmann, whose account of them is here appended. Unfortunately, neither Dr. Engelmann nor myself have access to

245. *SEDUM SPARSIFLORUM*, *Nutt.* Naked places in the San Bernardo prairie, between the Brazos and the Colorado. April — May.

any adequate or authentic collection of Cacti, so as to institute the proper comparisons. A. GR.

“Mr. Lindheimer has sent seven other Cacti, mostly in living specimens, namely:

1. *OPUNTIA*, *sp.* without fruit or flower, probably *O. vulgaris*. It attains the height of several feet, with large obovate joints, and a few spines.

2. *O. MISSOURIENSIS*? Perhaps *O. vulgaris*, but very spiny.

3. *MAMMILARIA SIMILIS* (*n. sp.*): *cæspitosa*; axillis tuberculorum juniorum paulo tomentosius demum glabris; tuberculis ovatis supra leviter sulcatis (sulco basin versus subtomentoso) apice spiniferis; spinis (circ. 12) æqualibus rectis radiantibus albidis, junioribus puberulis basi que tomento circumdatis; baccis sparsis globosis coccineis. — Sandstone rocks, near Industry. Evidently near *M. simplex*, at least to Nuttall's plant of that name, but *cæspitosa*, forming tufts often a foot in diameter. Flowers not seen. Berries scarlet, of the size of a large pea. Seeds numerous, subglobose, scrobiculate, black, with an elongated white hilum. I have living plants, but they have not yet flowered.

4. *M. SULCATA* (*n. sp.*): *cæspitosa*; tuberculis ovato-oblongis sulco subinde apicem versus prolifero superne exaratis apice spiniferis; spinis rectis radiantibus cinereis e tomento albedo deciduo (in plantis adultis spina centralis subrecurva majore) ortis; floribus centralibus fasciculatis e tomento ortis glaberrimis, tubo brevi; sepalis lanceolatis acuminatis viridi-flavescentibus margine integerrimis; petalis longioribus lanceolatis apicem versus ciliato erosis cuspidatis sordide flavis ad basin intus filamentisque brevibus rubicundis; stylo supra stamina exserto; stigmatibus 7-10 flavis; baccis oblongis virescentibus. — With the preceding. Flowers opening for two or three days, in direct sunshine, two inches or more in diameter. On account of the central flowers, this should form, with *M. vivipara*, a distinct section. From that species it abundantly differs, not only in the color of the flower and the spines, but in the entire and smooth sepals, denticulate petals, &c. [This pretty species has also flowered in the Cambridge Botanic Garden.]

5. *ECHINOCACTUS SETISPINUS* (*n. sp.*): subgloboseus, apice retusus; costis plerumque 13 acutis subobliquis; aculeis 15-18 fasciculatis tenuibus flexuosis flavicanti-fuscis, superioribus 3-5 elongatis, 1-3 centralibus longissimis erectis, cæteris radiantibus; floribus minutis solitariis e macula subtomentosa supra fasciculos aculeorum ortis; sepalis in tubum concretis, apicibus liberis late ovatis acuminatis scariosis margine fimbriatis; fructibus; seminibus ovatis nigris opacis minutim tuberculatis. — Musket-thickets, on the Colorado River. Near *E. tenuispinus*, *Link & Otto*, from Brazil. Our specimens are about two inches in diameter, and an inch and a half high, with pretty sharp ribs separated by deep grooves. The longest spines are fifteen lines long. Flowers about five lines long.

6. *E. LINDHEIMERI* (*n. sp.*): hemispherico-depressus, vertice tomentosus; costis 21 verticalibus acutis subundulatis; spinis e cicatrice ovato-lanceolata tomentosa ortis fasciculatis compressis cinereo-rubellis transversim annulato-striatis, exterioribus 6-7 inæqualibus radiantibus subrectis centrali recurvata multo brevioribus; floribus e vertice depresso tomentosus ex axillis fasciculorum spinarum hornotiorum provenientibus confertissimis; sepalis (80-100) in tubum brevem infundibuliformem lanosum coalitis lanceolatis spinoso-aristatis, interioribus margine fimbriatis;

346. *GALIUM VIRGATUM*, Nutt. Prairies. April.

247. *DIODIA TRICOCCA*, Torr. & Gr. *Fl.* II. p. 30. Fertile places in the prairie, sixteen miles west of San Felipe. (Also collected by Dr. Wright.) June. Cæspitose, depressed, and very much branched. All the specimens examined are tricarpellary.

248. *SPIGELIA TEXANA*, A. DC. *Prodr.* IX. p. 5. (*Cælostylis*, Torr. & Gr.) Shady woods along the Mill-creek west of San Felipe. July.

249. *ASTER DRUMMONDII*, Lindl. Shady, moist woods and thickets. September—October. This species exhibits many varieties, in respect to pubescence, and smoothness or roughness. Among them the *A. urophyllus* and *A. hirtellus* of Lindley, are probably to be identified.

250. *CHÆTOPAPPA ASTEROIDES*, DC. Dry prairies. April to July.

petalis (40-50) lineari-oblongis margine fimbriato-laceris apice bifidis aristatis; staminibus numerosissimis æqualibus inclusis e toto tubo ortis stylo compresso brevioribus; stigmatibus irregulariter 14-17-fido. — On deserted ant-hills, near the Colorado River. Often a foot in diameter: our specimens are eight or nine inches in diameter, and four or five inches high. Spines strongly annulate, stout, the larger ones often two inches long. Flowers about two inches in length, twelve or more aggregated in the woolly centre. The petals at the base are scarlet, verging to orange, from which a pale purple or violet midrib extends to the apex, and is prolonged into a delicate bristle of the same color, while the upper part of the petal is pearly white, with feathery margins. The flowers remain for three days, expanding only in bright sunshine.

7. *CEREUS CÆSPITOSUS* (n. sp.): ovato-globosus demum cylindricus, apice depresso-umbilicatus; costis sub-15 e tuberculis confluentibus ortis rectis; aculeis numerosis ex areola oblonga albo-tomentosa demum glabrata radiatis nunc recurvis, lateralibus longioribus; floribus ex axillis tuberculorum anni prioris lateralibus; ovario oblongo tuberculis e lana villosa spinigeris stipato; sepalis 40-50 apice spinis setiformibus villosis coronatis virescentibus, intimis lanceolatis acuminato-aristatis glabris coloratis; petalis 30-40 apicem versus ciliato-denticulatis, exterioribus subito acuminatis, interioribus obtusis cuspidatis; staminibus inclusis stylo brevioribus; stigmatibus viridi infundibuliformi 13-partito. — Gravelly soil, near Cat-Spring, west of San Felipe. A singular reduced *Cereus*, quite cæspitose, and even proliferous occasionally, in the manner of *Opuntia*, beginning to flower when only two inches high, and scarcely taller than broad, but attaining the height of at least six inches; the ribs from twelve to seventeen. It is in flower for two days; the flowers about two inches broad when fully expanded. Petals rose-purple. Filaments reddish at the base, yellow at the summit." ENGEL.

251. *BELLIS INTEGRIFOLIA*, *Michx.* A form with smaller heads and fewer rays than usual. Prairies. April—May.

252. *SOLIDAGO ANGUSTIFOLIA*, *Ell., Torr. & Gr. l. c.* Wet prairies (and even on dry soil) and banks of rivulets, very remote from salt water. June—August.

253. *ISOPAPPUS DIVARICATUS*, *Torr. & Gr. Fl. II. p. 239.* Light sandy soil. August—September.

254. *I. HOOKERIANUS*, *Torr. & Gr. l. c.* Sandy prairies and on sandstone rocks on the Colorado. September. The specimens vary from six inches to two feet high; some are simple, others much branched from the base. The rigid leaves are narrowly spatulate-lanceolate; the heads pretty numerous, on short erect peduncles.

255. *GRINDELIA INULOIDES*, *Willd.* Prairies west of San Felipe. July—August. Stem five to six feet high, branching only above.

256. *CALYMANDRA CANDIDA*, *Torr. & Gr. l. c.* Open woods west of the Brazos. April—May.¹

257. *SILPHIUM SCABERRIMUM*, *Ell.* Woods near Industry. May—July.

258. *HALEA LUDOVICIANA*, *Torr. & Gr. Fl. II. p. 304.* Sandy *post-oak woods*, west of the Brazos. May—August. —Lowest leaves rhombic-ovate, or ovate-lanceolate, acute or acuminate, abruptly contracted into winged petioles, nearly as long as the blades, which are somewhat connate at the base. Exterior involucre with four rather strongly marked salient angles at the junction of the scales, whitish-tomentose inside.

259. *HELIANTHUS LENTICULARIS*, *Dougl.* Low woods and wet prairies. July—August. In rich bottom woods it often attains the height of ten or twelve feet, with the lower leaves six to eight inches broad. Flowers two and a half to three and a half inches in diameter; achenia oval, thicker than is usual in the genus.

¹ *PTEROCAULON VIRGATUM*, *DC.* A few specimens of what appears to be this West Indian species, were gathered near Houston, in open pine woods. September.

260. *H. MAXIMILIANI*, *Schrad.* Prairies, margin of woods and deserted fields; common from Houston to the Colorado, flowering in October and November. Stems four to seven feet high, much branched. Well distinguished by the great and equable cinereous roughness of the stem, and of both surfaces of the lanceolate attenuate-acuminate leaves. It becomes, however, much less rough in cultivation.

261. *H. MAXIMILIANI*, β *ASPERRIMUS*. A variety of the last, as we take it to be, with a simple stem, two to three and a half feet high, bearing solitary or few heads. Prairies between the Brazos and the Colorado, forming large patches. October.

262. *H. GROSSE-SERRATUS*, *Martens*: the same form, with the large leaves silvery-tomentose beneath, which was collected in Texas by Drummond, and which, as it best deserves the specific name, is assumed in *Torr. & Gr. Fl. l. c.* as the type of this variable species. Banks of rivulets and margin of woods. August — October.

263. *H. GROSSE-SERRATUS*, β *Torr. & Gr. Fl. l. c.* A less canescent variety, with the stem, although somewhat glaucous, slightly scabrous throughout. Prairies, &c., with *H. Maximiliani*.

264. *COSMIDIUM FILIFOLIUM*, *Torr. & Gr. Fl. II. p. 350.* Prairies west of the Brazos. May — June. This is really a perennial, and proves quite ornamental in cultivation. It extends as far north as the south-western borders of Missouri.

265. *DYSODIA TAGETOIDES*, *Torr. & Gr. Fl. II. p. 361.* Wet prairies, and on sandstone hills of Mill-creek. August. This is also a perennial. The dots of the leaves are orange-yellow.

266. *PALAFOXIA HOOKERIANA*, *Torr. & Gr. l. c.* Sandy post-oak woods, near Industry. August. We have it in cultivation, from Lindheimer's seeds. The flowers are rose-color or deep flesh-color, and about two inches in diameter; the rays large and conspicuous, but often irregular, and some of them palmate.

267. *ACTINELLA LINEARIFOLIA*, *Torr. & Gr. l. c.* De-

clivity of sandstone hills near Industry. May — June. Rays yellow, turning white when fading.

268 & 269. *SENECIO AMPULLACEUS*, (*Hook.*): annuus vel biennis; caule erecto fistuloso striato superne ramoso; foliis inferioribus obovato-spathulatis in petiolum decurrentibus, superioribus ovato-lanceolatis acutis basi subcordata semiamplexicaulibus, omnibus subintegris vel denticulatis; cyma corymbosa; pedicellis apice demum incrassatis; involucro squamis setaceis paucis calyculato; radiis 7–9; acheniis strigosocanescentibus.

Var. α *GLABERRIMUS* (No. 268): caule foliisque angustioribus subintegerrimis glabris. Wet prairies.

Var. β *FLOCCOSUS* (No. 269): caule foliisque junioribus latioribus cano-floccosis; superioribus e basi latiore acuminatis, nunc grosse repando-dentatis. — Sandy prairies in loose, dry soil. April. Both forms are certainly annual or biennial.

270. *LYGODESMIA APHYLLA*, β *TEXANA*, *Torr. & Gr. Fl.* II. p. 485. Prairies. June — July. Roots penetrating deep into the soil. Some of the radical leaves are runcinate-pinnatifid, with subulate lobes.

271. *PYRRHOPAPPUS GRANDIFLORUS*, *Nutt.* Prairies, near San Felipe. April. Perennial; the slender perpendicular root enlarging, at the depth of a few inches, into an oblong tuber, similar to the root of *Cynthia Dandelion*. Scapes several from one root, with or without a bract in the middle.

272. *ASCLEPIAS (OTARIA) LINDHEIMERI* (*n. sp.*): caudice perpendiculari incrassata caulem herbaceum pubescentem singulum erectum (vel plures adscendentes) emittente; foliis oppositis ovatis obtusis (aut rarius lanceolatis) basi nunc subcordatis breviter petiolatis utrinque puberulis; pedunculis brevissimis lateralibus; pedicellis gracilibus pubescentibus corollæ laciniis acutiusculis subduplo longioribus; cucullis ad apicem sensim dilatatis subtrilobatis; processu bifurco, ramo altero brevi incluso recto, altero longiore incurvo exserto; folliculis ovato-lanceolatis acuminatis puberulis carina exteriori setulis mollibus pl. m. conspersis. — Black, clayey soil, near

Industry. June — August. Also, in Drummond's Texan Collection. Stems six to sixteen inches high, from a very thick perpendicular root. Leaves mostly broadly oval, and obtuse. Flowers large and greenish: calyx pubescent, one-third the length of the corolla. Follicles ovate-lanceolate, and with a long acumination, "8-angled, the angles often somewhat tuberculated; the outer one furnished with soft spines, or a dentated crest." *Lindheimer*. This species is nearly allied to *A. longicornu*, *Benth.*, which we find has a similar gynostegium, only a little more decidedly 3-lobed at the apex, as well as a bifurcated horn, both lobes of which are shorter than in our species. There is also a bifurcated horn in *A. obtusifolia*.

273. *GONOLOBUS CYNANCHOIDES* (*n. sp.*): caulibus pluribus e radice subtuberoso debilibus basi ramosis adscendentibus pilosis; ramis teretibus; foliis inferioribus late ovatis, summis lanceolato-ovatis, omnibus basi cordatis breviter petiolatis subtus præsertim pubescentibus acutiusculis vel acutatis; pedunculis subnullis vel brevissimis bifloris; pedicellis basi subulato-bracteolatis petiolo sublongioribus; corollæ rotati-campanulatæ lobis ovatis obtusis intus glaberrimis (extus parce pilosis) calycis segmenta ovato-oblonga acuta pilosa excedentibus; corona staminea cyathiformi gynostegii basin cingente 5-loba, lobis rotundatis crassiusculis margine tenuiori cinctis, supra processu lineari scaphoideo arcuato instructis; folliculis ovoideis utrinque attenuatis coriaceis muricatis pubescentibus; seminibus (rufis) orbiculatis marginatis comosis. — Sandy soil, in open woods, near Industry. April — June. (Also, No. 190 and 203 of Drummond's second, and 237 of the third Texan collection.) Stems 6 to 15 inches high, diffuse; leaves 1–2 inches long, cordate, with an open sinus, the uppermost sometimes almost truncate at the base. Corolla greenish purple, about two lines in diameter. The fleshy lobes of the cup-shaped coronæ are furnished in the middle with a small process, which is connected at the base with the mid-nerve of the anther, and is free and incurved at the obtuse point, the

upper surface of which is excavated. The membranaceous cusps of the anther are triangular acute, and partly cover the very obtusely 5-angular and somewhat convex stigma. The small horizontal pollen-masses are oblong, slightly curved, and scarcely attenuated at the exterior (attached) end. — From the description, there can be little doubt that this plant is a congener of *Chthamalia biflora*, and *C. pubiflora*, *Decaisne*, in *DC. prodr.*, from which it differs in the glabrous corolla, etc.; but surely it cannot be separated from *Gonolobus*, as that genus is left by *Decaisne*. The corona of *Gonolobus*, characterized as “annuliformis undulato-lobata, lobis integris prominentibus,” exhibits great diversities in the admitted species, from the proper annular and 5-lobed crown of *G. lævis*, to the campanulate one, with 10 long subulate and 5 short triangular teeth, of *G. macrophyllus* and *G. hirsutus*.

274. *EUSTOMA RUSSELLIANUM*, *Don, Griseb.* Clayey, wet prairies. July — August.

275. *PHLOX DRUMMONDII*, *Hook.* Sandy soil, near water courses.

276. *CONVOLVULUS (STYLISMA) PICKERINGII*, *Torr.* Dry, sandy prairies. May — July. — Specifically distinct, we suspect, from the *C. tenellus*, *Lam.* to which *Choisy* joins it.¹

277. *CUSCUTA CUSPIDATA* β . Vide No. 125, supra. Bottom lands of the Colorado River. August.

278. *LITHOSPERMUM BREVIFLORUM* (*n. sp.*): caulibus solitariis, vel plurimis e radice nigro-purpurea fusiformi erectis apice ramosis, foliisque linearibus lineari-lanceolatisve margine revolutis utrinque strigoso-canescens; floribus subpedicellatis; corolla calycis lacinias lineares strigosas vix æquante fauce exannulata, lobis erectis (an semper?) minutissime crenulatis; nucibus albidis nitidis ovatis acutis, intus acute

¹ The collection also comprises a few specimens of *Convolvulus hastatus*, *Nutt.* in *Trans. Am. Phil. Soc. (n. ser.)*, V. p. 174: which name, being several times pre-occupied, we propose for it the name of *C. LOBATUS*. Sandstone rocks, near Industry. May, June. Stems prostrate, 8-4 feet long. Flowers rather small, white. Dr. Wright has also sent it from the Colorado.

carinatis et impresso-punctatis. — *L. Mandanense*, Torr. in *Nicollet, Rep.* p. 155, non *Hook.* — Clayey prairies, near Industry. April, May. A foot high. Leaves rather scabrous above, almost exactly like those of *L. longiflorum* (*L. incisum*, *Lehm.*); the radical somewhat oblanceolate. Lobes of the corolla hirsute on the outside. Except the flowers, the plant has wholly the aspect of *L. longiflorum*; but the corolla is shorter than in *L. Mandanense*, and entirely destitute of the appendages in the throat, unless their rudiments may be obscurely discerned in the sinuses, *not opposite* the lobes of the corolla.

279. *EUTOCA STRICTIFLORA* (*n. sp.*): cinereo-hirsuta; caulibus plurimis simplicibus e radice annua adscendentibus; foliis pinnatifidis lanceolato-oblongis (seu primordialibus integris obovatis); inferioribus in petiolum attenuatis lobis brevibus obtusis, superioribus sessilibus lobis lanceolatis acutiusculis; racemis terminalibus multifloris elongatis arcte secundis, fructiferis strictis; calycis laciniis spathulato-linearibus, fructiferis erectis auctis pedicello appresso parum longioribus; corolla late campanulata calyce sesquolongioribus, tubo obscure 10-squamigero; filamentis pilosiusculis inclusis; ovario 14–20-ovulato; capsula plerumque 12-sperma. — Sandy soil on the banks of the Brazos near San Felipe. March. A span high; the whole plant almost hoary with a hirsute pubescence. Radical leaves with about 5, the upper cauline with 2 or 3 pairs of lobes. The erect calyx-segments as well as the pedicels give the crowded racemes in fruit a very stiff and strict appearance. Corolla apparently blue, a little hairy externally; the margin very obscurely erose-crenulate; the tube furnished at the base with 5 pairs of linear and narrow appendages which are adherent by the whole margin, so as to form 5 rather inconspicuous grooves which alternate with the stamens. The corolla is almost an inch in diameter in Lindheimer's specimens. The same species occurs in Drummond's Collection (3. No. 298) apparently with smaller flowers.

280. *E. PATULIFLORA* (*n. sp.*): pubescens, subcinerea; caulibus e radice annua diffusis ramosis; foliis spathulato-

oblongis obovatisve membranaceis pinnatifido-dentatis vel incisibus basi angustatis sessilibus vel infimis petiolatis, dentibus subovatis obtusis; racemis terminalibus simplicibus secundis; calycis laciniis oblongis, fructiferis subspathulatis patulis pedicello filiformi patente seu reflexo multum brevioribus; corolla late campanulata calycem parum excedentibus, tubo obscure 10-squamigero; filamentis pilosiusculis inclusis; ovario 14-16-ovulato; capsula circiter 12-sperma. — Woods near San Felipe. March—April. Stems 6 to 12 inches long, often decumbent. Whole plant with somewhat the habit of *Eutoca viscida*, but not glandular. Leaves 1 to 2 inches long. Racemes lax; the spreading pedicels an inch long in fruit. Corolla much smaller than in the foregoing species, deep blue, yellow at the base; the margin of the lobes somewhat erose; the 5 pairs of very small squamellæ also as in *E. strictiflora*. — We can discern the obscure rudiments of the tubal appendages in the corolla of *Eutoca viscida*. In *E. hirsuta* (Phacelia, Nutt.) No. 134 of this collection, they are very narrow but are distinctly visible under the microscope; as also in the nearly allied *E. parviflora*. Hence we should have no hesitation in restoring the genus *Cosmanthus* of Nolte and Alph. DC. to *Eutoca* and Phacelia.¹

281. SOLANUM MAMMOSUM, *Linn. ??* Road-sides in prairies between the Brazos and the Colorado. June. A stout branching perennial, with broader, more canescent and lobed leaves than *S. Carolinense*.

282. PENTSTEMON MURRAYANUM, *Hook. Bot. Mag. t. 3472*. Dry sandy soil in open woods west of the Brazos. May—June. The splendid flame-colored flowers, with a scarlet border, form a pleasing contrast with the bluish glaucous leaves. Pedicels erect, the flowers horizontal.

283. GRATIOLA SPHÆROCARPA, *Ell.* Along ponds and riv-

¹ EUTOCA GLABRA = Phacelia glabra, Nutt. l. c. Of this a very few specimens were collected by Lindheimer. Fine specimens in fruit exist in Drummond's Texan Coll. III. No. 302. The capsule is about 6-seeded. The calyx-segments in fruit become ovate-lanceolate or oblong.

ulets, flowering from February to April, and also through the summer.

284. *CASTILLEJA INDIVISA* (Engel. MSS.): "piloso-hispida; foliis integris lineari-lanceolatis acutis basi pleraque rotundatis, floralibus apice ovato-vel obovato-dilatatis coloratis; spica demum elongata; calycis lobis late obovatis apice coloratis truncatis retusisve corolla paulo vel vix longioribus. — Valde affinis quoad flores *C. coccineæ*, et quoad folia *C. lithospermifolia*, ab illa imprimis foliis indivisis, ab hac statura sæpius elatiore differt, foliis acutioribus et capsulis majoribus." *Benth. in DC. prodr. ined.* — Prairies from Houston to the Colorado: March to June. Also collected by Drummond and Berlandier.

285. *HEDEOMA DRUMMONDII*, *Benth.*: but the verticillastris are only about 3-flowered, and the corolla is long and much exserted. Yet it is certainly the same species as Nos. 276 and 278 of Drummond's Third Texan Collection. — Sandstone rocks near Industry. July. The whole plant has the taste and odor of lemon-peel.

The two following Labiate plants, upon which Dr. Engelmann proposes to establish two new genera, viz., No. 286. *Stachyastrum* (so called from the resemblance of the plant to *Stachys* in habit); and 287. *Brazoria* (from the habitat on the river Brazos,) we think may, notwithstanding minor differences, be properly associated in a single genus, which will be well distinguished from *Physostegia* by the inflated bilabiate calyx which becomes closed in fruit by the inflexion of the lower lip. The genus should perhaps be referred to the tribe Scutellarineæ rather than Stachydeæ. It may be thus characterized.

BRAZORIA, *Gen. nov.*

Calyx late campanulatus, bilabiatus (labio superiore breviter 3-lobo, inferiore 2-lobo) per anthesin inflatus, post anthesin e surrectione labii inferioris clausus, indistincte nervosus, reticulato-venosus. Corolla tubo longe exserto, fauce inflata; limbi

bilabiati labio superiore erecto subgaleato breviter bilobo vel integro, inferiore profunde trifido, lobis rotundatis patentibus seu recurvis. Stamina 4, sub labio superiore adscendentia : filamenta supra medium corollæ adnata, ubi pilosa, inferioribus eminentibus : antheræ approximatae ; loculis distinctis divaricantibus ad rimam pl. m. ciliatis. Stylus glaber apice æqualiter bifidus, lobis subulatis. Achenia sicca. — Herbæ annuæ, Texanæ, facie foliis et inflorescentia *Physostegia*. Corolla incarnata, fauce luteola.

§ 1. *EUBRAZORIA*. Calycis lobi latissimi, truncati, subæquales, mucronato-denticulati : corolla majuscula tubo prope basin piloso-annulato ; fauce infra labium inferiorem intrusa quodammodo palatum efficiente ; lobis omnibus eroso-crenulatis, iisdem labii inferioris æqualibus, apice bilobis : achenia triangulata, pubera.

286. *BRAZORIA TRUNCATA* = *Physostegia truncata*, *Benth. Lab.* p. 505 ; *Hook. Bot. Mag.* t. 3494. — Sandy soil on deserted ant-hills, &c., in the prairies along the Brazos : May — June. It was first collected by Drummond (No. 274 of the Third Collection) ; and has since been gathered on the Colorado by Dr. Wright. Stem pubescent, scarcely a foot high. Spike dense. Calyx hairy at the base, especially after flowering. Flowers nearly as large as in *Physostegia Virginiana* : the tube of the corolla spotted with purple. The lobes of the lower lip of the calyx are usually merely mucronulate in the middle ; those of the upper are erose-denticulate with mucronulate teeth. In fruit the achenia are contained in a gibbous cavity belonging to the upper side of the calyx : this is closed by the inflexion of the lower lip, which is appressed to the face of the upper, or partly wrapped around it ; so that the fructiferous calyx is flat on the lower side, and very gibbous at the base of the upper side.

§ 2. *STACHYASTRUM*. Calycis sub-7-nervis labium superius latum, lobis rotundatis ; inferius angustum, lobis triangulari-lanceolatis, omnibus cuspidato-mucronatis : corolla exannulata, parvula ; lobo medio labii inferioris cæteris majore,

retuso, marginibus in omnibus fere integerrimis: achenia subglobosa, lævia.

287. *B. SCUTELLARIOIDES*, *n. sp.*—In heavy black soil on the prairies near Cat Spring, west of the Brazos: April, May. The plant was also collected by Drummond, and specimens were distributed, under No. 274, of the Third Collection, mixed with *B. truncata*, which it greatly resembles in habit and foliage. The stem is glabrous, however, though the inflorescence, as well as the calyx, is minutely pubescent. The flowers are scarcely half the size of the preceding: the calyx is more deeply bilabiate, and the lobes, except the middle one of the upper lip, pointed with a rather conspicuous cusp: in fruit the upper lobes are somewhat curved backwards, while the narrow lower lip is incurved, so as nearly to close the orifice. Corolla flesh-color: anthers purplish.

288. *PHYSOSTEGIA INTERMEDIA* = *Dracocephalum intermedium*, *Nutt. in Trans. Amer. Phil. Soc. l. c.* Wet prairies west of San Felipe, growing in patches,—a smaller plant than *P. Virginiana*, with a much more slender spike. The cauline leaves, especially the upper ones, are broadest and cordate at the base, and serrate throughout. Our plant accords with No. 275 of Drummond's Third Texan Collection. No. 274 is a form with acute and more entire leaves, more nearly that described by Nuttall. It is difficult to distinguish the species sufficiently from some forms of *P. Virginiana*.

289. *VERBENA BIPINNATIFIDA* = *Glandularia bipinnatifida*, *Nutt. in Trans. Amer. Phil. Soc. l. c.* Rich prairies, &c. March, April. A plant with more prostrate and radicate sterile stems, more dissected leaves, denser spikes, smaller flowers, shorter calyx, and also more hirsute than *V. Aubletia*.

290. *DIPTERACANTHUS* (§ *MEIOPHANES*, corolla parva caduca, limbo vix expansa) *MICRANTHUS* (*n. sp.*): subglaber, caule erecto ramoso; foliis lanceolato-oblongis subintegerrimis utrinque acutis in petiolum brevem attenuatis, junioribus ciliatis; cymulis paucifloris subsessilibus axillaribus bracteis ovalibus brevioribus; calycis laciniis subulato-lanceolatis piloso-ciliatis corollam inconspicua capsulamque 8-spermam æquantibus.

—Low woods between the Brazos and the Colorado: June—Sept. Also collected by Drummond (Coll. II. No. 202.) (In similar situations, near St. Louis, *Engelmann*, and Alabama, *Buckley*.)—Plant 1 to 3 feet high, with much the aspect of *D. strepens* in fruit, except that the leaves are narrower (the lower cauline barely ovate-oblong,) or of *D. hybridus* (but nearly glabrous,) but remarkable for its quite inconspicuous flowers. Corolla only about four lines long, whitish, the limb perhaps very rarely expanding, 5-toothed. Filaments conspicuously connate by pairs at the base in a ligula: anthers muticous. Style somewhat hairy: one of the lobes of the stigma abortive, the remaining one subulate. Capsule and seeds as in *D. strepens*, &c.¹

291. DIANTHERA AMERICANA, *Linn.* Creeks of the Colorado; July—Aug.—Seeds destitute of the mucilaginous coating, and appressed hairs of *Dipteracanthus*, &c.

¹ There are two other well-marked new species of *Dipteracanthus* (*Ruellia*) in Drummond's Texan Collection, viz.

D. DRUMMONDII (*Torr. & Gr. MSS.*): cinereo-pubescentibus et pilis mollibus hirsuta; caulibus e basi ramosis adscendentibus; foliis oblongo-lanceolatis obtusiusculis sæpe repandis arcte sessilibus; floribus in axillis subsolitariis breviter pedunculatis vel subsessilibus; bracteis lanceolatis; calycis laciniis filiformibus hirtis tubo corollæ infundibuliformis multum brevioribus capsulam clavato-ovoideam 4-spermam excedentibus. — Stems 6 to 20 inches high. Leaves $1\frac{1}{2}$ -2 inches long, somewhat erect, about the length of the internodes, or the upper more approximate usually very obtuse at the base. Corolla $2\frac{1}{2}$ inches long, the slender tube finely infundibuliform at the summit. Anthers muticous. — Var. *α*. Tex. Drum. Coll. II. No. 220, and III. No. 258. *β*. Very hirsute and more branched. Coll. II. No. 219.

D. (CALOPHANES) LINEARIS (*Torr. & Gr. MSS.*): humilis, subpubescens; caulibus e basi lignosa ramosissimis diffusis; foliis lineari-oblongolatis integrusculis obtusis basi attenuatis subsessilibus; floribus solitariis geminisve in axillis subsessilibus; bracteis foliis conformibus calycem subæquantibus; calycis laciniis hirtis subulato-setaceis tubum corollæ paulo excedentibus capsulam oblongam tetragonam demum quadrivalvem 2-4-spermam superantibus. — Texas, Drummond's Coll. II. No. 178. Also near Columbus, *Dr. Wright*. Stems or branches a span long. Leaves an inch in length. Corolla about as large as in *D. (Calophanes) biflora* or *oblongifolia*; the tube short, and the limb somewhat bilabiate. The sepals, as in the above-mentioned species, united below into a short tube. Anthers subsagittate, the cells distinctly cuspidate at the base. Stigma single. Capsule somewhat fusiform; the valves each separating into two through the complete dissepiment. The hairs of the seed are very slender, and marked with extremely delicate rings. — We have not the fruit of the allied *D. biflora* (*Ruellia oblongifolia, Michx.*) Perhaps the genus *Calophanes* might be kept apart from *Dipteracanthus*, if, indeed, either be sufficiently distinct from *Ruellia* proper.

A. GR.

292. *UTRICULARIA PERSONATA*, *Le Conte, DC.* Not sufficiently distinguishable from *U. cornuta*. — Wet soil. April.

293. *OXYBAPHUS PILOSA*? = *Alliona ovata*, *Pursh.* *Calymentia pilosa*, *Nutt.* — Both bad names, as the stem and leaves are sometimes nearly glabrous, and the leaves are mostly oblong-lanceolate. Prairies west of the Brazos. July, August. Leaves on very short petioles. Involucre 2-flowered. Stamens 4–5, exserted. (Also collected in Texas, by Dr. Wright.)

294. *BOERHAVIA DIFFUSA*, *Willd.* Roadsides and prairies; a common weed. September — October.

295. *RIVINA PORTULACCOIDES*, *Nutt. in Trans, Amer. Phil. Soc. l. c.* Woods and prairies, near Industry. June — October. — A perennial herb, with a ligneous rhizoma.

296. *POLYGONUM CRISTATUM* (*n. sp.*): caule herbaceo volubili angulato-striato; foliis e basi subcordata vel truncata triangularibus acuminatis margine scabris; floribus in axillis foliorum glomeratis seu in spicas foliaceas laxè dispositis; floribus octandris; stigmatibus 3 sessilibus; laciniis perigonii fructiferis tria exterioribus cristato-alatis, alis crenato-incis; nucibus parvis trigonis nitidis. — Margin of woods, &c. near Industry. July. Near *Polygonum scandens* and *P. dumetorum*, from which it is distinguished by its less cordate and more triangular leaves, and the crenately incised wings of the three outer sepals, in fruit; and also by the smaller nuts, which are just one line in length. In *P. scandens* the nuts are more than a line and a half, in *P. dumetorum* fully two lines long. In the latter the broad wings are undulate and entire. In *P. scandens* they are somewhat crenate, but often one or all three are wanting. In *P. Convolvulus* the wings are wanting, and the nuts are opaque.

297. *ERIGONUM MULTIFLORUM*, *Benth.* Sandy prairies, near Industry. July — October. — The stamens in the fertile flowers are very woolly towards the base.

298. *ARISTOLOCHIA LONGIFLORA* (*n. sp.*): radice filiformi elongata; caule humili adscendente ramoso; foliis longe linearibus utrinque acutissimis subsessilibus glabris; floribus axillaribus pedunculatis basi unibracteatis extus pubescentibus,

limbo e basi-cordata valde producto lineari acuminato tubo angusto multo longiore. — Shady, grassy places near Mill creek. April — July. A remarkable species, with a very long and simple aromatic root, and several weak, decumbent stems branching from the base, about a span high. Leaves three to five inches long, and one to three lines wide; the attenuated limb of the perigonium as long as the leaves. Capsule glabrous.

299. *A. RETICULATA*, *Nutt. in Trans. Amer. Phil. Soc. (N. Ser.)* V. p. 162. Thickets west of the Brazos. May — June. — Root similar in sensible properties to that of *A. serpentina*, but of coarser fibres; and also used medicinally as a snake-root.

300. *EUPHORBIA HERNIARIOIDES*, *Nutt. l. c.* p. 171. Clayey soil, near Industry. July — September. Also in Mississippi, Missouri, &c. The smallest of our procumbent *Euphorbiæ*; the leaves from a line and a half to two or three lines long, obliquely obtuse or subcordate at the base. Glands of the involucre narrowly petaloid-margined. Cocci smooth and somewhat carinate. Seeds grey marked with reddish, obovate-oblong, obtusely angled, smooth.

301. *E. ARENARIA* (*Nutt. l. c.*): annua, erecto-patula, glabra; foliis oppositis distantibus linearibus integerrimis obtusis mucronatis basi subobliqua acutis breviter petiolatis; stipulis e basi lata subulatis distinctis subintegris; pedicellis petiolos longe superantibus solitariis; appendicibus involucri petaloideis plerumque 4-ovatis subacutis inæqualibus; seminibus obovato-subglobosis lævibus e rubello cinereis. — Sandy places, especially about fresh ant-hills, near Industry; also on sandstone rocks. June — August. Forming large bushy masses, often six feet in circumference, and two feet or more in height. Its slender habit, long and narrow leaves, and conspicuous white flowers, give it somewhat the appearance of a large *Galium*.¹

¹ A remaining species of the stipulate division of this genus is

E. GEYERI, (*Engel. MSS.*): depressa, humilis; foliis oblongis retusis integerrimis glaberrimis; stipulis setaceo-multifidis; involucri appendicibus petaloideis; seminibus minoribus quam in *E. polygonifolia* cinereis. — Beardstown, Illinois, and Upper Missouri, *Geyer*. Near *E. polygonifolia*.

302. *E. ARKANSANA* (*n. sp.*): annua, gracilis, glaberrima; caule erecto ramoso; foliis sparsis spathulato-obovatis apicem versus serrulatis mucronato-acutis sessilibus, inferioribus in petiolum angustatis; umbellis trichotomis bis dichotomis; bracteis rotundatis subcordato-ovatis mucronatis serrulatis; glandulis involucri (aurantiacis,) orbiculatis; capsulis verrucosis; seminibus (brunneis) reticulatis. — Prairies, from Houston to the Colorado. April — July. Also, Fort Gibson, Arkansas, *Engelmann*, and Western Louisiana, *Dr. Hale*. — Plant 8 to 12 inches high, with much the appearance of *E. peploides*, *Nutt.*; which abundantly differs in its entire and retuse leaves, entire and more cordate bracts, smooth capsules and smooth seeds. The seeds and serrulate leaves in our plant are more like *E. Helioscopia* on a small scale, but, besides that ours is much more slender and smaller in all its parts; the broadly-ovate acute bracts are very different.

303. *E. MARGINATA*, β *ULOLEUCA*: bracteis oblongis ovali-lanceolatisve acutis, marginibus latissime albidis sæpe pl. m. crispis; ramulis villosis. — Bottom lands of the Colorado. August. — Seeds tuberculate-rugose, as in the ordinary forms of *E. marginata*.

304. *PILINOPHYTUM CAPITATUM*, *Klotzsch*, (cf. No. 171.) Low prairies, on the Colorado. September, October.

305. *HENDECANDRA TEXENSIS*, *Klotzsch in Erichs. Archiv*, (1841) I. p. 252. *Croton muricatum*, *Nutt. in Mem. Amer. Phil. Soc. l. c.* p. 173. Prairies on the Colorado, the sterile and fertile plants generally intermixed, and covering large patches of ground. An annual plant, about three feet high. Leaves often lanceolate-oblong, and half an inch wide; those of the fertile plant greener above than in the sterile, as described by Nuttall, but often wider rather than narrower. Stigmas 20–24. The hypogynous disk orbicular. — *Klotzsch* wrongly describes the stem as suffruticose, and has not noticed the flocciferous soft tuberculi of the capsule, which are as evident in our Drummondian specimens as in those of *Lindheimer*. The *H. multiflora*, *Torr. in Fremont's Report*, 1843, is the same species.

306. *APHORA* (vide No. 175, supra) *HUMILIS* (*n. sp.*): strigoso-pilosa; caulibus basi ramosissimis adscendentibus diffusis; foliis oblongis ovato-lanceolatisve obtusis basi attenuatis brevissime petiolatis superne demum glabratis; capitulis axillaribus folio multum brevioribus paucifloris; petalis in fl. masc. calycem paulo superantibus lanceolatis, in fl. fœmineo subulatis glandulis disci brevioribus. — In hard clayey soil, west of the Brazos. March — August. (Also, Texas, *Drummond*, Collection Second, No. 230, and *Dr. Wright*.) Plant 6 to 8 inches high; the base of the stem ligneous. Leaves an inch or an inch and a half long. The clusters contain one fertile and about four staminate flowers. The fruit and seeds not half the size of those of the two other Texan species; the latter globose and rugose, as in the other species, at first curiously striate-reticulated, but when old more even.

307. *TRAGIA BREVISPICA* (*n. sp.*): multicaulis, ramosa, decumbens; ramis apice flexuosis vel subvolubilibus; foliis e basi cordata truncatave triangulari-lanceolatis (superioribus fere linearibus) irregulariter acute dentatis parce pilosis petiolatis; spicis folio oppositis multo brevioribus; flore fœmineo ad basin unico, masculis paucis; capsulis hispidulis. — Black, clayey soil, in the prairies west of the Brazos. May — July. Differs from *T. urticæfolia* (perhaps not specifically) in the procumbent stems, which often form diffuse tufts two or three feet in diameter, and the smaller and narrower leaves, as well as the short spikes and smaller flowers and fruit; the latter is less hispid.

308. *FORESTIERA ACUMINATA*, *Poir.* Banks of the Brazos, near San Felipe. March. It extends as far north as on the Wabash, in Illinois.¹

309. *QUERCUS CINEREA*, *Michx.* Sandy, hilly soil; forming groves in the prairies west of the Brazos, along with

¹ *ULMUS CRASSIFOLIA*, *Nutt.* was sparingly collected by Lindheimer; the tree was in flower, for the second time, in September. The perigonium is divided to the base into eight linear segments; and the ovary and fruit are villous.

Q. obtusiloba; flowering in February. A small tree, crooked, and much branched; the earliest flowering species in Texas.

310. *POTAMOGETON DIVERSIFOLIUS*, β . *SPICATUS*, *Engel. in Sill. Jour.* 46, p. 102. Clear rivulets, in prairies, west of San Felipe. April. Leaves 5-7-13-nerved.

311. *P. NATANS*, *Linn.*, Var.? *foliis infimis elongato-lanceolatis utrinque acutissimis pellucidis breviter petiolatis, sequentibus longius petiolatis sensim magis oblongis et coriaceis, summis natantibus oblongis ellipticisve; fructibus lenticulari-compressis margine acutiusculis.* — In clear water and pools, west of the Brazos. June. Intermediate in its characters between *P. natans* and *P. fluitans*; and in the absence of the upper leaves, very difficult to distinguish from *P. lucens*.

312. *XYRIS TORTA*, *Smith, Kunth, Enum.* 4, p. IV. (ex char.) Springy places. May. Also, in Drummond's Texan Collection.

313. *SYRINCHIUM MINUS* (*n. sp.*): *pumilum; caule ancipiti ramoso folioso; spatha paulo inæquali flores æquante vel subexcedente; perigonii segmentis (cæruleis) ovatis exterioribus setaceo-mucronatis; capsulis obovati-ovalibus glabris.* — Margin of pools, &c. in the prairie west of San Felipe. April. Distinguished from the other North American species, by the smaller size of the whole plant (3-6 inches high,) the much branched stem, the ovate, not obovate or emarginate, lobes of the perigonium, and the form of the capsule. Spathe not mucronate, about 4-flowered. Seeds numerous and very small, impressed-dotted, black.

314. *HABRANTHUS TEXANUS*, *Herb.* Low prairies of the Colorado, in black, clayey soil; flowering in September. Perigonium reddish-orange outside, yellow within.

315. *ELEOCHARIS ACICULARIS*, *R. Br.* var. Ponds and pools on Mill Creek. March.

316. *TRIPSACUM CYLINDRICUM*, *Michx.* Prairies. April, May.

317. *ANDROPOGON MACROURUS*, *Michx.* September.

318. *CHARA POLYPHYLLA*, *Michx., A. Braun.* On the

clayey bottom of clear rivulets, in the prairies between the Brazos and Colorado. July, and the whole year round.¹

* * No. 151. *MONARDA LINDHEIMERI* of this enumeration must be the same as *M. SCABRA*, Beck, in *Sill. Jour.* X. p. 260, which name should therefore be adopted.

¹ In addition to the enumeration of the North American Charæ, published in Silliman's Journal, Vol. XLVI. p. 92, (January, 1844,) we record the following notices, communicated by Professor Braun :

Mr. Lindheimer has sent from Texas specimens of *Chara flexilis*, Linn. ? (incomplete specimen,) and of *Ch. tenuissima*, Desv. This last, as well as the specimens from Massachusetts, may be distinguished as var. *Americana*; the whorls are less densely glomerate, but more approximate than in the European form.

Chara polyphylla, A. Br., is a very polymorphous plant, occurring in many different forms in America, Asia, and the Sandwich Islands. Professor Braun distinguishes seven subspecies.

a. *Ch. polyphylla Michauxii* (*Ch. polyphylla*, A. Br. in Regensb. Bot. Zeit. 1835, p. 70; *Ch. Michauxii*, A. Br. in Sillim. Journ. l. c. No. 11; *Ch. capillata*, Michaux in herb. Jussieu; *Ch. haitensis*, Turpin, Dict. sc. nat. Atlas.) Ohio, (Michaux, Dr. Frank); Missouri, (Dr. Engelmann); Texas, (Mr. Lindheimer); Hayti, (Turpin, 1796.) This is the stoutest, and also the most northern of all species and subspecies of the remarkable group of *Gymnopodæ*, A. Br. There are five species now known, belonging to this group; and of these *Ch. polyphylla* is the most polymorphous, and widest spread species.—The *Gymnopodæ* are distinguished by having the lowest (often very short) joint of the otherwise coated leaves (commonly called verticillated branchlets) naked, or destitute of the coating.

b. *Ch. polyphylla guadeloupensis*, (*Ch. indica*, Bert.) Guadeloupe, Bertero. More slender, with smaller, more elongated seed vessels (sporangia) and still shorter bracts.

c. *Ch. polyphylla ceylanica*, (*Ch. zeylanica*, Klein in Willd.) Ceylon, Poudicherry, Madras, etc.

d. *Ch. polyphylla javanica*.

e. *Ch. polyphylla Muhlenbergii*, (*Ch. foliosa*, Muhlenb. in Willd.; Sillim. Journ. l. c., p. 93, No. 10.) Pennsylvania, Muhlenberg. Very near subspecies *C. ceylanica*, and distinguished from *a. Michauxii*, by the bracts being much longer than the sporangia, while they are shorter in *Michauxii*.

f. *Ch. polyphylla Humboldtiana*, (*Ch. compressa*, H. B. K.) New Andalusia, Humboldt. A variety with some of the upper joints of the leaves destitute of the coating.

g. *Ch. polyphylla armata*, (*Ch. armata*, Meyen, Reisebesch.) Sandwich Islands, Meyen. Distinguished by the stronger spines, and also mostly naked upper joints and smaller seed vessels.

A second species, distinct from *Ch. polyphylla*, but also belonging to *Gymnopodæ*, has been collected by Dr. Engelmann, in lakes in the bottom lands of the Mississippi, near Saint Louis; it is called by Professor Braun

Ch. sejuncta, a more slender and greener plant than the last, but principally distinguished by the seed vessels (sporangia) and globules (often called anthers) being always found on different joints of the leaves (or branchlets,) never as in most other species, together on the same joint.—Martius has collected the same species in Brazil; the North American form is larger, and more slender, and has bracts shorter than the seeds; and may therefore be called var. *brevisbracteata*, and the Brazilian variety, *longibracteata*.

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VOLUME VI. — NO. II.

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-amplexicaulis, inferioribus oblongis acutis sæpe repando-dentatis, superioribus cordatis sinu profundo clauso in bracteas cordatas (inferiores florem, summas pedicellum subæquantibus) 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 Braunsfels. 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 ovoideoglobosa glaberrima stipite plus duplo stylo subduplo longiore; seminibus immarginatis. — Black, stiff prairie soil on the lower Guadeloupe, 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 lepidostellata 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-Americane Synoptice Dispositæ.

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

§ 1. Annuæ seu biennes.

* *Seminibus marginatis; stylo silicula (cstipitata) 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 subgloboso-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. Rømeriana, *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 (Argentæ 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 stylo æquante. — On the Rio Grande, Texas, *Mr. Charles Wright*. Monterey and Aguanueva, 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. 163; *Gr. Gen. Ill.* 2, t. 185, 186. New Braunfels, among rocks. April, June. "Roots often more than three feet long."

VIOLACEÆ.

(578.) *IONIDIUM LINEARE*, *Torr. in Ann. Lyc. New York*, 2, p. 163; *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 Guadalupe. 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 Llano 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 Llano, 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 BOOTII, *Planchon in Lond. Jour. Bot.* 7, p. 475. Upper Pierdenales, 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. BOOTII, *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 Pierdenales; 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.

(531.) *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 Piedrenales. October. Also gathered in Western Texas by Mr. Wright.

ZYGOPHYLLACEÆ.

342. *KALLSTRÆMIA 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 Braunfels. July. Plant from two to five feet high.

346. *R. TOXICODENDRON*, *Linn.*; *Torr. & Gr. Fl.* 1. p. 218. Thickets and stony prairies, New Braunfels. 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 Braunfels.

347. *R. (LOBADIUM) TRILOBATA*, *Nutt. in Torr. & Gray, Fl.* 1, p. 219. Rocky soil, margin of high prairies, New Braunfels; 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 Braunfels, &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 Piederdales. 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 Pieddenales, 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 Linnæa*, 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 laxè 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; capsulâ 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 HOLOSERICEUM*, *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 "lignous 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. Engelmann, I know only from a fragment, namely:—

SIDA HETEROCARPA, Engelm. *Mss.*: “stellato-pubescent; caule erecto ramoso; foliis basi subcordatis obtusis crenato-dentatis, 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 carnoso 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 TRAGÆFOLIA (sp. nov.): humilis; caulibus (e radice perenni?) suberectis petiolisque pube stellata subglutinosa velutinis setisque patentibus gracillimis hispids; 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 bipartibilibus 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-pollicariibus) 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, but 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*, *Mæench.*; *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 Braunsfels. 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 Malpighiaceæ 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. l. 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. l. 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 penninerviis 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 Guadalupe 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-canescens; 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 Linnæa, 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 prevailing 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: stipules 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 Linnæa*, 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 Linnæa*, *l. c.* is evidently *I. Anil*, *L. ß. 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 pedicellum 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. *SCAPOSA*: 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. Engelmann, 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 *Linnaea*, 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-æruginosi 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; foliis 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 2½ 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 subsessile calyx. Bracts subulate, the lower resembling the calyx-lobes. — Mr. Wright has also detected *Oxytropis Lamberti*, *Pursh*, in Western Texas; and likewise a unifoliolate *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; tomento 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.

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 (CHAMÆSENSA) 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, furfureous-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 lignescens, 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. bauhiniæfolia*.” It belongs, however, to the section *Chamæsenna*.

CASSIA (CHAMÆSENNA) BAUHIINOIDES (*sp. nov.*): humilis, suffruticosa, hirsutosericea; foliolis unijugis rariusve bijugis oblongis vel subovatis utrinque rotundatis inæquilateris sericeo-canescens; 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 *Chamæsenia*, 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; folioliis 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 Braunfels, and on the Upper Guadalupe, not seen on the Pterdenales. 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, germinate, 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 Pierdenales. 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. Bentham* (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 latioribus. — *Mimosa Ræmeriana*, *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 Ræmeriana* 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 rhombico-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 RÖMERIANA*, *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 Römeriana* 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.

338. 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 tridenticulate 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 Piedrenales. 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 Pierdenales. 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*, *Linm.*; *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 Guadalupe.

ONAGRACEÆ.

391. *ÆNOTHERA* (*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 Pierdenales and Upper Guadalupe, 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, (*Æ. 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. *C.* (LAVAUXIA) TRILOBA, *Nutt. in Jour. Acad. Philad.* 2. p. 118; *Hook. Bot. Mag.* t. 2566; *Torr. & Gray, l. c.* *C.* 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. *C.* (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. *C.* SERRULATA, ϵ . PINIFOLIA, *Engelm.*: foliis angustissimis fere filiformibus sæpe fasciculatis marginibus revolutis integris; floribus maximis (ut in præcedente). *C.* capillifolia, *Scheele in Linnæa*, 21. p. 577. Rocky prairies, New Braunfels. April. — This is just the *C.* 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 *Cenotheræ* into separate species.

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

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

† *C.* 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 cylindracea 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. Ræmeriana* of the same author, from New Braunfels, described without the fruit, may be safely referred to *G. Drummondii*.

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-lobo 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 carnosio maxima; foliis strigoso-canescensibus 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*, Schdw. 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 prolifera, 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 Pierdenales: flowers (in St. Louis) about the middle of June. The flowers open for three days, in direct sunshine only, and later than most other Cactacæ, 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 brevina pauca flavida longe excedentibus flavis; baccis elongato-clavatis; seminibus subgloboso-ovatis scrobiculatis rugulosis parvis.—Rocky plains on the Piedrenales: 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 contrarieæ* (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 *Mammillaricæ* 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 breviter 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-cylindraceis 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.

ECHINOCACTUS.

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.

ECHINOCACTUS SETISPINUS (*Englm. l. c.*): ovato-subglobosus s. oblongo-cylindraceus; costis 13 acutis sæpe undulatis s. subinterruptis plus minus obliquis; areolis remotis, junioribus flavido- s. albedo-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 Saultillo (*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 $1\frac{1}{2}$ – $2\frac{1}{2}$ 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 spinescens albas 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 pergamentaceous 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. *Cylindrica*.

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 provenientes; 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 applanata*, 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. RAVENELLI* (*sp. nov.*): caule simplici; foliis linearibus elongatis *complicato-equilantibus subteretis* nervulosis obsolete denticulatis, involueralibus 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 $1\frac{1}{2}$ –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). Vallecule 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, cuspidate 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 $2\frac{1}{2}$ -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 *Ænanthi* 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; involucri 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; involucri 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 Guadalupe, 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; femineis 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 Ulnus, 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. 53, 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. spathulatis 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 elon-
 gatis; 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 JUNIFERINUM, *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, uniloculare; 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 connat-
 is; 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
 exserte pedicellatis extus carnosis 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,

Guadalupe 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*. *MACRARTHRON*: 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*.? *BRACHYARTHRON*: 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, fastigiate, 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 subexserted 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: cæt. *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 involucri 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 Piedrenales, and of the Guadalupe. September, October. — Plants 3 or 4 feet high, suffruticose.

410. *KUHNTIA 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 Piedrenales 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 *Linnaea*, 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-pubescent 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 laxè 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. *EGLITES 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 Braunsfels (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 fœmineis; 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. — Herbæ 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 calloso-marginata, 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, *Keerlia* 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 involucreal 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.) *CHRYROPSIS HISPIDA*, *Hook. Fl. Bor.-Am. 2. p. 22*; *Torr. & Gray, Fl. 2. p. 255.* Var. *STENOPHYLLA*: foliis linearispathulatis. 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 Guadalupe. 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. fœtida* 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 *Linnaea*, 22. p. 351. Rocky prairies of the

¹ It is hard to say upon what plants (from a Texan collection, made by Rœmer,) Mr. Scheele has founded two new species of *Filago*, viz. *Filago repens*, and *F. Texana*, Scheele in *Linnaea*, 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. Roc y 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. Hooke-riana*, all have uncinatè points.

431. *HALEA TEXANA*, *Gray, Pl. Fendl.* p. 83. *Tetragonotheca Texana*, *Gray & Engelm. in Proceed. Amer. Acad.* 1. p. 48. *Tetragonosperma lyratifolium*, *Scheele in Linnæa*, 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 *Heliantheæ*, 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 fœminiis nunc difformibus. Involucrum disco brevius, circa biseriale; squamis exterioribus lineari-oblongis appendicula spathulata vel obtusa foliacea patente instructis, intimis lineari-acuminatis. Receptaculum globosum, alveolatum; alveolis valde dentatis fimbrilliferis. Ligulæ cuneatæ, palmato-3–4-fidæ, sæpe irregulares seu tubuloso-difformes, vestigia staminum gerentes. Corolla disci Gaillardiæ, dentibus triangulari-lanceolatis. 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 Gaillardiæ, 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 prairies 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 setacco-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*, *Cænothera 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 *Dasyliion* 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

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 brevior.
 " " 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.

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 Rutacea known; *Galphimia linifolia*, the most northern Malpighiaceæ; several shrubby Mimoseæ; an evergreen *Rhus*; *Sophora speciosa*; the *Eysenhardtia*; a number of Nyctaginaceæ; the *Dasyilirion*, 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,

(No 2)

BOTANY
OF
FREMONT'S EXPEDITION
TO
OREGON AND N. CALIFORNIA
1843-1844.



TORREY AND FREMONT



CATALOGUE OF PLANTS

COLLECTED

BY LIEUTENANT FRÉMONT,

IN HIS

EXPEDITION TO THE ROCKY MOUNTAINS.

BY JOHN TORREY.



P R E F A C E .

The collection of plants submitted to me for examination, though made under unfavorable circumstances, is a very interesting contribution to North American botany. From the mouth of the Kansas river to the "Red Buttes," on the North fork of the Platte, the transportation was effected in carts; but from that place to and from the mountains, the explorations were made on horseback, and by such rapid movements, (which were necessary, in order to accomplish the objects of the expedition,) that but little opportunity was afforded for collecting and drying botanical specimens. Besides, the party was in a savage and inhospitable country, sometimes annoyed by Indians, and frequently in great distress from want of provisions; from which circumstances, and the many pressing duties that constantly engaged the attention of the commander, he was not able to make so large a collection as he desired. To give some general idea of the country explored by Lieutenant Frémont, I recapitulate, from his report, a brief sketch of his route. The expedition left the mouth of the Kansas on the 10th of June, 1842, and, proceeding up that river about one hundred miles, then continued its course generally along the "bottoms" of the Kansas tributaries, but sometimes passing over the upper prairies. The soil of the river bottoms is always rich, and generally well timbered; though the whole region is what is called a prairie country. The upper prairies are an immense deposit of sand and gravel, covered with a good, and, very generally, a rich soil. Along the road, on reaching the little stream called Sandy creek, (a tributary of the Kansas,) the soil became more sandy. The rock formations of this region are limestone and sandstone. The *amorpha canescens* was the characteristic plant; it being in many places as abundant as the grass.

Crossing over from the waters of the Kansas, Lieutenant Frémont arrived at the Great Platte, two hundred and ten miles from its junction with the Missouri. The valley of this river, from its mouth to the great forks, is about four miles broad, and three hundred and fifteen miles long. It is rich, well timbered, and covered with luxuriant grasses. The purple *katris scariosa*, and several *asters*, were here conspicuous features of the vegetation. I was pleased to recognise, among the specimens collected near the forks, the fine large-flowered *asclepias*, that I described many years ago in my account of James's Rocky Mountain Plants, under the name of *A. speciosa*, and which Mr. Geyer also found in Nicolle's expedition. It seems to be the plant subsequently described and figured by Sir W. Hooker, under the name of *A. Douglasii*. On the Lower Platte, and all the way to the Sweet Water, the showy *cleome integrifolia* occurred in abundance. From the Forks to Laramie river, a distance of about two hundred miles, the country may be called a sandy one. The valley of the North fork is without timber; but the grasses are fine, and the herbaceous plants abundant. On the return of the expedition in September, Lieutenant Frémont says the whole country resembled a vast garden; but the prevailing plants were two or three species of *helianthus*, (sunflower.) Between the main forks of the Platte, from the junction, as high up as Laramie's fork, the formation consisted of marl, a soft earthy limestone, and a granite sandstone. At the latter place, that singular leguminous plant, the *kentrophyta montana* of Nuttall was first seen, and then occurred at intervals to the Sweet Water river. Following up the North fork, Lieutenant Frémont arrived at the mouth of the Sweet Water river, one of the head waters of the Platte. Above Laramie's fork to this place, the soil is generally sandy. The rocks consist of limestone, with a variety of sandstones, (yellow, gray, and red argillaceous,) with compact gypsum or alabaster, and fine conglomerates.

The route along the North fork of the Platte afforded some of the best plants in the collection. The *senecio rapifolia*, Nutt., occurred in many places, quite to the Sweet Water; *lippia (zapania) cuneifolia* (Torr. in James's plants, only known before from Dr. James's collection;) *cercocarpus parvifolius*, Nutt.; *erigonum parvifolium*, and *cæspitosum*, Nutt.; *shepherdia argentea*, Nutt., and *geranium Fremontii*, a new species, (near the Red Buttes,) were found in this part of the journey. In saline soils, on the Upper Platte, near the mouth of the Sweet Water, were collected several interesting *CHENOPODIACEÆ*, one of which was first discovered by Dr. James, in Long's expedition; and although it was considered as a new genus, I did not describe it, owing to the want of the ripe fruit. It is the plant doubtfully referred by Hooker, in his *Flora Boreali Americana*, to Batis. He had seen the male flowers only. As it is certainly a new genus, I have dedicated it to the excellent commander of the expedition, as a well-merited compliment for the services he has rendered North American botany.

The Sweet Water valley is a sandy plain, about one hundred and twenty miles long, and generally about five miles broad; bounded by ranges of granitic mountains, between which the valley formation consists, near the Devil's gate, of a grayish micaceous sandstone, with marl and white clay. At the encampment of August 5th-6th, there occurred a fine white argillaceous sandstone, a coarse sandstone or pudding-stone, and a white calcareous sandstone. A few miles to the west of that position, Lieutenant Frémont reached a point where the sandstone rested immediately upon the granite, which, thenceforward, along his line of route, alternated with a compact mica slate.

Along the Sweet Water, many interesting plants were collected, as may be seen by an examination of the catalogue; I would, however, mention the curious *ænothera Nuttallii*, Torr. and Gr.; *eurotia lanata*, Mocq.; (*Diotis lanata*, Pursh.,) which seems to be distinct from *E. ceratoides*; *thermopsis montana*, Nutt.; *gilia pulchella*, Dougl.; *senecio spartioides*, Torr. and Gr.; a new species, and four or five species of wild currants, (*ribes irriguum*, Dougl., &c.) Near the mouth of the Sweet Water was found the *plantago eriophora*, Torr., a species first described in my Dr. James's Rocky Mountain Plants. On the upper part, and near the dividing ridge, were collected several species of *castilleja*; *penstemon micrantha*, Nutt.; several *gentians*; the pretty little *androsace occidentalis*, Nutt.; *solidago incana*, Torr. and Gr.; and two species of *erigonum*, one of which was new.

On the 8th of August, the exploring party crossed the dividing ridge or pass, and found the soil of the plains at the foot of the mountains, on the western side, to be sandy. From Laramie's fork to this point, different species of *artemisia* were the prevailing and characteristic plants; occupying the place of the grasses, and filling the air with the odor of camphor and turpentine. Along Little Sandy, a tributary of the Colorado of the West, were collected a new species of *phaca* (*P. digitata*,) and *parnassia fimbriata*.

On the morning of the 10th of August, they entered the defiles of the Wind river mountains, a spur of the Rocky mountains, or northern Andes, and among which they spent about eight days. On the borders of a lake, embosomed in one of the defiles, were collected *sedum rhodiola*, DC., (which had been found before, south of Kotzebue's sound, only by Dr. James;) *senecio hydrophilus*, Nutt.; *Vaccinium uliginosum*; *betula glandulosa*, and *B. occidentalis*, Hook.; *eleagnus argentea*, and *shepherdia Canadensis*. Some of the higher peaks of the Wind river mountains rise one thousand feet above the limits of perpetual snow. Lieutenant Frémont, attended by four of his men, ascended one of the loftiest peaks on the 15th of August. On this he found the snow line twelve thousand five hundred feet above the level of the sea. The vegetation of the mountains is truly alpine, embracing a considerable number of species common to both hemispheres, as well as some that are peculiar to North America. Of the former Lieutenant Frémont collected *pleum alpinum*; *oxyria reniformis*; *Veronica alpina*; several species of *salix*; *carex atrata*; *C. panicea*; and, immediately below the line of perpetual congelation, *silene acaulis*, and *potemonium ceruleum*, β Hook. Among the alpine plants peculiar to the western hemisphere, there were found *oreophila myrtifolia*, Nutt.; *aquibgia cerulea*, Torr.; *pedicularis surrecta*, Benth.; *pulmonaria ciliata*, James; *silene Drummondii*, Hook.; *menziesia empetriformis*, *potentilla gracilis*, Dougl.; sev-

eral species of *pinus*; *frasera speciosa*, Hook. ; *dodecatheon dentatum*, Hook. ; *phlox muscoides*, Nutt. ; *senecio Fremontii*, n. sp., Torr. and Gr. ; four or five *asters*, and *vaccinium myrtilloides*, Mx. ; the last seven or eight very near the snow line. Lower down the mountain were found *arnica angustifolia*, Vahl. ; *senecio triangularis*, Hook. ; *S. subnudus*, DC. ; *macrorhynchus troximoides*, Torr. and Gr. ; *helianthella uniflora*, Torr. and Gr. ; and *linosyris viscidiflora*, Hook.

The expedition left the Wind river mountains about the 18th of August, returning by the same route as that by which it ascended, except that it continued its course through the whole length of the Lower Platte, arriving at its junction with the Missouri on the 1st of October.

As the plants of Lieutenant Frémont were under examination while the last part of the Flora of North America was in the press, nearly all the new matter relating to the Compositæ was inserted in that work. Descriptions of a few of the new species were necessarily omitted, owing to the report of the expedition having been called for by Congress before I could finish the necessary analyses and comparisons. These, however, will be inserted in the successive numbers of the work to which I have just alluded.

JOHN TORREY.

NEW YORK, March, 1843.

CATALOGUE OF PLANTS.

CLASS I.—EXOGENOUS PLANTS.

RANUNCULACEÆ.

- Clematis Virginiana*, (Linn.) Valley of the Platte. June, July.
Ranunculus sceleratus, (Linn.) Valley of the Sweet Water river. August 18-20.
R. cymbalaria, (Pursh.) Upper Platte. July 31, August.
Aquilegia cœrulea, (Torr.) Wind river mountains. August 13-16.
Actæa rubra, (Bigel.) Upper Platte. August 26-31.
Thalictrum Cornuti, (Linn.) Platte.
T. megacarpum, n. sp. Upper Platte. August 26-31.

MENISPERMACEÆ.

- Menispermum Canadense*, (Linn.) Leaves only. On the Platte.

BERBERIDACEÆ.

- Berberis aquifolium*, (Torr. and Gr.) Wind river mountains. August 13-16.

PAPAVERACEÆ.

- Argemone Mexicana* β *albiflora*, (DC.) Forks of the Platte. July 2.

CRUCIFERÆ.

- Nasturtium palustre*, (DC.) Black hills of the Platte. July 26, August.
Erysimum cheiranthoides, (Linn.) Black hills. July 23.
E. asperum, (Nutt.) South fork of the Platte. July 4.
Pachypodium, (*Thelypodium*, Endl. Gen. p. 876,) *integrifolium*, (Nutt.) North fork of the Platte. September 4. *Var.* with longer pods. With the preceding.
Vesicaria didymocarpa, (Hook.) Leaves only. North fork of the Platte, above the Red Buttes. July 30.
Braya, n. sp. Wind river mountains, near the limits of perpetual snow. August 15.
Lepidium ruderales, (Linn.) On the Platte. June 29.

CAPPARIDACEÆ.

- Cleome integrifolia*, (Torr. and Gr.) From the Lower Platte nearly to the mountains. June 29, July 2, August 21.
Polanisia trachysperma, β (Torr. and Gr.) Black hills of the Platte. July 23.

POLYGALACEÆ.

- Polygala alba*, (Nutt.) P. Beyrichii, (Torr. and Gr.) Forks of the Platte. July 2.

DROSERACEÆ.

- Parnassia fimbriata*, (Banks.) Little Sandy creek, defiles of the Wind river mountains. Aug. 8.

CARYOPHYLLACEÆ.

- Arenaria congesta*, (Nutt.) Highest parts of the Wind river mountains. August 13-16.
Silene Drummondii, (Hook.) With the preceding.
S. acaulis, (Linn.) Wind river mountains, at the limits of perpetual snow.

PORTULACACEÆ.

Talinum parviflorum, (Nutt.) Little Blue river of the Kansas. June 26

LINACEÆ.

Linum rigidum, (Pursh.) North fork of the Platte. July 8.

L. perenne, (Linn.) Black hills to the Sweet Water of the Platte. August 2-31.

GERANIACEÆ.

Geranium Fremontii, n. sp. Black hills. August 26-31.

OXALIDACEÆ.

Oxalis stricta, (Linn.) On the Kansas. June.

ANACARDIACEÆ.

Rhus trilobata, (Nutt.) Red Buttes. July 29.

MALVACEÆ.

Malva pedata, (Torr. and Gr.) Big Blue river of the Kansas. June 21.

M. involucrata, (Torr. and Gr.) Little Blue river of the Kansas. June 23.

Sida coccinea, (DC.) Little Blue river to the south fork of the Platte. June 22, July 4.

VITACEÆ.

Vitis riparia, (Michx.) Grand island of the Platte. September 19.

ACERACEÆ.

Negundo aceroides, (Mœnch.) On the lower part of the Platte.

CELASTRACEÆ.

Oreophila myrtifolia, (Nutt.) Summit of the Wind river mountains. August 13-14.

RHAMNACEÆ.

Ceanothus velutinus, (Dougl.) With the preceding.

C. Americanus, var. *sanguineus*. *C. sanguineus*, (Pursh.) On the Platte.

C. mollissimus, n. sp. Near the Kansas river. June 19.

LEGUMINOSÆ.

Lathyrus linearis, (Nutt.) On the Platte, from its confluence with the Missouri to Fort Laramie. September 2-30.

Amphicarpæa monoica, (Torr. and Gr.) North fork of the Platte. September 4.

Apios tuberosa, (Mœnch.) Forks of the Platte. September 13.

Glycyrrhiza lepidota, (Pursh.) From near the Kansas river to the Black hills of the Platte. June 21, July 25.

Psoralea floribunda, (Nutt.) Forks of the Platte. July 2.

P. campestris, (Nutt.?) and a more glabrous variety. With the preceding. July 2.

P. lanceolata, (Pursh.) Black hills of the Platte. July 24.

P. argophylla, (Pursh.) Little Blue river. June 23.

P. tenuiflora, (Pursh.) (no flowers.) Forks of the Platte. September 12.

Petalostemon violaceum, (Michx.) Big Blue river of the Kansas, &c. June 21.

P. candidum, (Michx.) Red Buttes. July 29.

Amorpha fruticosa, (Linn.) From the Lower Platte to the mountains. August 8, September 19.

A. canescens, (Nutt.) Kansas and Lower Platte rivers. June 19, September 20.

Lespedeza capitata, (Michx.) Mouth of the Platte. September 30.

Desmodium acuminatum, (DC.) Little Blue river of the Kansas. June 22.

- Astragalus gracilis*, (Nutt.) Forks of the Platte. July 2.
A. mollissimus, (Torr.) Valley of the Platte. June 29.
A. hypogloTTis, (Linn.) Sweet Water of the Platte. August 5.
Oxytropis Lambertii, (Pursh.) Big Blue river of the Kansas to the forks of the Platte. June 20, July 2.
O. plattensis, (Nutt. ?) (no flowers.) Goat island of the Upper Platte. July 31.
Phaca astragalina, (DC.) Highest summits of the Wind river mountain. August 15.
P. elegans, (Hook.) var. ? Goat island of the Upper Platte. July 31.
P. (Orophaca) digitata, n. sp. Little Sandy river. August 8.
P. longifolia, (Nutt.) (leaves only.) Wind river mountains. August 12-17.
Kentrophyta montana, (Nutt.) Laramie river to the Sweet Water. July 14, August 5.
Lupinus leucophyllus, (Lindl.) Wind river mountains, and Sweet Water of the Platte. August 4-21.
L. ornatus, (Dougl.) *L. leucopsis*, (Agardh.) With the preceding.
Baptisia leucantha, (Torr. and Gr.) Kansas river.
Thermopsis montana, (Nutt.) Sweet Water river. August 5.
Cassia chamæcrista, (Linn.) Mouth of the Platte. September 30.
Schrankia uncinata, (Willd.) Kansas and Platte rivers. June 19, September.
Darlingtonia brachypoda, (DC.) On the Platte. September 17.

ROSACEÆ.

- Cerasus Virginiana*, (Torr. and Gr.) Upper north fork of the Platte. July 30.
Cercocarpus parvifolius, (Nutt.) Bitter creek, north fork of the Platte. July 22.
Purshia tridentata, (DC.) Sweet Water river, &c. August 12, September.
Geum Virginianum, (Linn.) Kansas river. June 20.
Sibbaldia procumbens, (Linn.) Wind river mountains, near perpetual snow. August 13-14.
Potentilla gracilis, (Dougl.) With the preceding.
P. diversifolia, (Lehm.) Sweet Water of the Platte to the mountains. August 4-15.
P. sericea, β *glabrata*, (Lehm.) With the preceding.
P. fruticosa, (Linn.) With the preceding.
P. anserina, (Linn.) Black hills of the Platte. July 26-31.
P. arguta, (Pursh.) Little Blue river of the Kansas, and Black hills of the Platte. June 23, August 28.
Rubus strigosus, (Michx.) Defiles of the Wind river mountains. August 12-17.
Amelanchier diversifolia, var. *alnifolia*, (Torr. and Gr.) Sweet Water of the Platte. August 5.
Rosa blanda, (Ait.) Lower Platte.
R. foliolosa, (Nutt.) var. *lciocarpa*. With the preceding.

ONAGRACEÆ.

- Epilobium coloratum*, (Muhl.) Black hills of the Platte to the Sweet Water river. Aug. 4-31.
E. spicatum, (Lam.) From the Red Buttes to the Wind river mountains. August 13-31.
Oenothera albicaulis, (Nutt.) North fork of the Platte. July 14.
O. Missouriensis, (Sims.) Big Blue river of the Kansas. June 19-20.
O. trichocalyx, (Nutt.) North fork of the Platte. July 30.
O. serrulata, (Nutt.) On the Kansas and Platte. June, July 14.
O. rhombibetula, (Nutt.) On the Platte. September 18-20.
O. biennis, (Linn.) Black hills to the Sweet Water river. July 23, August 4.
O. (Taraxia) Nuttallii, (Torr. and Gr.) Upper part of the Sweet Water.
O. speciosa, (Nutt.) Big Blue river of the Kansas. June 19-20.
O. Drummondii, (Hook. ?) Black hills. July 26.
Gaura coccinea, (Nutt.) Var. ? Little Blue river of the Kansas, and south fork of the Platte. June 26, July 4.

LOASACEÆ.

Mentzelia nuda, (Torr. and Gr.) North fork of the Platte. July 14.

GROSSULACEÆ.

Ribes cereum, (Lindl.) Sweet Water of the Platte. August 2-4.

R. lacustre, (Poir.) With the preceding. β leaves deeply lobed. *R. echinatum*, (Dougl.) Perhaps a distinct species.

R. irriguum, (Dougl.) With the preceding.

CACTACEÆ.

Opuntia Missouriensis, (DC.) Forks of the Platte. July 2.

CRASSULACEÆ.

Sedum rhodiola, (DC.) On a lake in Wind river mountains. August 12-17.

UMBELLIFERÆ.

Heracleum lanatum, (Michx.?) Leaves only. The leaves are more glabrous than in the ordinary form of the plant. Alpine region of the Wind river mountains.

Polytaenia Nuttallii, (DC.) On the Kansas. June 20.

Sium? *incisum*, n. sp. Stem sulcate; segments of the leaves distant, deeply incised or pinnatifid; the lower teeth or divisions often elongated and linear. North fork of the Platte. July 12.

Edosmia Gardineri, (Torr. and Gr.) Without fruit.

Cicuta maculata, (Linn.) Lower Platte.

Musenium tenuifolium, (Nutt.) Alpine region of the Wind river mountains.

CORNACEÆ.

Cornus stolonifera, (Michx.) On a lake in the Wind river mountains. August 12-17.

C. circinata, (L'Her.) On the Platte.

CAPRIFOLIACEÆ.

Symphoricarpus occidentalis, (R. Brown.) North fork of the Platte. July 10, August 31.

S. vulgaris, (Michx.) Defiles of the Wind river mountains. August 13-14.

RUBIACEÆ.

Galium boreale, (Linn.) Upper part of the North fork of the Platte. August 12-31.

COMPOSITÆ.

Vernonia fasciculata, (Michx.) On the Platte.

Liatris scariosa, (Willd.) Lower part of the Platte. September 27.

L. spicata, (Willd.) North fork of the Platte. September 4.

L. squarrosa, var. *intermedia*, (DC.) A small form of the plant. On the Platte.

L. punctata, (Hook.) Black hills of the Platte. August 29.

Brickellia grandiflora, (Nutt.) North fork of the Platte.

Aster integrifolius, (Nutt.) Base of the Wind river mountains.

A. adscendens, (Lindl.) Wind river mountains. Var. *Fremontii*, with the preceding. The highest summits to the limits of perpetual snow. August 16.

A. lævis, (Linn.) North fork of the Platte.

A. Novi-Belgii, (Linn.) Sweet Water of the Platte. August 22.

A. cordifolius, (Linn.) Lower Platte.

A. multiflorus, β (Torr. and Gr.) Upper Platte, &c.

A. falcatus, (Lindl.) Black hills to the Sweet Water. July 30, August.

A. laxifolius, (Nees.) On the Platte, from its mouth to the forks. September 12-30.

- A. oblongifolius*, (Nutt.) Lower Platte, &c.
A. Novæ-Angliæ, (Linn.) Lower Platte to the Wind river mountains. Aug. 18-Sept. 24.
A. andinus, (Nutt.) Near the snow line of the Wind river mountains. Aug. 16.
A. glacialis, (Nutt.) With the preceding.
A. salsuginosus, (Richards.) With the preceding.
A. elegans, (Torr. and Gr.) Wind river mountains.
A. glaucus, (Torr. and Gr.) With the preceding.
Dieteria viscosa, (Nutt.) On the Platte.
D. coronopifolia, (Nutt.) With the preceding.
D. pulverulenta, (Nutt.) Near *D. sessiliflora*. With the preceding.
Erigeron Canadense, (Linn.) On the Platte, from near its mouth to the Red Buttes. Latter part of September to July 30.
E. bellidiastrum, (Nutt.) On the Platte.
E. macranthum, (Nutt.) With the preceding.
E. glabellum, (Nutt.) With the preceding.
E. strigosum, (Muhl.) With the preceding.
Gutierrezia euthamiæ, (Torr. and Gr.) Laramie river, Upper North fork of the Platte. Sept 3.
Solidago rigida, (Linn.) North fork of the Platte.
S. Missouriensis, (Nutt.) Fort Laramie, North fork of the Platte. July 22, to the mountains.
S. speciosa, (Nutt.) Upper Platte.
S. virga-aurca, (Linn.) var. *multiradiata*, (Torr. and Gr.) Wind river mountain, from the height of 7,000 feet to perpetual snow.
S. incana, (Torr. and Gr.) Sweet Water river.
S. gigantea, (Linn.) var. β . From the Platte to the mountains.
Linosyris graveolens, (Torr. and Gr.) Sweet Water river. Aug. 20.
L. viscidiflora, (Hook.) Upper Platte.
Aplopappus spinulosus, (DC.) Fort Laramie, North fork of the Platte. Sept. 3.
Grindelia squarrosa, (Dunal.) Upper North fork of the Platte, and on the Sweet Water. July 22-Aug. 21.
Chrysopsis hispida, (Hook.) On the Platte.
C. mollis, (Nutt.) With the preceding. Too near *C. folioso*, (Nutt.)
Iva axillaris, (Pursh.) Sweet Water river. Aug. 3.
Franseria discolor, (Nutt.) Near the Wind river mountains.
Lepachys columnaris, (Torr. and Gr.) Little Blue river of the Kansas. June 26.
Balsamorhiza sagittata, (Nutt.) Wind river mountains.
Helianthus petiolaris, (Nutt.) Black hills of the Platte. July 26.
H. Maximiliani, (Schrad.) With the preceding.
Helianthella uniflora, (Torr. and Gr.) Wind river mountains.
Corcopsis tinctoria, (Nutt.) On the Platte.
Cosmidium gracile, (Torr. and Gr.) Upper Platte.
Bidens connata, (Muhl.) With the preceding.
Hymenopappus corimbosus, (Torr. and Gr.) With the preceding.
Actinella grandiflora, (Torr. and Gr.) n. sp. Wind river mountains.
Achillea millefolium, (Linn.) *A. lanosa*, (Nutt.) Upper Platte to the mountains.
Artemisia biennis, (Willd.) On the Platte.
A. cana, (Pursh.) Without flowers. With the preceding.
A. tridentata, (Nutt.) On the Sweet Water, near the mountains.
A. filifolia, (Torr.) South fork of the Platte, and North fork, to Laramie river. July 4-Sept. 3.
A. Canadensis, (Michx.) With the preceding.
A. Ludoviciana, (Nutt.) Black hills of the Platte. July 26.
A. frigida, (Willd.) Black hills to the mountains.

- A. Lewisii*, (Torr. and Gr.?) No flowers. On the Platte.
Stephanomeria runcinata, (Nutt.) Upper Platte.
Graphulum uliginosum, (Linn.) Var. *foliis angustioribus*. Sweet Water river.
G. palustre, (Nutt.) β . (Torr. and Gr.) With the preceding.
Arnica angustifolia, (Vahl.) *A. fulgens*, (Pursh.) Defiles of the Wind river mountains, from 7,000 feet and upwards. August 13-14.
Senecio triangularis, (Hook.) β . (Torr. and Gr.) With the preceding.
S. subnudus, (DC.) With the preceding.
S. Fremontii, (Torr. and Gr.) n. sp. Highest parts of the mountains, to the region of perpetual snow. Aug. 15.
S. rapifolius, (Nutt.) North fork of the Platte and Sweet Water.
S. lanceolatus, (Torr. and Gr.) n. sp. With the preceding.
S. hydrophilus, (Nutt.) On a lake in the Wind river mountains. Aug. 12-17.
S. spartioides, (Torr. and Gr.) n. sp. Sweet Water river. Aug. 21.
S. filifolius, (Nutt.) β *Fremontii*, (Torr. and Gr.) Lower Platte.
Cacalia tuberosa, (Nutt.) Upper Platte.
Tetradymia inermis, (Nutt.) Sweet Water river, from its mouth to the highest parts of the Wind river mountains.
Cirsium altissimum, (Spreng.) Lower Platte.
Crepis glauca, (Hook.) Upper Platte.
Macrorhynchus (stylopappus) troximoides, (Torr. and Gr.) Defiles of the Wind river mountains. Aug. 13-14.
Mulgedium pulchellum, (Torr. and Gr.) Black hills of the Platte. July 25 31.
Lygodesmia juncea, (Don.) Upper Platte.
Troximon parviflorum, (Nutt.) Sweet Water river, near the mountains.

LOBELIACEÆ.

- Lobelia spicata*, (Lam.) On the Lower Platte. June 28.
L. siphilitica, (Linn.) North fork of the Platte. Sept. 4.

CAMPANULACEÆ.

- Campanula rotundifolia*, (Linn.) Lower Platte.
Specularia amplexicaulus, (DC.) Little Blue river of the Kansas.

ERICACEÆ.

- Phyllodoce empetrifornis*, (D. Don.) Defiles of the Wind river mountains. Aug. 13-16.
Vaccinium myrtilloides, (Hook.) Wind river mountains, in the vicinity of perpetual snow. Aug. 15.
V. uliginosum, (Linn.) With the preceding.
Artostaphylos uva-ursi, (Spreng.) On a lake in the mountains. Aug. 12-17.

PRIMULACEÆ.

- Dodecatheon dentatum*, (Hook.) Defiles of the Wind river mountains. Aug. 13-16.
Androsace occidentalis, (Nutt.) Sweet Water river. Aug. 5.
Lysimachia ciliata, (Linn.) Forks of the Platte. July 2.
Glaux maritima, (Linn.) Upper North fork of the Platte. July 31.

SCROPHULARIACEÆ.

- Orthocarpus luteus*, (Nutt.) Sweet Water river. Aug. 5.
Mimulus alsinoides, (Benth.) Defiles of the Wind river mountains. Aug. 13-16.
M. Lewisii, (Pursh.) With the preceding.
Castilleja pallida, (Kunth.) Sweet Water river. Aug. 8.

- C. miniata*, (Benth.) Wind river mountains. August 13-16. There are two or three other species of this genus in the collection, which I have not been able to determine.
- Veronica alpina* β , (Hook.) Alpine region of the Wind river mountains.
- Pentstemon albidum*, (Nutt.) Forks of the Platte. July 2.
- P. cæruleum*, (Nutt.) South fork of the Platte. July 4.
- P. micranthum*, (Nutt.) Sources of the Sweet Water, near the mountains. August 7.
- Pedicularis surrecta*, (Benth.) Defiles of the Wind river mountains. August 13-16.
- Gerardia longifolia*, (Nutt.) Lower Platte. July 2.

OROBANCHACEÆ.

- Orobanche fasciculata*, (Nutt.) South fork of the Platte. July 4.

LABIATÆ.

- Monarda fistulosa*, (Linn.) On the Platte.
- Teucrium Canadense*, (Linn.) With the preceding.
- Lycopus sinuatus*, (Ell.) With the preceding.
- Stachys aspera*, (Michx.) Forks of the Platte. July 2.
- Scutellaria galericulata*, (Linn.) North of the Platte. July 10.
- Mentha Canadensis*, (Linn.) With the preceding.
- Salvia azurea*, (Lam.) Kansas river and forks of the Platte. June 19-29, July 2.

VERBENACEÆ.

- Lippia cuneifolia*, *Zapania cuneifolia*, (Torr., in Ann. Lyc. Nat. Hist. N. York, ii, page 234.) North fork of the Platte. July 12.
- Verbena stricta*, (Vent.) With the preceding.
- V. hastata*, (Linn.) With the preceding.
- V. bracteata*, (Michx.) With the preceding.

BORAGINACEÆ.

- Pulmonaria ciliata*, (James; Torr. in Ann. Lyc. N. York, ii, page 224.) Defiles in the Wind river mountains. August 13-15.
- Onosmodium molle*, (Michx.) On the Platte. June 29.
- Batschia Gmelini*, (Michx.) Little Blue river of the Kansas. June 22.
- Myosotis glomerata*, (Nutt.) Forks of the Platte. July 2.

HYDROPHYLLACEÆ.

- Eutoca sericea*, (Lehm.) Wind river mountains.
- Phacelia leucophylla*, n. sp. Whole plant strigosely canescent; leaves elliptical, petiolate entire; racemes numerous, scorpioid, densely flowered.—Goat island, upper North fork of the Platte. July 30. Perennial.—Stems branching from the base. Leaves about two inches long, and 6 to 8 lines wide; radical and lower cauline ones on long petioles; the others nearly sessile. Spikes forming a terminal crowded sort of panicle. Flowers sessile, about 3 lines long. Sepals strongly hispid. Corolla one-third longer than the calyx; the lobes short and entire. Stamens much exerted; filaments glabrous. Style 2-parted to the middle, the lower part hairy. Ovary hispid, incompletely 2-celled, with 2 ovules in each cell. Capsule, by abortion, one-seeded; seed oblong, strongly punctate. Nearly related to *P. integrifolia*, (Torr. ;) but differs in the leaves being perfectly entire, the more numerous spikes, one-seeded capsules, as well as in the whitish strigose pubescence of the whole plant.

POLEMONIACEÆ.

- Phlox muscoides*, (Nutt.) Immediately below the region of perpetual snow, on the Wind river mountains. August 15.
- P. Hoodii*, (Richards.) North fork of the Platte. July 8.
- P. pilosa*, (Nutt.) Big Blue river of the Kansas. June 20.

- Polemonium cæruleum*, (Linn., Hook.) Red Buttes on the Upper North fork of the Platte, β *humile*, (Hook.) Highest parts of the mountains, near perpetual snow. August 13-15.
Gilia (Cantua) longiflora, (Torr.) Sand hills of the Platte. September 16.
G. pulchella, (Dougl.) Upper part of the Sweet Water, near the mountains. August 7-20.
G. inconspicua, (Dougl.?) Goat island, Upper North fork of the Platte. July 30. This differs from the Oregon plant in its fleshy, simply pinnatifid leaves, with ovate, obtuse segments.

CONVOLVULACEÆ.

- Calystegia sepium*, (R. Br.) Forks of the Platte. July 2.
Ipomœa leptophylla, n. sp. Stems branching from the base, prostrate, glabrous, angular; leaves lanceolate-linear, very acute, entire, attenuate at the base into a petiole; peduncles 1 to 3-flowered; sepals roundish-ovate, obtuse with a minute mucro.—Forks of the Platte to Laramie river. July 4-September 3. Imperfect specimens of this plant were collected about the sources of the Canadian, by Dr. James, in Long's expedition; but they were not described in my account of his plants. The root, according to Dr. James, is annual, producing numerous thick prostrate, but not twining stems, which are two feet or more in length. The leaves are from two to four inches long, acute at each end, strongly veined and somewhat coriaceous. Peduncles an inch or more in length; those towards the extremity of the branches only 1 flowered; the lower ones bearing 2, 3, and sometimes 4 flowers, which are nearly the size of those of *calystegia sepium*, and of a purplish color. Sepals appressed, about five lines long. Corolla campanulate—funnel form, the tube much longer than the calyx. Stamens inserted near the base of the corolla; filaments villous at the base; anthers oblong linear, large. Style as long as the stamens; stigma 2-lobed; the lobes capitate. Ovary 2-celled, with two ovules in each cell.

SOLANACEÆ.

- Nycterium luteum*, (Donn eat.) South fork of the Platte. July 4.
Physalis pubescens, (Willd.) Upper North fork of the Platte. July 23.
P. pumila, (Nutt.) With the preceding.

GENTIANACEÆ.

- Gentiana arctophila* β *densiflora*, (Griseb.? in Hook. Fl. Bor. Am. ii, page 61.) Sweet Water of the Platte. August 4.
G. affinis, (Griseb.) North fork of the Platte. September 9.
G. pneumonanthe, (Linn.) Laramie river to Little Sandy creek, in the mountains. July 12-August 8.
G. Fremontii, n. sp. Stem branched at the base; branches 1-flowered; leaves ovate, cuspidate, cartilaginous on the margin, erect; corolla funnel-form; plicæ small, slightly 2-toothed; capsule ovate, at length entirely exerted on its thick stipe.—Wind river mountains—Annual. Branches several, 2 to 3 inches long, or nearly equal length. Leaves about three lines long, with a strong whitish cartilaginous border, shorter than the internodes. Flowers as large as those of *G. prostrata*, pe. tamerous. Calyx two-thirds the length of the corolla; the teeth about one-third the length of the tube. Plicæ of the corolla scarcely one-third as long as the lanceolate lobes. Stamens included; anthers oblong, somewhat cordate at the base. Capsule in maturity, and after dehiscence, (in which state all our specimens were collected,) exerted quite beyond the corolla, and, with its long stipe, resembling a style with a large bilamellate stigma. None of the capsules contained any seeds. This species is nearly related to *G. prostrata*, (Haenk,) and *G. humilis*, (Stev.,) but the former has spatulate obtuse recurved leaves, and the latter entire plicæ, which are nearly the length of the corolla. In *G. humilis*, and in the allied *G. squarrosa*, (Ledeb.,) the capsule is exerted after discharging the seeds.
Swertia perennis, β *obtus*, (Hook.) From Laramie river to the Big Buttes.
Fraseria speciosa, (Hook.) Defiles of the Wind river mountains. August 1-11.
Lisianthus Russelanus, (Hook.) Lower Platte to the forks. July-September.

APOCYNACEÆ.

Apocynum cannabinum, (Linn.) On the Platte.

ASCLEPIADACEÆ.

Asclepias speciosa, (Torr, in Ann. Lyc. N. York, ii, p. 218.—*A Douglasii*, Hook. Fl. Bor. Am. ii, p. 53, t. 142.) Forks of the Platte. July 2. Collected also by Mr. Nicollet in his North-western expedition. Hooker's plant differs in no essential characters from my *A. speciosa*, collected by Dr. James in Long's first expedition.

A verticillata, (Linn.) Small variety. With the preceding.

A. tuberosa, (Linn.) Kansas river. June 19.

Anantherix viridis, (Nutt.) Big Blue river of the Kansas. June 20.

Acerates longifolia, (Ell.) *Polyotus longifolia*. (Nutt.) With the preceding.

A. angustifolius. *Polyotus angustifolius*. (Nutt.) With the preceding.

OLEACEÆ.

Fraxinus platycarpa, (Michx.) Leaves only. Lower Platte.

PLANTAGINACEÆ.

Plantago eriopoda, (Torr., in Ann. Lyc. N. York, ii, p. 237.) Mouth of the Sweet Water. July 31.

P. gnaphaloides, (Nutt.) Little Blue river of the Kansas. June 24.

CHENOPODIACEÆ.

Chenopodium zosterifolium, (Hook.) Platte. ?

C. album, (Linn.) North fork of the Platte. July 12.

Olione canescens, (Mocq. Chenop., p. 74.) *Atriplex canescens*. (Nutt.) Upper North fork of the Platte. July 26.

Cyclohoma platyphylla, (Mocq., l. c. p. 18) *Kochia dentata*, (Willd.) North fork of the Platte. September 4.

Sueda maritima, (Mocq., l. c. p. 127.) With the preceding.

Eurotia lanata, (Mocq., l. c. p. 81.) *Diotis lanata*, (Pursh.) Red Buttes to the mountains. August 18-25.

Fremontia, n. gen. Flowers declinuous, monœcious and ? dioecious, heteromorphous. Stam. Fl. in terminal aments. Scales eccentrically peltate, on a short stipe, angular, somewhat cuspidate upward. Stamens 2, 3, and 4 under each scale, naked, sessile; anthers oblong. Pist. Fl. solitary, axillary. Perigonium closely adhering to the lower half of the ovary, the border entire, nearly obsolete, but in fruit enlarging into a broad horizontal angular and undulate wing. Ovary ovate; styles thick, divaricate; stigmas linear. Fruit a utricle, the lower two-thirds covered with the indurated calyx, compressed. Seed vertical; integument double. Embryo flat-spiral, (2 to 3 turns,) green; radicle inferior; albumen none.

F. vermicularis. (*Batis? vermicularis*, Hook.) Fl. Bor. Amer. ii, p. 128. Upper North fork of the Platte, near the mouth of the Sweet Water. July 30. A low glabrous, diffusely branched shrub, clothed with a whitish bark. Leaves alternate, linear, fleshy, and almost semiterete, 6 to 12 lines long and 1 to 2 lines wide. Staminate aments about three-fourths of an inch long, cylindrical, at first dense, and composed of closely compacted angular scales, covering naked anthers. Anthers very deciduous. Fertile flowers in the axils of the ramal leaves. Calyx closely adherent, and at first with only an obscure border or limb, but at length forming a wing 3 to 4 lines in diameter, resembling that of *Salsola*. This remarkable plant, which I dedicate to Lieutenant Frémont, was first collected by Dr. James about the sources of the Canadian, (in Long's expedition,) but it was omitted in my account of his plants, published in the Annals of the Lyceum of Natural History. It is undoubtedly the *batis? vermicularis* of Hooker, (l. c.,) collected on the barren grounds of the Oregon river by the late Mr. Douglas, who found it with only the staminate flowers. We have it now from a third locality, so that the plant must be

widely diffused in the barren regions towards the Rocky mountains. It belongs to the sub-order *spirolobeæ* of Meyer and Mocquin, but can hardly be referred to either the tribe *suxedineæ* or to *salsolæ*, differing from both in its declivous heteromorphous flowers, and also from the latter in its flat-spiral, not cochleate embryo.

NYCTAGINACEÆ.

Oxybaphus nyctaginea, (Torr. in James's Rocky Mountain Plants.) *Calymenia nyctaginea*, (Nutt.) Kansas river, June 20.

Abronia mellifera, (Dougl.) North fork of the Platte, July 7-12.

A. (tripterocalyx) micranthum, n. sp. Viscid and glandularly pubescent; leaves ovate, undulate, obtuse, acute at the base, petiolate; perianth funnel form, 4-lobed at the summit, 3 to 4 androus; achenium broadly 3-winged.—Near the mouth of Sweet Water river. August 1. Annual. Stem diffusely branched from the base, beginning to flower when only an inch high; the branches of the mature plant above a foot long. Leaves 1 to 1½ inch in length; petioles about as long as the lamina. Heads axillary. Involucre 5-leaved, 8 to 14-flowered; leaflets ovate, acuminate. Perianth colored, (purplish,) 3 to 4 lines long; lobes semi-ovate, obtuse. Stamens inserted in the middle of the tube, unequal; anthers ovate, sagittate at the base. Ovary oblong, clothed with the 3-winged base of the calyx; style filiform; stigma filiform-clavate, incurved. Mature achenium about 7 lines long and 4 wide; the wings broad, nearly equal, membranaceous and strongly reticulated. Seed oblong. Embryo conduplicate, involving the deeply 2-parted mealy albumen; radicle linear-terete; inner cotyledon abortive! outer one oblong, foliaceous, concave, as long as the radicle. This interesting plant differs from its congeners in its funnel-form perianth, 3 to 4 androus flowers, and broadly 3-winged fruit, but I have not been able to compare it critically with other species of *abronia*. It may prove to be a distinct genus.

POLYGONACEÆ.

Polygonum Persicaria, (Linn.) North fork of the Platte. September 4.

P. aviculare, (Linn.) With the preceding.

P. amphibium, (Linn.) Sweet Water river. August 4.

P. viviparum, (Linn.) Black hills. July 26.

Rumex salicifolius, (Weinn.) With the preceding.

Oxyria reniformis, (Hill.) Alpine region of the Wind river mountains. August 13-16.

Eriogonum ovalifolium, (Nutt.) Horse-shoe creek, Upper North fork of the Platte. July 22.

E. cæspitosum, (Nutt.) With the preceding.

E. umbellatum, (Torr.,) in Ann. Lyc. Nat. Hist. N. York, ii, p. 241. Sweet Water river. Aug. 7.

E. Fremontii, n. sp. With the preceding.

E. annuum, (Nutt.) North fork of the Platte. September 4.

ELEAGNACEÆ.

Shepherdia argentea, (Nutt.) "Grains de bœuf." Upper North fork of the Platte, from the Red Buttes to the mouth of the Sweet Water. August 24-28.

S. Canadensis, (Nutt.) On a lake in the Wind river mountains. August 12-17.

Eleagnus argenteus, (Pursh.) With the preceding.

EUPHORBIACEÆ.

Euphorbia marginata, (Pursh.) Forks of the Platte. September 11.

E. polygonifolia, (Linn.) South fork of the Platte. July 4.

E. corollata, (Linn.) On the Kansas.

E. obtusata, (Pursh.) Little Blue river of the Kansas. July 23.

Pilinophytum capitatum, (Klotzsch in Wiegem. Arch., April, 1842.) *Croton capitatum*, (Michx.) Forks of the Platte.

Hendecandra? (Esch.,) *multiflora*, n. sp.; annual canescent, with stellate pubescence, diœcious;

stem somewhat diffusely and trichotomously branched; leaves ovate-oblong; petiolate obtuse, entire; staminate flowers on crowded axillary and terminal compound spikes.—Laramie river, North fork of the Platte. September 3—11.—About a foot high. Fructiferous plant unknown. With larger leaves. Forks of the Platte. July 2. This seems to be the same as the plant of Drummond's Texan Collection, III, No. 266.

SALICIACEÆ.

Salix longifolia, (Willd.) On the Platte.

S. Muhlenbergii, (Willd.) With the preceding. Several other species exist in the collection—some from the Platte, others from the mountains; but I have had no time to determine them satisfactorily.

Populus tremuloides, (Michx.) Lake in the Wind river mountains.

P. angustifolia, (Torr. in Ann. Lye. N. Hist. of New York, ii, p. 249.) Sweet Water river. Aug. 21.

P. monilifera, (Ait.) Lower Platte.

ULMACEÆ.

Ulmus fulva, (Michx.) Lower Platte.

Seltis crassifolia, (Nutt.) With the preceding.

BETULACEÆ.

Betula glandulosa, (Michx.) On a lake in the Wind river mountains. Aug. 12-17.

B. occidentalis, (Hook.) With the preceding.

CONIFERÆ.

Pinus rigida, (Linn.) Lower Platte. Without cones. Leaves in threes, about 3 inches long.

P. undetermined. Defiles of the Wind river mountains. Aug. 13-14. Between *P. strobus* and

P. Lambertiana. Leaves in 5's, $1\frac{1}{2}$ to 2 inches long, rigid. No cones.

P. (Abies) alba, (Michx.) With the preceding.

P. near *balsamea*. With the preceding. Leaves only.

Juniperus Virginiana, (Linn.) Lower Platte.

ENDOGENOUS PLANTS.

ALISMACEÆ.

Sagittaria sagittifolia, (Linn.) On the Kansas.

ORCHIDACEÆ.

Platanthera leucophæa, (Lindl.) Black hills. July 27.

P. hyperborea, (R. Br.) Laramie river to the Red Buttes. Aug. 26-31.

Spiranthes cernua, (Rich.) Sweet Water river. Aug. 6.

Aplectrum hyemale, (Nutt.) On the Platte. June 29.

IRIDACEÆ.

Sisyrinchium anceps, (Linn.) North fork of the Platte. July 12.

Iris Missouriensis, (Nutt., in Jour. Acad. Phil. vii, p. 58.) In fruit. Sweet Water river. Aug. 3.

Rhizoma very thick. Leaves narrow, rigid, as long as the scape. Scape nearly naked, 2-flowered, terete, 10 inches high. Capsules oblong, obtusely triangular. Flowers not seen.

LILIACEÆ.

- Yucca angustifolia*, (Sims.) Laramie river. July 14.
Allium reticulatum, (Fras.) Defiles in the Wind river mountains. Aug. 12-17.
Smilacina stellata, (Desf.) From the Laramie river to the Red Buttes. Aug. 26-31

MELANTHACEÆ.

- Zigadenus glaucus*, (Nutt.) Sweet Water river. Aug.

JUNCACEÆ.

- Juncus echinatus*, (Muhl.) North fork of the Platte. Sept. 4.

COMMELYNACEÆ.

- Tradescantia Virginica*, (Linn.,) and a narrow-leaved variety. Kansas and Platte.

CYPERACEÆ.

- Carex festucacea*, (Schk.) On the Kansas. June.
C. aurea, (Nutt.) Little Blue river of the Kansas. June 22.
C. panicea, (Linn.) Alpine region of the Wind river mountains, near perpetual snow. Aug. 15.
C. atrata, (Linn.) With the preceding.

GRAMINEÆ.

- Spartina cynosuroides*, (Willd.) Little Blue river of the Kansas. June 22.
Aristida pallens, (Pursh.) On the Platte. June 29.
Agrostis Michauxiana, (Trin.) Little Blue river of the Kansas. June 23.
Phleum alpinum, (Linn.) Alpine region of the Wind river mountains. Aug. 13-14.
Bromus ciliatus, (Linn.) On the Platte. June-Aug.
Pestuca ovina, (Linn.) Alpine region of the Wind river mountains. Aug. 13-14.
Pestuca nutans, (Willd.) On the Kansas.
Poa laxa, (Haenke.) With the preceding.
P. crocata, (Michx.) With the preceding. Spikelets 2-flowered.
P. nervata, (Willd.) On the Kansas.
Koeleria cristata, (Pers.) Big Blue river of the Kansas, and on the Platte as high as Laramie river. June 20—July 22.
Deschampsia cespitosa, (Beauv.) Alpine region of the Wind river mountains. Aug. 13-14.
Andropogon scoparius, (Michx.) Lower Platte.
A. nutans, (Linn.) Laramie river, North fork of the Platte. Sept. 3-4.
Hordeum jubatum, (Ait.) Forks of the Platte. July 2.
Elymus Virginicus, (Linn.) Big Blue river of the Kansas. June 20.
E. Canadensis, (Linn.) Little Blue river of the Kansas. June 22.
Beckmannia cruciformis, (Jacq.) North fork of the Platte. July 22.

EQUISETACEÆ.

- Equisetum arvense*, (Linn.) On a lake in the Wind river mountains. Aug. 12-17.

FILICES.

- Hypopeltis obtusa*, (Torr. Compend. Bot. N. States, p. 380, 1826.) *Aspidium obtusum*, (Willd.)
Woodsia Perriniana, (Hook. and Grev. Icon. Fil. I. t. 68.) *Physematium* (Kaulf.) *obtusum*,
(Hook. Fl. Bor. Am. ii, p. 259.) On the Platte.

(No 3)

C.

NOTE CONCERNING THE PLANTS COLLECTED IN THE SECOND EXPEDITION OF CAPTAIN FRÉMONT.

When Captain Frémont set out on his second expedition, he was well provided with paper and other means for making extensive botanical collections; and it was understood that, on his return, we should, conjointly, prepare a full account of his plants, to be appended to his report. About 1,400 species were collected, many of them in regions not before explored by any botanist. In consequence, however, of the great length of the journey, and the numerous accidents to which the party were exposed, but especially owing to the dreadful flood of the Kansas, which deluged the borders of the Missouri and Mississippi rivers, more than half of his specimens were ruined before he reached the borders of civilization. Even the portion saved was greatly damaged; so that, in many instances, it has been extremely difficult to determine the plants. As there was not sufficient time before the publication of Captain Frémont's report for the proper study of the remains of his collection, it has been deemed advisable to reserve the greater part of them to incorporate with the plants which we expect he will bring with him on returning from his third expedition, upon which he has just set out.

The loss sustained by Captain Frémont, and, I may say, by the botanical world, will, we trust, be partly made up the present and next seasons, as much of the same country will be passed over again, and some new regions explored. Arrangements have also been made, by which the botanical collections will be preserved, at least from the destructive effects of water; and a person accompanies the expedition, who is to make drawings of all the most interesting plants. Particular attention will be given to the forest trees and the vegetable productions that are useful in the arts, or that are employed for food or medicine.

JOHN TORREY.

Descriptions of some new genera and species of plants, collected in Captain J. C. Frémont's exploring expedition to Oregon and North California, in the years 1843-'44: By John Torrey and J. C. Frémont.

CLEOMELLA (?) OBTUSIFOLIA. Torr. and Frém.

Branching from the base, and diffuse; leaflets cuneate-obovate, obtuse; style filiform.

Annual, stem smooth, the branches spreading, about a span long, hairy in the axils. Leaves, or petioles, an inch or more in length; the lamina of the leaflets 4—6 lines long, apiculate with a deciduous bristle, nearly smooth above, sparsely strigose underneath. Pedicels solitary and axillary, in the upper part of the branches, longer than the petioles. Calyx much shorter than the corolla; the sepals lacerately 3—5-toothed. Petals yellow, oblong-lanceolate, obtuse, about 3 lines in length. Stamens 6, unequal, a little exerted; anthers linear-oblong, recurved when old. Torus hemispherical. Ovary on a long slender stipe, obovate; style longer than the ovary.

On the American fork of the Sacramento river; March. The specimens are not in fruit, so that we cannot be certain as to the genus; but it seems to be a *Cleomella*.

MECONELLA CALIFORNICA. *Torr. and Frém.*

Leaves obovate-spatulate; stamens 11—12.

On the American fork of the Sacramento river.

This species is intermediate between *Meconella* and *Platystigma*. It is a slender annual, 3—4 inches high, with the radical leaves in rosulate clusters, and more dilated at the extremity than in *M. Oregana*. The flowers also are much larger. The torus, which is like that of *Eschschotzia*, is very distinct.

ARCTOMECON. *Torr. and Frém.—n. gen.*

Calyx of 3 smooth imbricated caducous sepals. Petals 4, obovate, regular. Stamens numerous; anthers oblong-linear: the cells opening longitudinally. Ovary obovoid, composed of 6 carpels, with as many narrow intervalvular placentæ: styles none: stigmas coalescing into a small hemispherical 6-angled sessile head, the angles of which are opposite the placentæ, not forming a projecting disk. Capsule (immature) ovoid, the placentæ almost filiform, opening at the summit by 6 valves, which separate from the persistent placentæ. Seeds oblong, smooth, strophiolate.—A perennial herb, with a thick woody root. Leaves numerous, mostly crowded about the root, flabelliform-cuneate, densely clothed with long gray upwardly barbellate hairs, 3—5 lobed at the summit; the lobes with 2—3 teeth, which are tipped with a rigid pungent upwardly scabrous bristle. Stem scape-like, about a foot high, furnished about the middle with one or two small bract-like leaves, smooth above, rough towards the base. Flowers in a loose, somewhat umbellate, simple or somewhat compound panicle; the peduncles elongated, erect. Petals about an inch long, yellow.

ARCTOMECON CALIFORNICUM. *Torr. and Frém.*

This remarkable plant was found in only a single station in the Californian mountains, on the banks of a creek; flowering early in May. The soil was sterile and gravelly. Although very near *Papaver*, it differs so much in habit and in the strophiolate seeds, as well as in other characters, that it must be a distinct genus.

KRAMERIA.

A shrubby species of this genus was found on the Virgen river, in California. It seems to be *K. parvifolia* of Bentham, described in the voyage of the Sulphur. His plant, however, was only in fruit, while our specimens are only in flower. Ours grows in thick bunches 1—2 feet high, of a gray aspect, with numerous very straggling and somewhat spinescent branches. Leaves scarcely one-third of an inch long, obovate-spatulate. The flowers are scarcely more than half as large as in *K. lanceolata*. Sepals 5, unequal; claws of the 3 upper petals united into a column below; lamina more or less ovate; the two lower petals short and truncate. Stamens shorter than the upper petals; the filaments united at the base with the column of the petals: anthers one-celled, with a membranaceous summit, the orifice of which is somewhat dilated, and finally lacerated. Ovary hairy and spinulose; style rigid, declined.

OXYSTYLIS. *Torr. and Frém.—n. gen.*

Sepals linear; petals ovate, somewhat unguiculate; ovary 2-celled; the cells subglobose, each with two ovules: style pyramidal, much larger than



Prosopis odorata.

the ovary. Silicle didymous: the carpels obovoid-globose, one-seeded, (or rarely two-seeded,) indehiscent, separating from the base of the persistent subulate spinescent style: pericarp crustaceo-coriaceous. Seed ovate, somewhat compressed; testa membranaceous, the lining much thickened and fleshy. Cotyledons incumbent, linear-oblong; radicle opposite the placentæ.—A smooth annual herb. Leaves ternately parted, on long petioles; the leaflets ovate or oblong, entire petiolulate. Flowers in numerous axillary crowded short capitate racemes, small and yellow.

OXYSTYLIS LUTEA. Torr. and Frém.

On the Margoza river, at the foot of a sandy hill; only seen in one place, but abundant there. The specimens were collected on the 28th of April, and were in both flower and fruit.

A rather stout plant; the stem erect, a foot or 15 inches high, simple or a little branching below, leafy. Leaflets 1—1½ inch long, obtuse. Heads of flowers about half an inch in diameter, not elongating in fruit. Calyx shorter than the corolla; the sepals acute, yellowish, tipped with orange. Petals about two lines long. Fruit consisting of two roundish indehiscent carpels, which at maturity separate by a small base, leaving the indurated pointed style. The epicarp is thin, membranaceous, and slightly corrugated.

This remarkable plant seems to connect Cruciferae with Capparidaceae. The clusters of old flower stalks, with their numerous crowded spinescent styles, present a singular appearance.

THAMNOSMA. Torr. and Frém.—*n. gen.*

Flowers hermaphrodite, (or polygamous?) Calyx 4-cleft. Corolla 4-petalled, much longer than the calyx; the aestivation valvate. Stamens 8, in a double series, all fertile. Ovaries 2, sessile and connate at the summit of a stipe, each with 5 or 6 ovules in 2 series; styles united into one; stigma capitate. Capsules 2, sessile at the summit of the stipe, subglobose, united below, (one of them sometimes abortive,) coriaceous, 1—3-seeded. Seeds curved, with a short beak, black and minutely wrinkled; the radicle inferior. Embryo curved; cotyledons broadly linear, incumbent.

THAMNOSMA MONTANA. Torr. and Frém.

A shrub of the height of one or two feet, branching from the base, with simple, very small linear wedge-shaped leaves. The flowers are apparently dark purple, in loose terminal clusters. The whole plant has a strong aromatic odor, and every part of it is covered with little glandular dots. Although nearly allied to *Xanthoxylum*, we regard it as a peculiar genus. It grows in the passes of the mountains, and on the Virgen river in Northern California. The greater part of it was already in fruit in the month of May.

PROSOPIS ODORATA. Torr. and Frém.

Branches and leaves smooth; spines stout, mostly in pairs, straight; pinnae a single pair; leaflets 6—8 pairs, oblong-linear, slightly falcate, somewhat coriaceous, rather obtuse; spikes elongated, on short peduncles; corolla three times as long as the calyx; stamens exserted; legume spirally twisted into a compact cylinder.

A tree about 20 feet high, with a very broad full head, and the lower branches declining to the ground; the thorns sometimes more than an inch

long. Leaves smooth; the common petiole 1—2 inches long, and terminated by a spinescent point; leaflets from half an inch to an inch long, and 1—2 lines broad, somewhat coriaceous, sparingly but prominently veined underneath. Spikes 2—4 inches long, and about one-third of an inch in diameter. Flowers yellow, very fragrant, nearly sessile on the rachis. Calyx campanulate, somewhat equally 5-toothed, smooth. Petals ovate-oblong, hairy inside. Stamens 10, one-third longer than the corolla. Anthers tipped with a slightly stipitate gland. Ovary linear-oblong, villous; style smooth; stigma capitate, concave at the extremity. Legumes clustered, spirally twisted into a very close rigid cylinder, which is from an inch to an inch and a half long, and about two lines in diameter, forming from ten to thirteen turns, many seeded. Sarcocarp pulpy; the two opposite sides of the firm endocarp are compressed together between the seeds, forming a longitudinal kind of septum, which divides the pulp into two parts. Seeds ovate, kidney-form, compressed, very smooth and hard. Embryo yellowish, surrounded with a thin albumen.

A characteristic tree in the mountainous part of Northern California, particularly along the Mohahve and Virgen rivers, flowering the latter part of April.

This species belongs to the section *strombocarpa* of Mr. Bentham,* which includes the *Acacia strombulifera* of Wildenow. In the structure of the pod it is so remarkable that we at one time regarded it as a distinct genus, to which we gave the name of *Spirolobium*.

There are numerous other Leguminosæ in the collection, including, as might be expected, many species of *Lupinus*, *Astragalus*, *Oxytropis*, and *Phaca*, some of which are new; also, *Thermopsis rhombifolia* and *montana*, and a beautiful shrubby *Psoralea* (or some allied genus) covered with bright violet flowers.

COWANIA PLICATA. *D. Don. (?)*

Specimens of this plant, without a ticket, were in the collection; doubtless obtained in California. It may prove to be a distinct species from the Mexican plant, for the leaves are more divided than they are described by Don, and the flowers are smaller. The genus *Cowania* is very nearly allied to *Cercocarpus* and *Purshia*, notwithstanding its numerous ovaries. The lobes of the calyx are imbricated, as in those genera, and not valvate, as in *Eudryadæ*, to which section it is referred by Endlicher.

Purshia tridentata formed a conspicuous object in several parts of the route, not only east of the mountains, but in Oregon and California. It is covered with a profusion of yellow flowers, and is quite ornamental. Sometimes it attains the height of twelve feet.

Spiræa ariæfolia, var. *discolor*, was found on the upper waters of the Platte, holding its characters so well that it should perhaps be regarded as a distinct species.

ÆNOTHERA CLAVÆFORMIS. *Torr. and Frém.*

Leaves ovate or oblong, denticulate or toothed, pinnatifid at the base, with a long naked petiole; scape with several small leaves, 8—12-flowered; segments of the calyx longer than the tube; capsules clavate-cylindrical, nearly twice as long as the pedicel. Flowers about as large as in *Æ. pumila*. Grows with the preceding.

* In Hooker's Journal of Botany, iv, p. 351.



Lith. by E. Weber & C. S. Easton

Adonis Californicum.

This new species belongs to the section *Chylismia* of Nutt. (*Torr. and Gr. Fl. N. Am.* 1, p. 506.)

ÆNOTHERA DELTOIDES. *Torr. and Frém.*

Annual; canescently strigose; stem low and stout; leaves rhombicovate, repandly denticulate, acute; flowers (large) clustered at the summit of the short stem; tube of the calyx nearly twice the length of the segments; petals entire, one-third longer than the slightly declined stamens; anthers very long, fixed by the middle; style exserted; capsules prismatic-cylindrical.

Allied to *Æ. Jamesii*, *Torr. and Gr.*, and belongs, like that species, to the section *EUGNOTHERA* and sub-section *Onagra*.

ÆNOTHERA CANESCENS. *Torr. and Frém.*

Strigosely canescent; leaves narrowly lanceolate, rather obtuse, remotely denticulate; flowers in a leafy raceme; tube of the calyx rather slender, three times as long as the ovary, and one-third longer than the segments; petals broadly ovate, entire.

This species was collected (we believe) on the upper waters of the Platte. It belongs to the section *Euænothera*, and to a sub-section which may be called *GAUROPSIS*, and characterized as follows: Perennial diffuse herbs; tube of the calyx linear; capsule obovate, sessile, with 4-winged angles and no intermediate ribs, tardily opening; seeds numerous, horizontal; the testa membranaceous; leaves opaque.

Besides these new species, many other *Ænothera* were collected; among which may be mentioned *Æ. albicaulis*, *alyssoides*, *montana*, and *Missouriensis*. Also, *Gayophytum diffusum*, (from the Snake country, growing about 2 feet high,) *Stenosiphon virgatum*, and *Gaura coccinea*.

COMPOSITÆ.

The plants of this family were placed in the hands of Dr. Gray for examination; and he has described some of them (including four new genera) in the Boston Journal of Natural History for January, 1845. He has since ascertained another new genus among the specimens; and we fully concur with him in the propriety of dedicating it to the late distinguished I. N. Nicollet, Esq., who spent several years in exploring the country watered by the Mississippi and Missouri rivers, and who was employed by the United States Government in a survey of the region lying between the sources of those rivers. This gentleman exerted himself to make known the botany of the country which he explored, and brought home with him an interesting collection of plants, made under his direction, by Mr. Charles Geyer, of which an account is given in the report of Mr. N. The following is the description of this genus by Dr. Gray:

NICOLLETIA. *Gray.*

“Heads heterogamous, with few rays, many flowered. Involucre campanulate, consisting of about 8 oval membranaceous scales in a single series; the base calyculate, with one or two smaller scales. Receptacle convex, alveolate. Corolla of the disk flowers equally 5-toothed. Branches of the style terminated by a subulate hisped appendage. Achenia elongated, slender, canescently pubescent. Pappus double, scarcely shorter than the corolla; the exterior of numerous scabrous, unequal bristles; the inner of 5 linear-

lanceolate chaffy scales, which are entire, or 2-toothed at the summit, and furnished with a strong central nerve, which is produced into a short scabrous awn.—A humble, branching (and apparently annual) herb. Leaves alternate, pinnatifid, and somewhat fleshy, (destitute of glands?); the lobes and rachis linear. Heads terminal, solitary, nearly sessile, large, (about an inch long,) with one or two involucre leaves at the base. Corolla yellow.”

• *NICOLLETIA OCCIDENTALIS.* Gray.

On the banks of the Mohahve river, growing in naked sands; flowering in April. The plant has a powerful and rather agreeable odor. This interesting genus (which is described from imperfect materials) belongs to the tribe *SENECIONIDÆ*, and the sub-tribe *TAGITINÆ*. It has the habit of *Dissodia*, and exhibits both the chaffy pappus of the division *Tageteæ*, and the *pappus pilosus* of *Porophyllum*.*—Gray.

FRANSERIA DUMOSA. Gray.

Shrubby, much branched; leaves pinnatifid, canescent on both sides, as are the branchlets; the divisions 3—7, oval, entire, and somewhat lobed; heads rather loosely spiked; involucre of the sterile flowers 5—7-cleft, strigosely canescent; of the fertile, ovoid, 2-celled, 2-flowered.

A shrub, 1—2 feet high, with divaricate rigid branches. Leaves scarcely an inch long. Fertile (immature) involucre clothed with straight soft lanceolate-subulate prickles, which are short and scale-like.

On the sandy uplands of the Mohahve river, and very common in all that region of North California. Flowering in April.

AMSONIA TOMENTOSA. Torr. and Frém.

Suffrutescent; clothed with a dense whitish pubescence; leaves lanceolate and ovate-lanceolate, acute at each end; segments of the calyx lanceolate-subulate; corolla slightly hairy externally.

Stems numerous, erect, 12 to 18 inches high, woody, below simple or branching. Leaves alternate; the lowest small and spatulate, or reduced to scales; the others about 2 inches long, and varying from 4 to 8 lines in breadth; entire, acuminate at the base. Flowers in rather dense, somewhat fastigiate terminal clusters, nearly three-fourths of an inch long. Calyx about one-third the length of the corolla, 5-parted to the base; the segments narrow and hairy. Corolla with the tube ventricose above; the segments ovate-oblong. Stamens included; filaments short; anthers ovate-sagittate. Ovaries oblong, united below, distinct above, smooth; style slender; stigma capitate, with a membranaceous collar at the base.

The specimens of this plant were without tickets; but they were probably collected west of the Rocky mountains. They were without fruit.

ASCLEPIAS SPECIOSA. Torr. in *Ann. Lyc. New York*, ii, p. 218.

This (as was stated in the first report) is *A. Douglasii* of Hooker, well figured in his *Flora Boreali Americana*, 2, t. 142. It has a wide range, being found on both sides of the Rocky mountains, and from the sources of the St. Peter's to those of the Kansas and Canadian. The fruit was collected from specimens on the banks of the Snake river. It is almost exactly like that of *A. Cornuti*, being inflated, woolly, and covered with soft spines.

* It should be stated here, that the notice of this genus by Dr. Gray was drawn up in Latin; but we have given it in English, that it may be uniform with our own description.



Lith by E. Weber & Co. Baltimore

Fremontia vermicularis



ACERATES LATIFOLIA. *Torr. and Frém.*

Stem simple, erect, smooth; leaves roundish-ovate, nearly sessile, obtuse, with a small mucro, smooth on both sides; umbel solitary, on a terminal peduncle, few-flowered; pedicels slender; segments of the corolla ovate-lanceolate; lobes of the crown semilunar-ovate, as long as the column, rather obtuse, cucullate.

On Green river, a tributary of the Colorado of the West; June. About a span high. Leaves about an inch and a half long, and more than an inch wide. Flowers few, very large, apparently yellowish. Fruit not seen.

ERIOGONUM INFLATUM. *Torr. and Frém.*

Smooth, bi-trichotomous; the lower part, and sometimes the two primary divisions of the stem, much inflated and clavate; peduncles divaricately branched, the ultimate divisions filiform and solitary; involucre few-flowered, smooth; the teeth equal, erect.

The specimens of this plant are imperfect, being destitute of leaves, which are probably wholly radical. It is a foot or more high. The first joint of the stem, or rather scape, is remarkably dilated and fistular upward. This divides into three or more branches, the two primary ones of which are sometimes inflated like the first; the subdivisions are dichotomous, with a pedicellate involucre in each fork. The involucre is about a line in diameter, smooth, 5—6-flowered; and, in all the specimens that I examined, only 5-toothed. The plant was found on barren hills in the lower part of North California.

ERIOGONUM RENIFORME. *Torr. and Frém.*

Annual; leaves radical, on long petioles, reniform, clothed with a dense hoary tomentum; stem scape-like, naked, 3-forked from the base, glaucous, and nearly smooth; the divisions divaricately 2—3-forked; involucre 2—4 together, on slender peduncles, smooth, campanulate, 5-toothed, the teeth nearly equal, obtuse; perigonium smooth.

On the Sacramento river; March. Allied to *E. vimineum* of Bentham. A small species, with very minute flowers.

ERIOGONUM CORDALUM. *Torr. and Frém.*

Annual; leaves all radical, on long petioles, roundish-ovate, cordate, very obtuse, slightly pubescent above, hairy underneath; scape naked, slender, smooth and glaucous, divaricately branched, the divisions slender; involucre solitary, on filiform peduncles, campanulate, smooth, 5-toothed, the teeth nearly equal, rather obtuse; perigonium hairy.

With the preceding, from which it is easily distinguished by the form of its leaves and color of the pubescence.

Many other species of this genus were collected in California and the Snake country, some of which are probably new, and will be described in the next report.

FREMONTIA VERMICULARIS. *Torr. in Frém. 1st report.*

This curious plant is always found in saline soils, or where the atmosphere is saline. Its greatest height is eight feet. It is a characteristic feature of the vegetation throughout a great part of Oregon and North California. About Brown's Hole, on Green river, it occupies almost exclusively the *bottoms* of the neighboring streams. It is abundant also on the shores

of a salt lake in lat. 38° and long. 113°; and constantly occurs in the desert region south of the Columbia, and between the Cascade range and the Rocky mountains, as far south as lat. 34°. The branches, when old, become spiny, as in many other plants of this family.

Since the description of this genus was published in the first report, (March, 1843,) Nees has given it the name of *SARCOBATUS*; and Dr. Seubert has published an account of it, with a figure, in the *Botanische Zeitung* for 1844. This we have not yet seen; but, from the remarks of Dr. Lindley, who has given a note on the genus in Hooker's *Journal of Botany* for January, 1845, it would seem that some doubt existed among European botanists as to its affinities, as they had not seen the ripe seeds. These we have long possessed, and unhesitatingly referred it to *Chenopodiaceæ*. We regret that our sketches of the staminate flowers were mislaid when the artist was engraving the figure.

OBIONE CONFERTIFOLIA. Torr. and Frém.

Stem pubescent, much branched, erect; leaves alternate, ovate, rather obtuse, petiolate, much crowded, entire, somewhat coriaceous, white with a mealy crust; bracts broadly ovate, obtuse, entire, and the sides without appendages or tubercles.

A small shrub, with rigid crooked and somewhat spinescent branches, and of a whitish aspect. Leaves varying from one-third to half an inch in length, abruptly narrowed at the base into a petiole, thickly clothed with a white mealy substance.

Flowers apparently diœcious. Sterile not seen. Bracts of the fruit 3—4 lines long, united about half way up, distinct above, indurated at the base. Styles distinct. Pericarp very thin. Seed roundish-ovate, rostellate upward; the testa coriaceous. Embryo two-thirds of a circle.

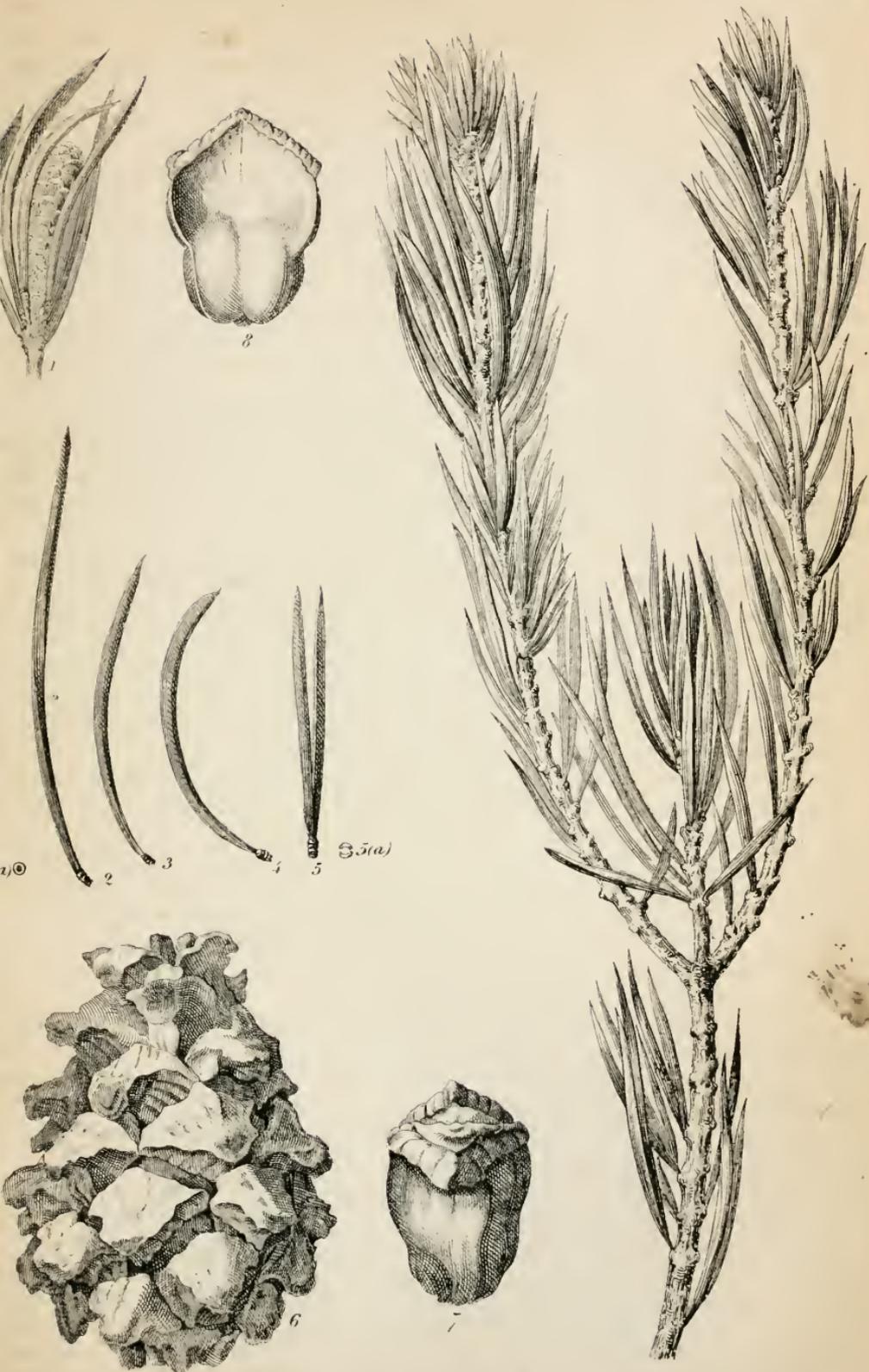
On the borders of the Great Salt lake. From the description of *O. coriacea*, Moq., our plant seems to be a near ally of that species.

PTEROCHITON. Torr. and Frém.—n. gen.

Flowers diœcious. STAMINATE PISTILLATE. Perigonium ovoid-tubular, 4-winged, 2-toothed at the summit. Ovary roundish; style short; stigmas 2, linear. Ovule solitary, ascending from the base of the ovary, campulitropous. Fructiferous perianth indurated, broadly 4-winged, closed, minutely 2-toothed at the summit; the wings veined and irregularly toothed. Utricle very thin and membranaceous, free. Seed ovate, somewhat compressed; the podosperm lateral and very distinct, rostrate upward. Integument double, the exterior somewhat coriaceous, brownish, the inner one thin. Embryo nearly a circle, surrounding copious mealy albumen.

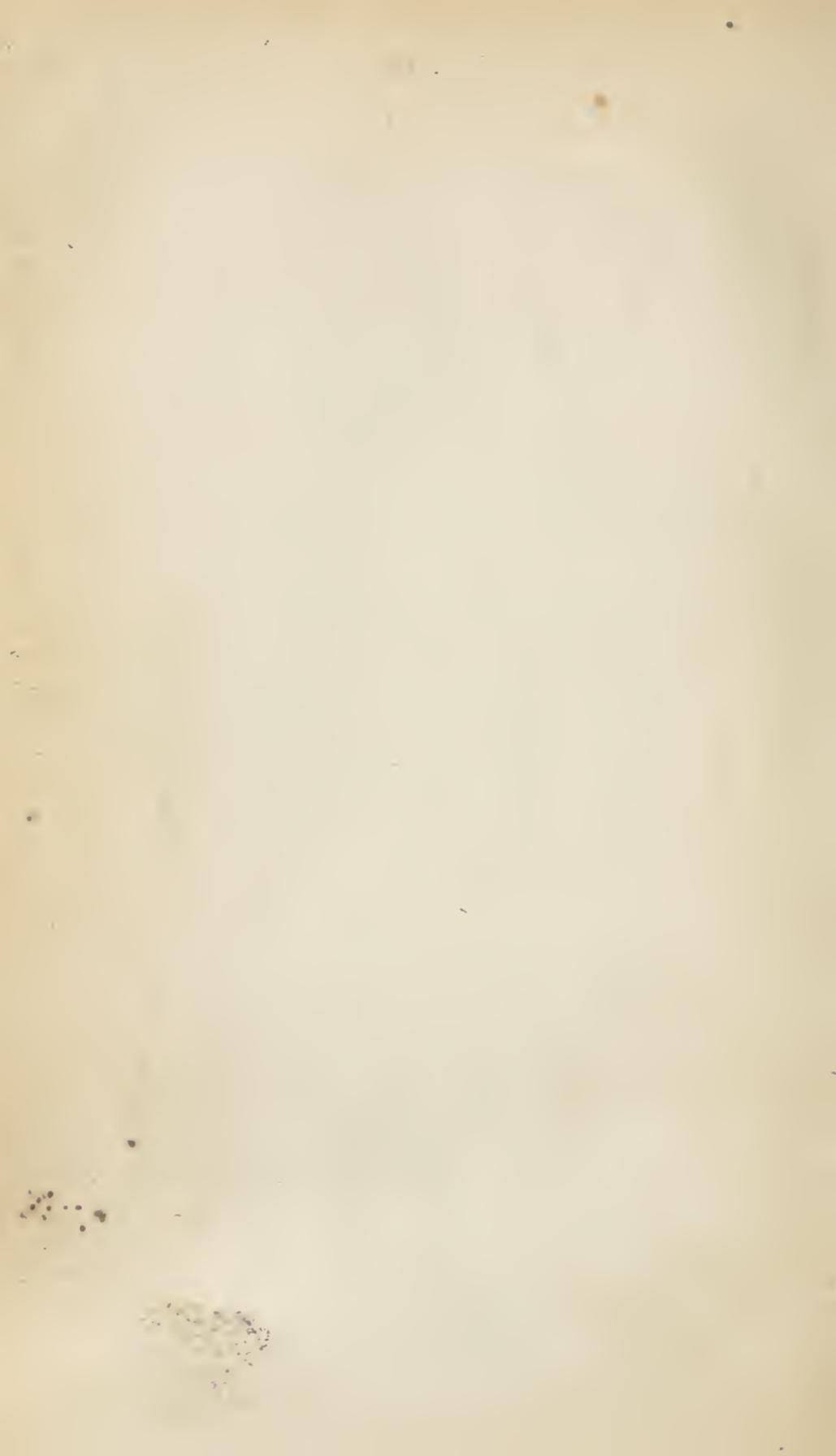
PTEROCHITON OCCIDENTALE. Torr. and Frém.

An unarmed shrub, 1—2 feet high, with numerous slender branches, which are clothed with a grayish nearly smooth bark. Leaves alternate or fasciculate, linear oblanceolate, narrowed at the base, flat, entire, covered with a whitish mealy crust. flowers somewhat racemose, on short pedicels. Fructiferous calyx, with the wings 2—3 lines wide, semi-orbicular, coriaceous-membranaceous, mealy like the leaves, strongly veined; the margin more or less toothed. Utricle free from the indurated cavity of the perianth, extremely thin and transparent. Seed conformed to the utricule,



Pinus monophyllus
The Nut Pine.

Lith. by E. Weber & Co. Baltimore



the conspicuous podosperm passing along its side; the beak pointing obliquely upward.

This is one of the numerous shrubby plants of the Chenopodiaceous family, that constitute a large part of the vegetation in the saline soils of the west. The precise locality of this plant we cannot indicate, as the label was illegible; but it was probably from the borders of the Great Salt lake. It is allied to *Grayia* of Hooker and Arnott, a shrub of the same family, which was found in several places on both sides of the Rocky mountains, often in great abundance.

PINUS MONOPHYLLUS. Torr. and Frém. (*The nut pine.*)

Leaves solitary, or very rarely in pairs, with scarcely any sheaths, stout and rigid, somewhat pungent; cones ovoid, the scales with a thick obtusely pyramidal and protuberant summit, unarmed; seeds large, without a wing.

A tree with verticillate branches and cylindrical-clavate buds, which are about three-fourths of an inch in length. The leaves are from an inch to two and a half inches long: often more or less curved, scattered, very stout, terete, (except in the very rare case of their being in pairs, when they are semi-cylindrical,) ending in a spiny tip. Cones about $2\frac{1}{2}$ inches long, and $1\frac{3}{4}$ inch broad in the widest part. The scales are of a light-brown color, thick; the summit obtusely pyramidal and somewhat recurved, but without any point. The seeds are oblong, about half an inch long, without a wing; or rather the wing is indissolubly adherent to the scale. The kernel is of a very pleasant flavor, resembling that of *Pinus Pembra*.

This tree, which is remarkable among the true pines for its solitary leaves, is extensively diffused over the mountains of Northern California, from long. 111° to 120° , and through a considerable range of latitude. It is alluded to repeatedly, in the course of the narrative, as the *nut pine*.

The Coniferæ of the collection were numerous, and suffered less than most of the other plants. Some of them do not appear to have been hitherto described. There was also an *Ephedra*, which does not differ essentially from *E. occidentalis*, found in great plenty on the sandy uplands of the Mohave river.

Description of the plates.

Plate 1. *ARCTOMECON CALIFORNICUM.* Fig. 1, a stamen, *magnified*; fig. 2, an ovule, *mag.*; fig. 3, capsule, *nat. size*; fig. 3, (a.) stigma, *mag.*; fig. 4, the same cut horizontally, showing the sutures; fig. 5, a seed, *mag.*; fig. 6, portion of a hair from the leaf, *mag.*; fig. 7, bristle from the extremity of a leaf lobe, *mag.*; figs. 8 and 9, leaves, *nat. size*.

Plate 2. *PROSOPIS ODORATA.* Fig. 1, a flower, *mag.*; fig. 2, pistil, *mag.*; fig. 3, cluster of ripe legumes, *nat. size*.

Plate 3. *FREMONTIA VERMICULARIS.* Fig. 1, a very young fertile flower, *mag.*; fig. 2, an ovule, *mag.*; fig. 3, a fertile flower more advanced, *mag.*; fig. 4, a fertile flower at maturity, showing the broad-winged border of the calyx, *mag.*; fig. 5, the same cut vertically; fig. 6, the same cut horizontally; fig. 7, a seed, *mag.*; fig. 8, embryo, *mag.*

Plate 4. *PINUS MONOPHYLLUS.* Fig. 1, a bud, *nat. size*; figs. 2, 3, 4, and 5, leaves, *nat. size*; fig. 2, (a.) section of a single leaf; fig. 5, (a.) section of a pair of leaves; fig. 6, a cone, *nat. size*; fig. 7, a scale, as seen from the outside; fig. 8, inside view of the same.

[The text on this page is extremely faint and illegible. It appears to be a list or a series of entries, possibly related to the date '1873' in the header. The text is too light to transcribe accurately.]

(No 4)

BOTANY
OF
EMORY'S MILITARY
RECONNOISSANCE
IN
NEW MEXICO.

— 0 —

JOHN TORREY.

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APPENDIX No. 2.

COLLEGE OF PHYSICIANS AND SURGEONS,
New York, February 10, 1848.

MY DEAR SIR: I have examined the interesting collection of plants which you kindly placed at my disposal, and herewith send you a list of them, as complete as my numerous engagements permit me to make at present. The route which you passed over is exceedingly rich in botanical treasures, as is evident from the number of new species and genera which you were enabled to make under great disadvantages, and in an expedition which was almost wholly military in its character. Most of the new plants which you found are only indicated, or, at most, very briefly described in the following list. A more full account of them will be given hereafter.

I am, my dear sir, very respectfully, yours,

JOHN TORREY.

To Lieutenant Colonel W. H. EMORY.

JULY 22, 1847.

MY DEAR SIR: I give you the following written sketch of the route, not being able, as you request, to get a trace made from my map.

From the 27th June to July 11th, we were traversing the country between Fort Leavenworth and the bend of the Arkansas, a rich rolling prairie embraced between the 39th and 38th parallels of latitude, and the 94th and 98th meridians of longitude.

From July 11th to July 13th, followed the Arkansas to Pawnee fork, in longitude about 99. At this point the fertile soil ceases, except on the immediate margin of the streams.

From the 14th July to August 1st, we were in the valley of the Arkansas, occasionally crossing the spurs of low hills which interrupt the direct course of the Arkansas. This part lies in latitude 38°, and between longitude 99° and 103° 1'.

From the 1st August to the 8th, crossing the plain in a southerly direction and mounting the Raton mountain, about 7,000 feet above the sea, between latitudes 38 and 36.

From the 8th August to the 14th, in the valleys of the tributaries to the Canadian, and crossing the extensive plains between these valleys.

From the 14th August to the 18th, ascending the great ridge between the head of the Canadian and the waters of the Del Norte, halting at Santa Fé, in latitude 35° 41', on a tributary of the Del Norte, about 15 miles distant from the Del Norte, and about 1,500 feet above that river and 6,850 above the sea.

From August 18th up to the 14th October, all the collections were made in New Mexico, in the valley of the Del Norte, or on the table lands adjacent, and between Santa Fé and the 33d parallel of latitude, (230 miles below Santa Fé.)

From the 14th October to the 19th, we were crossing the great dividing ridge between the waters of the Del Norte and the waters of the Gila, nearly on the 33d parallel of north latitude, and between the 107th and 109th meridians of longitude, measured from Greenwich. The greatest height of this dividing ridge along our trail was about 6,000 feet above the sea.

From the 19th of October to the 22d November, we were following the course of the Gila river, occasionally forced into the mountains to avoid the cañons. This route is never far from the 33d parallel of latitude, and is embraced between the 109° and 114° 30' meridians of longitude, falling, during that distance, very uniformly from about 5,000 feet to near the level of the sea.

From the 22d November to the 24th, we were on the Colorado of the west, traversing a low sandy bottom.

From the 24th November to the 28th, we were crossing the great desert of drifting sand, in a course little north of west.

On the 28th November, we encamped at the Cariso (Reed) creek or spring, the waters of which, when first exposed, are warm, and emit the smell of sulphuretted hydrogen.

From the 28th November, we commenced to ascend the Cordilleras of California, (the continuation of which forms the peninsula of Lower California,) and reached the highest point of the route December 5th, 3,000 feet above the sea, and as many below the overhanging peaks. From that point we descended to San Diego, a seaport on the level of the sea, in latitude 32° 45' and longitude 170° 11' west of Greenwich. This point we reached December 12.

With great respect, very truly yours,

W. H. EMORY.

Professor TORREY, *Princeton.*

[Botany of the Emory expedition]

APPENDIX BY PROFESSOR TORREY.

RANUNCULACEÆ.

RANUNCULUS AQUATILIS, *Linn.* Plains of the Arkansas.

CLEMATIS VIRGINIANA, *Linn.* Raton mountain. An undetermined species of this genus was found in fruit, November 10th, on the Gila. The plumose tails of the carpels are nearly three inches long.

BERBERIDACEÆ.

BERBERIS PINNATA, *Lagasca.* Highlands bordering the Gila; this appears to be a common species in the southern part of Upper California, and in Northern Mexico.

CRUCIFERÆ.

LEPIDIUM RUDERALE, *Linn.* Valley of the Arkansas.

ERYSIMUM ARKANSANUM, *Nutt.* Tributaries of the Canadian.

CAPPARIDACEÆ.

POLONISIA GRAVEOLENS, *Raf.* In flower and fruit, Sept. 26—October 3, valley of the Del Norte. The plant is taller, and the flowers are considerably larger than in the form that is common in the northern United States.

CLEOME INTEGRIFOLIA, *Nutt.* This beautiful species is abundant on both sides of the mountains, from the plains of Oregon, and the upper waters of the Platte, to latitude 33° north.

VIOLACEÆ.

VIOLA CUCULLATA, *Linn.* Pawnee fork of the Arkansas.

PORTULACACEÆ.

PORTULACA OLERACEA, *Linn.* On the Arkansas. Perhaps introduced.

SESUVIUM PORTULACASTRUM, *Linn.* In flower and fruit, Nov. 17. Saline soils along the Gila. Leaves spatulate. Flowers nearly sessile, stamens numerous. Styles 3.

GERANIACEÆ.

GERANIUM FREMONTII, *Torr. in Frém. 2d Rep.* On the Raton.

ZYGOPHYLLACEÆ.

KALLSTRÆMIA MAXIMA, *Torr. and Gr.* Tribulus maximus, *Linn.* Tributaries of the Canadian.

LARREA MEXICANA, *Moricand, pl. nov. t. 48* "Creosoté plant." *Io-deodondo* of the New Mexicans. Used externally for rheumatism. A shrub from three to six feet high. Abundant from the upper waters of the Arkansas and valley of the Del Norte, to the great sandy deserts of California. It likewise occurs in the northern parts of Mexico. The plant abounds in a strong smelling resinous matter. No animal seems to feed on it, and it is useless for fuel, as it can scarcely be made to burn.

ANACARDIACEÆ.

RHUS GLABRA, *Linn.* From the upper part of the Arkansas to longitude 107°.

R. LAURINA, *Nutt.* A large shrub. Mountains of California, towards the sea coast.

R. TRILOBATA, *Nutt.* On the Gila. A shrub 18 inches high, found late in the autumn, with staminate aments nearly matured for the following spring. The whole plant is clothed with a dense velvety pubescence. It is, perhaps, a distinct species from *R. trilobata*.

MALVACEÆ.

MALVA MUNROANA, *Dougl.* High sandy plains, and in the valley of the Gila. Flowers bright rose color.

M. PEDATA, *Torr. and Gr.* Upper part of the Arkansas.

SPHERALCEA STELLATA, *Torr. and Gr.* Near Santa Fé, &c. Highlands between the Del Norte and the Gila.

SIDA COCCINEA, *DC.* On the Raton mountain. Several other undetermined Malvaceæ occurs in the collection.

SAPINDACEÆ.

SAPINDUS MARGINATUS, *Willd (soap berry.)*, Valley of the Gila.

RHAMNACEÆ.

CEANOTHUS OVALIS, *Bigel., Torr. and Gr.* On the Arkansas. A small scrubby species of this genus was found on the Cordilleras of California, towards San Diego. It has thorny branches, small ovate coriaceous, smooth entire leaves, which are supported on short petioles. The branches are glabrous and glaucous. There were neither flowers nor fruit on the specimen.

C. OVALIS, *var. intermidius, Torr. and Gr.* On the Arkansas.

LEGUMINOSÆ.

SESBANIA MACROCARPA, *Muhl.* On the Gila. In fruit November 20.

GLYCYRRHIZA LEPIDOTA, *Nutt.* Near Santa Fé. Not found in flower.

PSORALEA ESCULENTA, *Pursh.* (Pomme de Prairie.) On the Arkansas.

P. FLORIBUNDA, *Nutt.* With the preceding.

AMORPHA FRUTICOSA *Linn.* On the Gila. The specimens were without flower and fruit, and we therefore cannot be certain of the species.

DALEA FORMOSA, *Torr. in Ann. lyc. N. York, 2. p. 178.* This beautiful species was first detected by Dr. James, in Long's first expedition. It is a shrub about three feet high, with numerous crooked branches, and purplish flowers. Near Santa Fé, and valley of the Del Norte.

D. ALOPECUROIDES, *Willd.* With the preceding.

D. LAXIFLORA, *Pursh.* Valley of the Arkansas.

Besides these Daleæ, there were two other species, both shrubby, in the collection; but I have not ascertained whether they may not be already described. One of them is densely branched; the leaflets are in six to seven pairs, broadly obovate connate about 3 lines long, glabrous above, very villous, and furnished with large dark colored glands toward the margin underneath; they are obscurely toothed. The flowers are in short dense spikes; calyx with plumose subulate-setaceous teeth, which are as long as the tube. This species was found on the Gila river. It is very near *D. ramosissima*, Benth. in *Bot. Sulph.*, p. 11., t. 10.

The other species is canescently tomentose, and diffusely branched. The leaflets are narrowly oblong, in three to four pairs, which are distant. On both sides they are sparingly furnished with small red glands, which are nearly concealed in the down. The flowers are in short loose spikes, small, purple. Calyx-teeth subulate, shorter than the tube, plumose. Found on the great desert west of the Colorado.

PETALOSTEMON GRACILE, *β. OLIGOPHYLUM.* Stem erect; leaflets in 2—3 linear, slightly dotted underneath; calyx glabrous, longer than the subulate bracts, the teeth very short, ovate; petals oblong. Valley of the Del Norte.

PROSOPIS GLANDULOSA, *Torr. in Ann. Lyc. N. York, 2. p. 192, t. 2.* (mezquite.) Abundant in the valleys of all the rivers, from Santa Fé, west. The trunk of this tree is sometimes 14 inches in diameter. The pods are long, flat, and filled with a sweetish pulp. They are excellent food for horses and are sometimes used by men in times of scarcity.

P. (STROMBOCARPA) EMORYI, *n. sp.* Branches glabrous; spines in pairs, slender, short, straight, pinnæ a single pair; leaflets about 4 pairs, oblong, somewhat coriaceous; the under surface and the petioles somewhat pubescent; legume spirally twisted into a compact cylinder. Found in fruit only; on the Gila river. This species is nearly allied to the *P. odorata* of Frémont's 2d report, but differs in its shorter, broader, and less numerous leaflets.

SCHRANKIA UNCINATA, *Willd.* On the Arkansas, where it is called *sensitive vine*.

DARLINGTONIA BRACHYLOBA, *DC.* With the preceding.

Several other Mimosæ are in the collection, but the specimens are mostly without leaves and flowers,

CASSIA CHAMÆCRISTA, *Linn.* On the Arkansas.

ROSACEÆ.

CERASUS ILICIFOLIUS, *Nutt.* Mountains of California. The kernel of the fruit has a strong flavor of bitter almonds.

GEUM VIRGINIANUM, Linn. On the Arkansas.

FALLUGIA PARADOXA, Endl. gen. 6385, *Sieversia paradoxa*, Don in Linn., trans. 14, p. 576, t. 22. A remarkable rosaceous shrub, with white flowers, and very long slender plumose tails to the carpels. It differs, in some respects, from Endlicher's character of the genus, but I have not had an opportunity of comparing it with Don's description and figure. It was found in various parts of the valley of the Del Norte. Can it be *Geum dryadoides*, DC?

CERCOCARPUS PARVIFOLIUS, Nutt.; Torr, and Gr; fl. 2, p. 427. A shrub about 12 feet high, with numerous straight branches springing from near the ground. The carpels, with their long plumose spirally contorted awns, bore into the earth, after they have fallen. The action of the wind communicates to them a twisting motion, and retorce pubescence retains them in soil.

SPIRÆA CALIFORNICA, n. sp. Shrubby; leaves ovate, lanceolate, undivided nearly glabrous, glandularly serrate, conspicuously petiolate; flowers in compound corymbs, perfect; calyx-segments broad, about as long as the tube; disk coherent with the tube of the calyx; stamens numerous; carpels 5, distinct, 2-valved; seeds 2, ascending, the testa expanded at the superior extremity into a membranaceous wing. Grows on high mountains near the Gila. This species is remarkable for its ascending winged seeds, and coriaceous leaves. It can scarcely be referred to any of the sections into which the genus Spiræa is at present divided.

ANDENOSTOMA FASCICULATA, Hook and Arn. Abundant in the Cordilleras of California. A shrub about five feet high.

A. SPARSIFOLIA, n. sp. Leaves scattered, linear-subulate, dotted with glands. Cordilleras of California. A tree 30 feet high with very numerous slender branches. Leaves nearly half an inch long, scarcely half a line wide, somewhat triangular, apparently evergreen. Flowers in small terminal paniculate spikes. Pedicels short, with numerous minute scarious bracts at the base. Calyx turbinate-campanulate, 10-striate, 5-toothed; the teeth ovate, obtuse, conspicuously imbricated. Stamens about 10; the filaments inserted into a crenulate glandular ring at the summit of the calyx-tube. Ovary obovate, compressed, with 2 collateral suspended ovules. Very different in appearance from *A. fasciculata*, and destitute of the fleshy glands with which the throat of the calyx-tube is furnished in that species.

PHOTINIA ARBUTIFOLIA, Linn. Cordilleras of California. A shrub 4 or 5 feet high.

LYTHRACEÆ.

LYTHRUM ALATUM, Pursh. On the Arkansas.

ONAGRACEÆ.

ZAUSCHNERIA CALIFORNICA, Presl. Valley of the Gila. A shrub with bright crimson flowers, resembling those of a Fuchsia.

ÆNOTHERA ALBICAULIS, Nutt. Valley of the Del Norte.

Æ. PINNATAFIDA, Nutt. Tributaries of the Canadian river.

Æ. BIENNIS, *Linn.* Valley of the Del Norte.

Several other undetermined species of *Ænothera* exist in the collection.

GAURA COCCINEA, *Nutt.* Tributaries of the Canadian.

G. PARVIFLORA, *Dougl.* Valley of the Del Norte.

LOASACEÆ.

MENTZELIA PUMILA, *Nutt.* Stem whitish, slender, branching, and a little roughened above, smoothish and somewhat shining below; leaves pinnatifid; or sinuate-toothed; flowers (small) 2-3 together, pedicellate; petals 10, lanceolate; stamens very numerous; the outer filaments dilated; capsule turbinate-cylindrical; seeds numerous, winged. Valley of the Del Norte. Plant about a foot high. Flowers less than an inch in diameter. Capsule three-fourths of an inch long, 3-valved at the summit.

CEVALIA SINUATA, *Lagasca.* This interesting plant, which has been admirably illustrated by Fenzl, occurs in many parts of the valley of the Del Norte, from Santa Fé to Saltillo.

CUCURBITACEÆ.

CUCUMIS, PERENNIS, *James, Torr, and Gr.* On the Gila river, abundant. We are yet uncertain of the genus of this plant, which seems to be common in various parts of Mexico, particularly in arid, sandy wastes. No specimens of the fruit have yet been sent to us. There are three other undetermined Cucurbitaceæ in the collection, distinct from any described in the Flora of North America.

CACTACEÆ.

Several interesting plants of this family were noticed by Colonel Emory, but they cannot be satisfactorily described from dried specimens. They are probably included among the numerous new species of Mexican Cactaceæ soon to be described by Dr. Englemann.

CORNACEÆ.

CORNUS PANICULATA, *VHer.* On the Arkansas.

CAPRIFOLIACEÆ.

SYMPHORICARPUS RACEMOSUS, *Linn.* (Snow berry.) On the Arkansas.

COMPOSITAE.

VERNONIA FASCICULATA, *Michx.* Bent's fort.

LIATRIS PUNCTATA, *Hook.* Rayada creek.

CORETHROGYNE TOMENTELLA, *Torr. and Gr. fl. N. Am. 2, p. 99.* Very abundant on the Cordilleras of the Pacific, and called by the

natives *estafiat*. It is a celebrated remedy for cholera, as noticed by Colonel Emory in his report.

DIETERIA INCANA, *Torr. and Gr.?* *Diplopappus incanus, Lindl.?* On the Gila. Differs from Douglas's Californian plant in its slender stem, and nearly glabrous, spinulose dentate leaves.

D. CORONOPIFOLIA, *Nutt.* Valley of the Del Norte, and the head waters of the Canadian.

D. ASTEROIDES, *n. sp.* Minutely scabrous, pubescent, stem paniculately branched above; leaves oblong-cuneate, somewhat rigid, sharply and rather coarsely toothed, involucre hemispherical; scales linear, in several series, with rather short herbaceous squarrose tips; rays 30 or more, violet; achenia sparingly pubescent. Pappus of the ray much shorter than that of the disk. Elevated land between the Del Norte and the waters of the Gila. A well marked species, with leaves broader than in any other plant of the genus.

ASTER HEBECLADUS, *DC.* Valley of the Del Norte, and desert between the Colorado and Cordilleras of California.

A. (TRIPOLIUM.) A branching species, with the stems pubescent above, and middle sized flowers with purple rays. It seems to be undescribed. Valley of the Del Norte.

SOLIDAGO ELONGATA, *Nutt.* Valley of the Gila.

LINOSYRIS GRAVEOLENS, *Torr. and Gr. Chrysocoma dracunculoides, Pursh.* A shrub about two feet high, and bright yellow heads of flowers. Abundant on the highlands between the Del Norte and the Gila.

APLOPAPPUS SPINULOSUS, *DC.* On Ocaté creek, &c.: called *Pinette* by the natives.

A. MENZIESII, *Torr. and Gr. β . dentatus:* leaves coriaceous, strongly dentate or pinnatifid, toothed, glutinous. Abundant in the great desert between the Colorado and the Cordilleras of California. Another form of this species was found near St. Diego, with the stem and the leaves clothed with a copious loose pubescence, and the serratures of the leaves few and small.

GRINDELIA. An apparently new species of this genus was found in ascending the Cordilleras of California, but the flowers had fallen from the heads, and our specimen is therefore scarcely sufficient for determination. The stem is very smooth and whitish; the leaves are oblong, clasping at the base, spinulose, serrate and glabrous, and the scales of the involucre are very acute, but scarcely recurved.

CHRYSOPSIS CANESCENS, *Torr. and Gr.* Near Ocaté creek.

C. ECHOIDES, *Benth. in Bot. Sulph. p. 25.* Valley of the Gila.

PERITYLE, *Benth. in Bot. Sulph.* A new species of this genus (*P. Emoryi, nob.*) was found in ascending the Cordilleras of California. It differs from *P. Californica* of Bentham in its smaller and much more deeply lobed leaves, narrower achenia, which are very hairy on the margins, and in other characters.

BACCHARIS DOUGLASII, *DC.* Valley of the Gila. Besides this there are three other species of *Baccharis* in the collection, none

of which are described in the Flora of North America, but we cannot yet pronounce them new.

TESSARIA BOREALIS, DC. An aromatic shrub about three feet high, growing in all the deserted beds of the Gila, and in the valley of the Del Norte; usually with the *Frémontia*, both of which are abundant in those regions.

HYMENOCLEA, Torr. and Gr. *ined.* This remarkable new genus is allied to *Ambrosia* and *Xanthium*. Another species of it (*H. Sal-sola*) was found in Frémont's second expedition, which, with the characters of the genus to which it belongs, will be published in another work. This species, from the scales of the involucre being in a single whorl, we propose to call *H. monogyra*, Torr. and Gr. It was found in various parts of the valley of the Gila.

FRANSERIA HOOKERIANA, Nutt. (Yerba del Sapa.)

AMBROSIA ACANTHOCARPA, Hooker. Very abundant from Santa Fé to the 33d parallel of latitude.

Another species of this genus, and apparently an undescribed one, exists in the collection. It is suffrutescent, hoary, with the leaves bipinnatifidly divided into very small obtuse segments. The flowers are wanting.

AMBROSIA ARTEMISIFOLIA, Linn. Bank of the Gila.

DICORIS, Torr. and Gr. Another new genus allied to *Iva*, of which a full description and figure will hereafter be given. It was found in the valley of the Gila, and in the desert of drifting sands west of the Colorado. (5 to 6 inches long, and 4 to 5 wide.)

WYETHIA OVATA, n. sp., Torr. and Gr., *ined.* Stem very stout, leaves orbicular, ovate, entire; somewhat coriaceous, pubescent, (as are also the petioles and branches;) scales of the involucre lanceolate; pappus of 3 to 4 acute rigid teeth, one of which is longer than the others. Abundant on the western side of the Cordilleras of California.

SILPHIUM LACINIATUM, Linn. (Pilot weed.) On the Arkansas and its tributaries.

Another *Silphium*, with large ovate undivided leaves, was found on Cariso creek.

ENGELMANNIA PINNATIFIDA, Torr. and Gr. *fl. N. Am.* 2, p. 283. Tributaries of the Canadian.

LEPACHYS COLUMNARIS, Torr. and Gr. *Rudbeckia columnaris*, Pursh. The rays vary from being wholly yellow to entirely purplish brown. From the head waters of the Canadian to Santa Fé.

ENCELIA FARINOSA, Gray *ined.* An aromatic shrubby plant; exuding a yellowish resin from the branches. The leaves are ovate, softly pubescent, and hoary on both sides, with 3 to 5 prominent reticulated nerves underneath.

HELIANTHUS PETIOLARIS, Nutt. Upper part of the Arkansas, and valley of the Del Norte.

H. LENTICULARIS, Dougl. With the preceding.

COREOPSIS PALMATA, Nutt. Turkey creek.

SIMSIA. A rayless, and probably new species of this genus, was found in the bed of the Agua Caliente, November 28th. It is a branching shrub, and the slender bark of the irregular twigs is cov-

ered with a whitish, very scabrous pubescence. The leaves are scarcely an inch long, ovate, entire, obtuse, with short petioles, and scabrous on both sides. Chaff of the receptacle embracing the obovate achenium, the margin of which is furnished with long silky hairs.

WULFIA? Specimens of a plant with the floral characters of this genus, but with different foliage, were found in abundance on the higher grounds bordering the valley of the Gila. It also resembles *Leighia*, but is destitute of a pappus. Some of the genera, to which the plant is allied, will need revision before its place can be satisfactorily determined.

XIMENESIA, *n. sp.*? Valley of the Del Norte, and along the Gila, September and October. This needs comparison with some of the Mexican species. It very nearly resembles *X. encelioides*, *Cavan.*

RIDDELLIA, TAGETINA, *Nutt. Torr. and Gr. fl., N. Amer. 2 p. 362.* Valley of the Del Norte, about two hundred miles below Santa Fé. A beautiful plant with persistent flowers, first detected by Mr. Nuttall towards the sources of the Platte.

BAILEYA, *n. gen. Harv. and Gr., ined.* Two other species of this unpublished genus, dedicated to that profound observer of nature, Professor Bailey, of West Point, exist among the California plants collected by Coulter, and will soon be described by Mr. Harvey and Dr. Gray. This is distinguished from the others by its numerous ray-flowers, and is the *B. multiradiata*, *Harv. and Gr.* The whole plant is clothed with a woolly pubescence, and varies from a few inches to a foot or more in height. The leaves are somewhat pinnately cut into several narrow segments. The heads are on long naked peduncles, and when the rays are fully expanded are more than an inch and a half in diameter. The rays are 40 or 50 in number, in two or more series, obovate-cuneate, of a bright orange yellow, and 7-nerved corolla of the disk-flowers with five short segments which are glandularly pubescent, with intra-marginal nerves. Branches of the style short, somewhat dilated and truncate at the extremity. Very abundant along the Del Norte and in the dividing region between the waters of the Del Norte and those of the Gila. Flowers from October 4th to November.

ZINNIA GRANDIFLORA, *Nutt. in Amer. Phil. trans. (n. ser.) 7, p. 348; Torr. and Gray ft. N. Amer. 2. p. 298.* Valley of the Del Norte. This plant, which was first detected by Dr. James in Long's first expedition, is certainly frutescent at the base; in which respect it resembles the nearly allied *Z. linearis*, *Benth. plant Hartw., No. 47.* This is the most humble species of the genus; being not more than six inches high. The stem is branching and rigid. The leaves are linear, sessile, and somewhat connate at the base, strongly 3 nerved, and glandularly punctate. Heads most solitary, at the summit of the branches, on short peduncles. Involucre ovoid-cylindrical; the scales about 8, closely imbricated; outer ones somewhat orbicular; the inner oblong, ciliate, and somewhat scarious on the margin. Ray flowers 35, coriaceous and persistent, roundish-ovate, emarginate, continuous with the summit of the achenium. Disk-flowers few. Lobes of the corolla villous. An-

thers yellow. Branches of the style tapering into a subulate-lanceolate point, hairy above the middle. Achenia obcompressed, scarcely winged, scabrous; the outer integument thin; those of the ray naked, of the disk with a single awn.

GAILLARDIA AMBLYODON, *Gay*. On the upper part of the Arkansas. This species has been beautifully figured by Dr. Gray in *Mem. Amer. acad. (n. ser.) t. 4*.

G. PULCHELLA, *Foug.* Valley of the Del Norte.

PALAFOXIA LINEARIS, *Lag.* New Mexico.

HYMENOXYIS ODORATA, *DC.* Great desert west of the Colorado.

ARTEMISIA FILIFOLIA, *Torr. in Ann. lyc. N. York, 2 p. 211.* Valley of the Del Norte, and along the Gila; abundant.

A. DRACUNCULOIDES, *Pursh.* Table lands of the Del Norte and Gila. A very common species of underwood, often called *sage* by the hunters.

A. CANA, *Pursh.* On the Raton mountains.

SENECIO LONGILOBUS. *Benth. in pl. Hartweg.* A bushy species about three feet high, growing abundantly in the region between the waters of the Del Norte and the Gila.

TETRADYMIA, (sub-genus *Polydymia*.) Heads about 16-flowered; the flowers all tubular and perfect. Involucre of 15 to 16 oblong obtuse coriaceous-chartaceous scales which are slightly concave but not carinate. Receptacle naked. Corolla with rather slender tube; the lobes short, ovate, erect, furnished with long villous hairs externally. Anthers included. Branches of the style tipped with a very short obtuse pubescent cone. Achenia oblong-turbinate, villous with short hairs. Pappus of numerous, somewhat rigid, denticulate bristles. A suffrutescent prostrate much branched plant, canescently and densely tomentose; the leaves broadly obovate, toothed, narrowed into a petiole. Heads on short peduncles, terminating the somewhat corymbose branches.

T. (POLYDYMIA) RAMOSISSIMA, *n. sp.* Hills bordering the Gila. Stem spreading, with very numerous matted branches. Leaves about three-fourths of an inch in length, the lamina broader than long, with 5-7 indistinct rounded teeth, abruptly narrowed into a longish petiole. Heads about one-third of an inch in diameter, ovate. Involucral scales in several series, the exterior ones shorter than the interior. Hairs of the achenium smooth, slightly bifid at the summit. Pappus longer than the achenium. This plant is clearly allied to *Tetradymia*, but differs in the many-flowered heads, numerous scales of the involucre, slightly cleft corolla-tube, and in several other characters; so that it should perhaps form the type of a distinct genus.

CIRSIUM UNDULATUM, *Spreng.* The locality of this plant is not recorded, but it was probably found on the upper part of the Arkansas.

STEPHANOMERIA PANICULATA, *Nutt.* Ascending the Cordilleras of California.

MULGEDIUM PULCHELLUM, *Nutt.* Pawnee Fork of the Arkansas.

ERICACEÆ.

ARCTOSTAPHYLOS PUNGENS, *Kunth.*? Valley of the Gila and San Diego. Flowers in January.

A. TOMENTOSA, *Dougl.*? A shrub 4 to 5 feet high. Cordilleras of California. This may be a smooth variety of Douglas's plant. The leaves are orbicular-ovate, obtuse or truncate at the base, glabrous on both sides, with the petiole one-third the length of the lamina. It was not found in flower.

PLANTAGINACEÆ.

PLANTAGO, *n. sp.*? Allied to *P. gnaphaloides*, *Nutt.* Great desert west of the Colorado, near the Cordilleras of California. The whole plant is clothed with a loose white tomentum, which is partly deciduous with age. The leaves are linear-lanceolate, entire, and taper to a long narrow base. The peduncles are 5 to 6 inches long, and bear a close cylindrical spike, which is less than an inch in length. Sepals ovate, membranaceous, marked with a strong mid-rib, which is villous externally. Segments of the corolla ovate. Capsule 2 seeded.

PEDALIACEÆ.

MARTYNIA PROBOSCIDEA, *Linn.*? Abundant in the valley of the Del Norte. We have only the leaves, and a drawing of the fruit. It is possibly *M. Althæfolia*, *Benth. in bot. Sulph.*

SCROPHULARIACEÆ.

MAURANDIA ANTIRRHINA, *Lindl.* On the San Francisco, a tributary of the Gila. A slender trailing plant, with beautiful purplish flowers.

CASTILLEJA LINEARIFOLIA, *Benth.* Valley of the Gila, and the region between that river and the waters of the Gila.

PENSTEMON TORREYI, *Benth.* Region between the Del Norte and the Gila.

Three or four other species of *Penstemon* exist in the collection, but the specimens are incomplete, and have not yet been studied.

VERBENACEÆ.

VERBENA BIPINNATIFIDA, *Nutt.* Valley of the Del Norte.

LIPPIA CUNEIFOLIA, *Steud.* *Verbena cuneifolia*, *Torr.* in Long's Rocky Mountain plants. Upper part of the Arkansas, and along the tributaries of the Canadian.

LABIATÆ.

SALVIA CARDUCEA, *Benth.* Western slope of the Cordilleras of California.

Another species of this genus was found with the preceding, but not in flower. It is entirely clothed with dense soft canescent pubescence. It is shrubby, with long stout branches springing from near the root. The leaves are oblong, coriaceous, entire, and two inches or more in length.

Several other undetermined Labiatae were found in the valley of the Del Norte and on the Gila.

BORAGINACEÆ.

MYOSOTIS GLOMERATA, Nutt. Tributaries of the Canadian.

EUPLOCA GRANDIFLORA, n. sp. Hirsute with rough oppressed hairs. Leaves oblong-lanceolate, on short petioles. Flowers in leafy clusters. Calyx five-parted to the base, with linear-lanceolate segments. Corolla white; (the expanded limb nearly three-fourths of an inch in diameter,) obscurely 5-lobed, plaited; tube slender, somewhat ventricose below the middle; the throat naked. Stamens inserted towards the base of the corolla-tube; the filaments short; anthers oblong-linear. Ovary 4-celled, style filiform, persistent, arising from the summit of the ovary; stigma capitate, with a tuft of stiff hairs at the extremity. Fruit 4-celled, 2-lobed, finally separating into indehiscent carpels; embryo curved, terete, surrounded with very thin albumen; radicle superior. On the Del Norte below Santa Fé. This plant is clearly a congener of *Euploca convolvulacea* of Nuttall. It is nearly related to *Tournefortia*.

HYDROLEACEÆ.

ERIODICTYON, Benth. in bot. Sulph., p. 35. Chois. in DC, prod. 10, p. 183. A well characterized Californian genus, containing three described species, one of which, the *Wigandia Californica*, Hook. and Arn., was found in rocky places near the mouth of San Carlos, on the Gila, and on the Cordilleras of California. The leaves are coriaceous, varying in form from narrowly linear to lanceolate, and from being perfectly entire to strongly dentate. The upper surface (as well as the branches) is covered with a copious adhesive varnish, while the under-side is whitish tomentose, with strongly marked reticulated veins.

POLEMONIACEÆ.

PHLOX, n. sp. This likewise occurs in Texas, and will be described by Dr. Gray. It was found in various places on the tributaries of the Canadian.

GILIA PULCHELLA, Dougl. Ocaté creek, and other tributaries of the Canadian.

G. LONGIFOLIA, Benth. *Ipomœa longifolia*, Torr. in Long's Rocky mountain plants. Valley of the Del Norte.

FOUQUIERA SPINOSA. (*Bronnia spinosa*, Kunth. nov. gen. 6 p. 84, t. 528.) Benth. in Bot. Sulph. p. 16. Ascending the Cordilleras of California. A highly ornamental shrub, shooting up long

smooth simple stems, to the height of from 12 to 25 feet, with a panicle of scarlet flowers near the summit. It differs slightly from the figure and description of Kunth, but seems to be the same plant. The leaves are obovate-oblong, glabrous and membranaceous, growing in fascicles in the axils of the spines. The spines are from a half an inch to near an inch in length, slender, more or less spreading, or even somewhat recurved. At the base of each is a longitudinal protuberance which extends along the stem until it reaches the spine, which is on a line with it below. The panicle is usually contracted and elongated, but sometimes short, and almost corymbose. The flowers are on short pedicles which are furnished with deciduous bracts. Sepals 5, nearly orbicular, concave, strongly imbricated, persistent, about one-fourth the length of the corolla. Corolla about three-fourths of an inch long; the tube cylindrical, and often curved; limb 5-cleft, with ovate rather acute segments. Stamens 13 to 16 exerted, hypogynous; the filaments thickened and somewhat coherent at the base; anthers linear-oblong, mucronate. Ovary 3-celled, with about 6 ascending anatropous ovules in each cell; style 3-parted below the middle. Capsule oblong, acute, obtuse, triangular, coriaceous and glabrous, 3-valved, loculicidal, straight, or little curved, 1-celled by the separation of the valves from the triangular axis. Seeds 3 to 6, white, ovate, peltate, much compressed, with a broad winged margin, which is an expansion of the testa, and which finally is resolved into numerous fine hairs. These are beautiful objects under the microscope. They are spiral vessels consisting of an extremely delicate sheath, containing the loosely coiled thread which frequently ramifies with anastomosing branches. The whole testa is formed of these singular vessels. Embryo nearly as large as the seed; cotyledons foliaceous; radicle pointing downward. There can be little doubt of the propriety of uniting *Bronnia* and *Fouquieria*. Each genus was founded on a single species, and both plants seem to be very little known to European botanists. Of the former the flowers are imperfectly described, and of the latter the fruit is unknown. Our plant partakes of the characters of both genera. In the ovary the placenta meet in the axis, but only slightly cohere; finally they unite, but in fruit the valves of the capsule separate from the axis, to which the seeds remain attached. As to the affinities of *Fouquieria*, I am inclined to adopt the opinion of Lindley, that it is very near *Polemoniaceæ*, and particularly to *Cantua*. It differs, however, in its distinct imbricated sepals, (which are exactly those of *convulvulus*,) more numerous and hypogynous stamens; and very sparing albumen, as well as in habit. It is certainly very unlike *Frankeniaceæ*, to which it is appended by Endlicher. Kunth placed it among genera allied to *Portulacaceæ*.

CONVOLVULACEÆ.

IPOMŒA LEPTOPHYLLA, *Torr. in Frém. 1st report*, p. 94. Upper part of the Arkansas and head waters of the Canadian. The stems are often erect, about two feet high, and of a bushy appearance.

From the appearance of the specimens, I should suppose the plant were a perennial, but according to Dr. James it is an annual.

CONVOLVULUS NUTTALLII. *C. HASTATUS*, *Nutt. in trans. Amer. phil. soc. (n. ser.) 5 p. 194; not of Thunb.* Valley of the Del Norte.

One or two other Convolvulaceæ were in the collection, but I have not determined them to my satisfaction.

SOLANACEÆ.

NYCTERIUM LOBATUM. Between Fort Leavenworth and the head of the Arkansas.

DATURA METEL, *Willd?* Valley of the Gila. It grows from four to five feet high, with spreading branches. Perhaps introduced.

SOLANUM TRIFLORUM, *Nutt.* Upper part of the Arkansas, and on the tributaries of the Arkansas.

Another species of Solanum was found on the Del Norte below Santa Fé. The whole plant is clothed with a dense yellowish white pubescence. The stems are rough, with minute slender prickles. Leaves linear-oblong, entire, rather obtuse, prickly along the midrib. Flowers, two or three together at the summit of the branches, white? stamens 5; anthers equal.

GENTIANACEÆ.

EUSTOMA RUSSELIANUM, *Don.* Near the bank of the San Pedro. A showy plant.

ERYTHRÆA BEYRICHII, *Torr. and Gr. E. tricantha* β *Griseb.* Valley of the Del Norte, and along the Gila.

OLEACEÆ.

FRAXINUS VELUTINA, *n. sp.* Branches, petioles, and under surface of the leaves, clothed with a dense soft pubescence. Leaflets 3 to 5, rhombic-ovate, cuneate at the base, coarsely serrate or toothed, sparingly pubescent above. Fruit narrowly oblanceolate, nearly entire at the apex, about three-fourths of an inch long. A small tree, usually from 15 to 20 feet high. Grows in the region between the waters of the Del Norte and the Gila; also on the Mimbres, a tributary of the latter river.

NYCTAGINACEÆ.

ABRONIA MELLIFERA, *Hook.* Valley of the Del Norte.

A. (*Tripterocalyx*) MICRANTHUM, *Torr. in Frém. 1st report, p. 96.* Valley of the Del Norte.

This differs in some respects from Frémont's plant. The peduncles are elongated, and the fruit is more than an inch long, with very broad wings. The structure of the seed is precisely the same

as in that plant, the inner cotyledon of the conduplicate embryo being abortive. It is wanting also in *A. mellifera*. In several species of this genus, if not in all of them, the filaments adhere throughout nearly their whole length to the tube of the perianth. The lobes of the perianth are dilated, and deeply emarginate, but appear ovate in the bud, from the lobules being conduplicate.

CHENOPODIACEÆ.

SARCOBATUS VERMICULATUS. *S. Maximilioni*, Nees in Prince Maxim. Trav., Engl. ed., p. 518. *Frémontia vermicularis*, Torr. in Frém. 1st report, p. 96; and 2d report, p. 317. *Batis vermicularis*, Hook. fl. Bor. Am. 2, p. 188. Abundant on the Del Norte, and upper part of the valley of the Gila.

This is the *pulpy thorn* of Lewis and Clark. It has a very extensive range in the desert regions on both sides of the mountains. Since my notices of this plant were published in Frémont's reports, I have ascertained that Nees' description of his genus *Sarcobatus* dates a little anterior to mine, so that his name must be adopted.

OBIONE ARGENTEA, Moq. *Atriplex argentea*, Nutt. Abundant in sandy saline places on the Del Norte.

O. POLYCARPA, n. sp. Valley of the Gila.

EUROTIA LANATA, Moq. Valley of the Del Norte. A shrubby *Salicornia*, an *Atriplex*, and a species of *Sueda*, were found in saline soils along the Gila.

AMARANTHACEÆ.

AMARANTHUS HYBRIDUS, Var.? Glabrous; stem and leaves nearly smooth, flowers (purplish) crowded in a dense compound terminal spike; bracts somewhat awned, shorter than the flowers; utricle opening transversely. On the Del Norte, below Santa Fé.

ALTERNANTHERA? (*ENDOTHECA*) *LANUGINOSA*.—*Achyranthes lanuginosa*, Nutt. in *Am. Phil. Trans.*, (*N. Ser.*) 5, p. 166. Abundant on the sand hills above Socoro, along the Rio Del Norte. It spreads on the ground, forming patches, and rooting at the joints. The natives call it *paga-paga*. Nuttall referred this plant to *Achyranthes*, but it is clearly not of that genus. For the present, it is doubtfully placed in *Alternanthera*, but may hereafter be separated as a distinct genus. The flowers are in small axillary sessile clusters, and when the fruit is matured, they become imbedded in the branches by the growth of the surrounding parts, so as to be entirely concealed. The filaments are united into a cup at the base, and leave minute, entire, intermediate teeth. The anthers are two-celled before dehiscing, but afterwards one-celled, ovary, with a single ovule; style almost wanting; stigma globose. This plant was first discovered by Nuttall, on the north fork of the Canadian; Colonel Frémont collected it on the upper Arkansas in his last expedition; it has also been found in Texas by Mr. Wright and by Fendler and Dr. Gregg in New Mexico.

POLYGONACEÆ.

ERIOGONUM TRICHOPES, *n. sp.* Stem scape-like, verticillately and divaricately much branched, glabrous; peduncles capillary; involucre minute, few-flowered, glabrous, 4-toothed; the teeth nearly equal, obtuse, erect; sepals ovate, acute, nearly equal, very hairy. Eastern slope of the Cordilleras of California. Our specimens of this remarkable species are imperfect, the leaves being wanting. They probably grow in a radical cluster. The flowering stems are a foot or more high, with the primary and secondary branches verticillate; the branchlets are bi-trichotomous, and the ultimate divisions, or peduncles somewhat secund. Involucre scarcely half a line in length, 5—6 flowered, and only 4-toothed. The flowers are nearly twice as large as the involucre, sepals, concave, erect—spreading. Stamens scarcely exerted.

E. TOMENTOSUM, *Michx.* Abundant in the region between the valley of the Del Norte and the waters of the Gila; the most western station hitherto found of this species, which is almost the only *Eriogonum* known east of the Mississippi.

E. ABERTIANUM, *n. sp.* Annual? Canescently tomentose; stem dichotomous above; leaves oblong-lanceolate, attenuated to a petiole at the base; involucre solitary, somewhat racemose on the branches, pedunculate, many flowered, campanulate, deeply 5—8-parted; exterior sepals nearly orbicular, deeply cordate at the base; inner sepals narrow, carinate below, contracted above, somewhat dilated and emarginate at the summit; stamens much shorter than the sepals. Very common in the region between the Del Norte and the Gila. Also found by Lieut. Abert on the upper waters of the Arkansas. Just as I was sending these notes to the press, I received a visit from Mr. Nuttall, who informed me that a species allied to this was found by Mr. Gambel, in his late journey to California. He thinks its characters differ so much from all the *Eriogono* hitherto described, that he has constituted of it a new genus under the name of *EUCYCLA*. A full account of Mr. Gambel's plants, by Mr. Nuttall, will soon be published in the journal of the academy of Philadelphia. Our plant is about a foot high, with loosely paniculate branches. The heads and flowers are nearly as large as those of *E. tomentosum*. The sepals are yellowish, tinged with rose, the three inner ones differ widely from the others; they are carinate and glandular on the back below the middle, and closely embrace the pistil, the angles of which correspond with the keels of the sepals.

Imperfect specimens of several other *Eriogona* occur in the collection.

SAURURACEÆ.

ANEMOPSIS CALIFORNICA, *Nutt. Hook. in bot. Beechey's Voy., p. 390, t. 92.* Valley of the Gila.

EUPHORBIACEÆ.

EREMOCARPUS SETIGERUS, *Benth. in Bot. of Sulph.*, p. 53, t. 26. Plains of San Diego, California.

HENDECANDRA TEXENSIS, *Klotzsch. H. multiflora, Torr. in Frem. 1st report. Croton muricatum, Nutt.* Valley of the Del Norte.

Another species of this genus, allied to *H. procumbens*, was found on the Cordilleras of Mexico, but the materials are scarcely sufficient for determining it satisfactorily.

STILLINGIA SPINULOSA, *n. sp.* Suffruticose? leaves rhombic-ovate, rigid, narrowed at the base, prominently 3-nerved, mucronately acuminate, dentate spinulose on the margin; spikes axillary and terminal; sterile flowers sessile; bracts acuminate, with a stipitate gland on each side at the base. Abundant in the desert west of the Colorado. Stem (apparently) about a span high, with spreading branches. Leaves an inch or more in length, sessile, neatly margined with spreading spinulous teeth, glabrous on both sides. Spikes numerous; with solitary fertile flowers at the base. Sterile flowers about as long as the scale. Perianth hemispherical, irregularly lobed and undulated. Stamens 2. Fertile flowers imperfect in our specimens. Fruit glabrous.

EUPHORBIA HERNIAROIDES, *Nutt.* Banks of the Gila. A pubescent variety of this species was found in the desert west of the Colorado.

CUPULIFERÆ.

QUERCUS EMORYI, *n. sp.* Leaves coriaceous, oblong, on very short petioles, remotely and repandly toothed, the serratures mucronate, smooth on both sides; fruit pedunculate, solitary and in pairs, gland ovoid-oblong, mucronate; cup hemispherical, the scales appressed. Common in the elevated country between the Del Norte and the Gila. This small-leaved oak resembles *Q. agrifolia* and *Q. undulata*, (*Torr. in Ann. lyc. N. York 2, p. 248, t. 4.*) but is quite distinct from both.

SALICACEÆ.

SALIX. Several narrow-leaved willows were found along the Gila, and in the region west of the Colorado; but being without fructification they cannot be determined. One of them is used as food for cattle when there is no grass.

PLATANACEÆ.

PLATANUS MEXICANUS, *Moricand pl. nouv. ou rares d'Amer. t. 26. P. Californicus, Benth. bot. Sulph., p. 54. P. racemosus, Nutt.?* Valley of the Gila.

CONIFERÆ.

EPHEDRA OCCIDENTALIS, *Willd.?* From the region between the Del Norte and the Gila, and the hills bordering the latter river to the

desert west of the Colorado. A shrub 3-4 feet high, with numerous slender branches; its appearance being that of Scotch broom, (*Spartium scoparium*.) The sheaths are very long, 3-parted, with subulate-acuminate segments. This can hardly be the *E. Americana* of Quito, which is described as having 2-parted sheaths. The specimens are without either flowers or fruit. If the species should prove to be new, it may be called *E. trifurcus*. There seems to be still another species growing on the table lands of New Mexico, differing from the preceding in its very short sheaths.

JUNIPERUS. Two undetermined species were found in crossing the country from the Del Norte to the Gila. Both of them have the general character of *J. Virginiana*. One is a large tree, with acerose leaves, and a bark like that of a *Pinus*; the other has short closely appressed leaves, and berries larger than a buck shot.

AMARYLLIDACEÆ.

AGAVE AMERICANA, *Linn.* Found in descending the western slope of the Cordilleras of California. This is the *maguey* of the Mexicans. It shoots up a flowering stalk 10 or 15 feet high. The juice of the plant affords an intoxicating drink called *pulque*.

Another species of *Agave*, or a very remarkable variety of the preceding was found in New Mexico, west of the Del Norte. It differs from *A. Americana* in its much shorter and broader leaves, which are furnished with smaller marginal spines.

LILIACEÆ.

YUCCA. The leaves only, of what appear to be four species of this genus, occur in the collection, but we cannot identify them for want of the inflorescence.

ORCHIDACEÆ.

SPIRANTHES CERNUA, *Rich.* Low grounds in the valley of the Del Norte.

CYPERACEÆ.

ELEOCHARIS QUADRANGULATA, *R. Brown.* Valley of the Gila.

CYPERUS MICHAUXIANUS, *Schultes.* Valley of the Gila.

GRAMINEÆ.

CHLORIS ALBA, *Presl.* Spikes umbellate-fasciculate, numerous, (8—12,) the peduncle enclosed in a broad compressed sheath; spikelets 2-flowered; upper glume nearly as long as the flowers, 2-toothed, with a short awn between the teeth; lower palea of the perfect flower obscurely 3-nerved, gibbous in the middle, the margin ciliate with long hairs towards the summit; awn three times as long as the palea; neuter flower broad and truncate, inclosing a short aristiform rudiment; the awn twice as long as the palea. Bed of the Gila. Very near *C. barbata*, which differs in the entire

glumes, entire mucronate, (not awned,) in the entire straight lower palea of the perfect flower, and in the third or aristiform flower being much exerted.

BOUTELOUA RACEMOSA, *Lagasca?* Culm erect, simple; spikes numerous (20—40,) reflexed, 3-flowers; lower glume linear subulate; upper one linear-lanceolate, scabrous, entire, nearly as long as the spikelets; lower palea of the perfect flower unequally tricuspidate, pubescent; abortive flower reduced to a slender awn which is nearly as long as the perfect flower, furnished at the base with 2 short and inconspicuous bristles. Valley of the Gila, rare. This plant agrees pretty well with Kunth's description of *B. (Eutriana,) racemosa*, except in the pubescent lower palea, and the minute bristles at the base of the neuter flower. Whether it be the plant of *Lagasca* or not is very difficult to determine from his brief character. It certainly is very different from *B. racemosa* of the United States, which has a large 3-awned neuter flower, and if distinct from *Lagasca's*, must receive another name. That of *B. curtispindula* would be appropriate.

CHONDROSIUM ERIPODUM, *n. sp.* Culm simple, pubescent below; spikes 4—6, racemose, appressed, on short woolly peduncles; spikelets 2-flowered; flowers distichous; glumes very unequal, glabrous, linear-lanceolate, mucronate, entire; lower palea of the perfect flower glabrous, bifid at the apex, with a short bristle between the teeth; neuter flower pedicellate, with 3 slender awns. This is one of the species of "Gramma" so useful as a fodder-grass in New Mexico. It is abundant along the Del Norte, and in the region between that river and waters of the Gila. The culm is slender, a foot or more in height. Leaves are very narrow, 2—3 inches long, with glabrous sheaths; sheath almost wanting. Spikes about three-fourths of an inch long.

CHONDROSIUM FENEUM, *n. sp.* Leaves glabrous; spikes 2—3, oblong, falcate, spreading; rachis nearly half the length of the spikes; upper glume nearly as long as the perfect flower, with two rows of piliferous glands on the back; lower palea deeply 3-cleft, the segments lanceolate and mucronate, hairy on the margin; neuter flower of two truncate emarginate valves, with a 2-valved rudiment of a third flower, and 3 short stout awns. Uplands bordering the valley of the Del Norte. This is another of the grasses called *Gramma* in New Mexico, and is the best kind, being almost as good fodder as oats. It is nearly allied to *Atheropogen (Chondrosium,) oligostachyum* of Nuttall.

CHONDROSIUM POLYSTACHYUM, *Benth. bot. Sulph. p. 56.* Uplands bordering the Gila. The smallest kind of "Gramma" found on the journey. It is about 6 inches high, very slender. The spikes are narrowly linear, and almost half an inch long, erect, on short brownish peduncles. The other characters agree minutely with Mr. Benthams admirable detailed description in the work quoted above.

LEPTOCHLOA FILIFORMIS, *Roem and Schults.* Valley of the Gila. Scarcely distinct from *L. mucronata* of the United States.

SESLERIA? DACTYLOIDES, *Nutt.* Upper part of the Arkansas. This

is the celebrated "*Buffalo Grass*," so called because it constitutes the chief fodder of the wild buffalo, during the season that it flourishes. I have retained this plant, for the present, where it was placed by Mr. Nuttall, who noticed its anomalous characters. It differs from *Sesleria*, and indeed from the Tribe *Festuceae*, in its habit, which is that of *Chondrosium*. The stem throws off suckers which root at the joints, from whence leaves and culms of a few inches in height are thrown up. The spikes are two or three in number, on short spreading peduncles. They are oblong, about half an inch in length, and obtuse; bearing from 6 to 8 spikelets, which are unilateral, and form a double row on the rachis. The spikelets are usually 2 flowered, but I have occasionally found them with 3 flowers, and even the rudiment of a fourth. The glumes are very unequal oblong-ovate, coriaceous-membranaceous, carinate and one-nerved, the upper one slightly mucronate. Palea oblong-lanceolate and somewhat keeled, membranaceous, nearly equal, but longer than the glumes, entire, glabrous except on the keel; the lower 3 nerved, the upper bi-carinate. Anthers large, linear, fulvous. In all the specimens of this collection, as well as in those in my herbarium from numerous other localities, there are no fertile flowers, and only in few instances rudimentary styles, so that the plant seems to be diœcios polygamus by abortion.

ARUNDO PHRAGMITES, *Linn.* Valley of the Del Norte, and along the Gila.

ANDROPOGON ARGENTEUS, *DC., Kunth. enum. 1, p. 500.* Valley of the Gila. A handsome species, with the spikes in a terminal panicle which has a white appearance from the abundant silky hairs of the flowers.

A. MACROURUS, *Michx.* With the preceding.

Besides these grasses, there were a few others, mostly collected in the valley of the Gila, but which I have not determined, as the specimens were not so complete as could be desired. Among them are a *Glyceria*, two *Agrostides*, five species of *Panicum*, and a *Poa* (*Eragrostis*), with large elongated spikelets. In some parts of the valley of the Del Norte, *Sorghum vulgare* is cultivated, and was found partly naturalized.

EQUISETACEÆ.

EQUISETUM HYEMALE, *Linn.* Lower part of the Colorado.

FILICES.

ADIANTUM TENERUM, *Swartz.* Valley of the Gila. This species is widely spread over the southern part of North America, and yet has not hitherto obtained a place in our Flora. We have it from Alabama, Florida, Texas, and various parts of California.

LYCOPodium. A small species allied to *L. rupestre*, was found in descending the Gila. It differs in its incurved leaves which are mucronate, but without a bristle at the tip. No fructification exists in the specimen.

EXPLANATION OF THE PLATES.

- PLATE 1—*Dalea formosa*.—A branch of the natural size, with a separate flower magnified.
- PLATE 2—*Fallugia paradoxa*.—Natural size, with a separate carpel magnified.
- PLATE 3—*Larrea Mexicana*.—A branch of the natural size. Figure 1. Separate flower. Figure 2. External view of a stamen, with a scale at its base. Figure 3. The same, seen from the opposite side. Figure 4. Ovary and style. The last three figures magnified.
- PLATE 4—*Zinnia grandiflora*.—The entire plant, except the root. Figure 1. A head of flowers. Figure 2. A ray flower, natural size. Figure 3. A disk flower. Figure 4. Stamen. Figure 5. Portion of the style, with its branches. The last three figures more or less magnified.
- PLATE 5—*Ridellia tagetina*.—A branch of the natural size. Figure 1. Achenium and pappus of a ray flower magnified. Figure 2. A ray flower less magnified. Figure 3. A disk flower. Figure 4. Part of the style, with its branches. The last two figures considerably magnified.
- PLATE 6—*Baileya multiradiata*.—The whole plant, except the lower portion of the stem. Figure 1. A ray flower. Figure 2. A disk flower. Figure 3. Two of the stamens. Figure 4. Style and its branches. All magnified.
- PLATE 7—*Arctostaphylos pungens*.
- PLATE 8—*Fouquieria spinosa*.—Summit of the stem and panicle of flowers. Figure 1. A capsule, with the valves separated, showing the placentiferous axis. Figure 2. A seed. (Both of natural size.) Figure 3. Transverse section of a seed. Figure 4. Embryo. (The last two magnified.) Figures 5 and 6. Spiral vessels composing the testa of the seed, greatly magnified.
- PLATE 9—*Quercus Emoryi*.—Figures 1 and 2. Acorns of the same. All the figures of natural size.
- PLATE 10—*Sesleria dactyloides*.—The entire plant of the natural size. Figure 1. A spikelet. Figure 2. Glumes. Figure 3. Staminate flower. Figure 4. The same, with the paleæ removed. All the figures magnified.
- PLATE 11—*Ipomœa leptophylla*.—A branch of the natural size. Figure 1. Pistil. Figure 2. Capsule. Figure 3. Seed. All the figures of natural size.
- PLATE 12—*Chondrosium fœneum*.—Two plants of the natural size. Figure 1. A spikelet magnified. Figure 2. The same, with the glumes removed, somewhat more highly magnified. Figure 3. Upper palea of the perfect flower.



DALEA FORMOSA







LARREA MEXICANA.



ZINNIA GRANDIFLORA.



RIDDELLIA TAGETINA



BAILEYA MULTIRADIATA

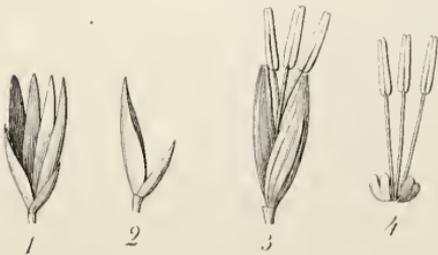


ARCTOSTAPHYLOS PUNGENS.





QUERCUS EMORYI.

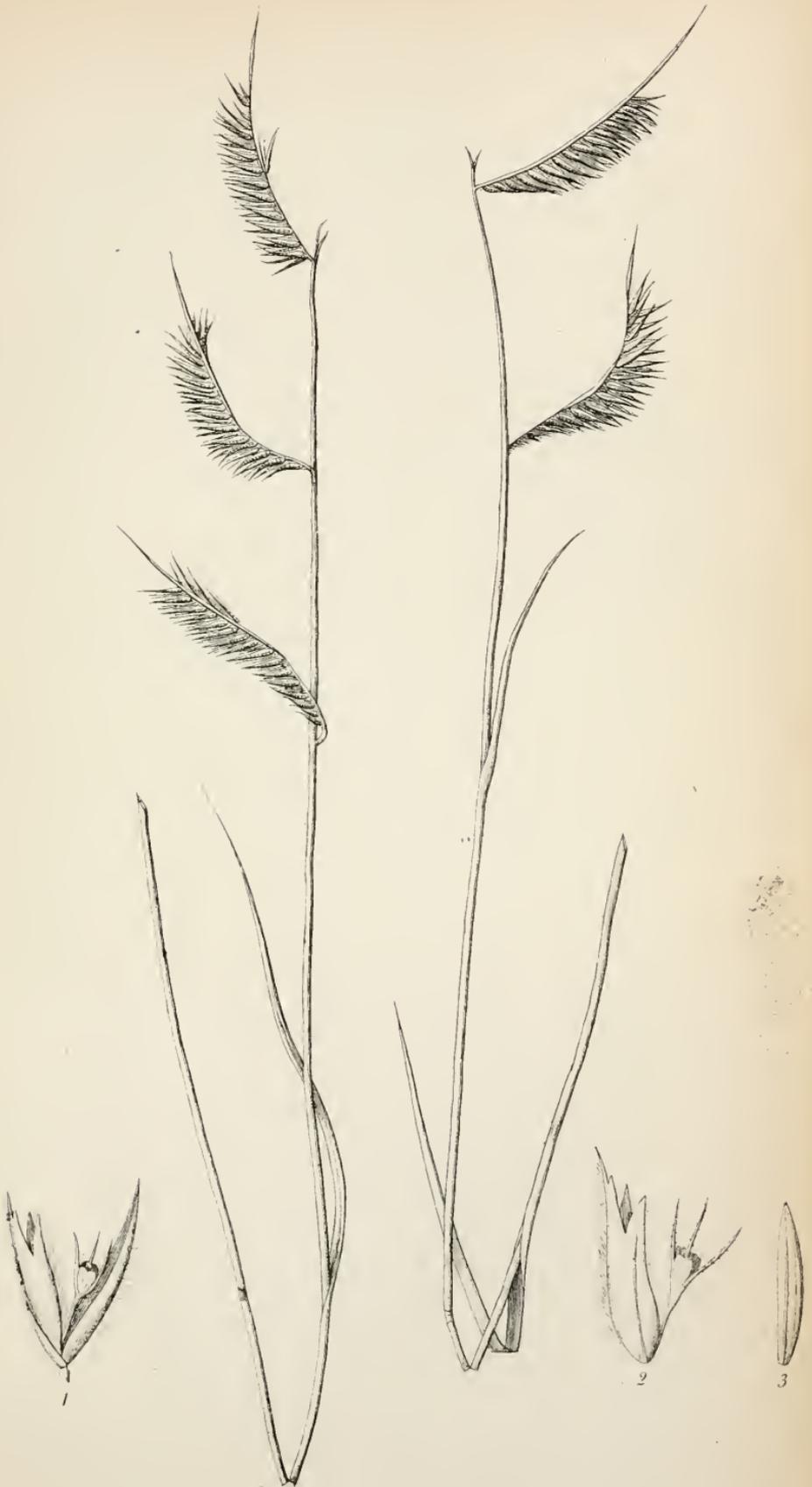


J. W. Brown del. H. V. V. 2

SESLERIA DACTYLOIDES







APPENDIX NO. 2.—(CONTINUED.)

ST. LOUIS, February 13, 1848.

MY DEAR SIR: Your letter, together with the package containing the drawings of a number of most interesting cactaceæ, arrived safely here about two weeks ago.

On the occasion of my report on the botany of Dr. Wislizenus' voyage, I have made a careful investigation of the cactaceæ, of which he brought home with him more than twenty species, and have been enabled to elucidate several points which had been unknown, or obscure before; no doubt because in the hot houses of European gardens these curious plants, though they thrive pretty well, rarely produce flowers and fruit; so that from 800 species of cactaceæ at present cultivated in Europe, perhaps not one-fourth is known as to its flower, and a much smaller proportion in fruit.

I have ventured to describe some of your species from the drawing; my description, however, and the names given by me, must remain doubtful till we are able to obtain some more data to characterize the species. I have written it more for your information than for publication, but if you choose to append it to your published report, I have no objection to it, but must request you to make such corrections or alterations as your notes or your recollection of the plants will enable you to do; for example, as to size, as in some of the drawings no size is mentioned,* in which case I have assumed them to represent the natural size. I have, for convenience sake, numbered the different figures, and shall now proceed to copy for you the descriptions and remarks following my numbers.

1. *Mammillaria*. October 18, 1846; head waters of the Gila, 6,000 feet above the sea.

Proliferous in the highest degree, forming hemispherical masses often of a diameter three and a-half feet; which are composed of 100—200 different heads or stems. Single heads conical, apparently about 4 or 5 inches high, and $2\frac{1}{2}$ —3 inches in diameter; color, bluish green; spines white or reddish.

This species appears to be allied to *M. vivipara*, but is distinguished by the conical heads, and the hemispherical tufts, while *M. vivipara* has hemispherical or even depressed heads, and forms flat and spreading masses.

It may be an undescribed species, in which case the name of *M. aggregata* appears to be most appropriate.

2. *Mammillaria*. October 26, 1846. Rare; on the Gila, 3 or 4,000 feet above the sea.

Apparently a *mammillaria*, though the habit of the plant is more that of an *Echinocereus*, but all *Echinocerei* have the bunches of spines disposed in verticle ridges, which is not the case in the figure in question. Stems irregularly cylindrical, with divers contractions and swelling, about 4—6 inches high, and $1\frac{1}{4}$ and $1\frac{3}{4}$ inches in diameter, many (in the figure 8,) from one base.

The name of *M. fasciculata* would indicate the peculiarity of this species.

3. *Mammillaria*. November 4, 1846; abundant.

Several (fig. 3,) oval stems from one base, $1\frac{1}{2}$ — $2\frac{1}{2}$ inches high, and $1\frac{1}{4}$ inch in diameter; tubercles in about 13 rows; spines whitish, short; one small obovate red berry toward the apex not more than $1\frac{1}{2}$ line long.

If the figure is correct, this species ought to be distinguished by the name of *M. microcarpa*, as I know of no other *Mammillaria* with such a small fruit.

4. *Echinocactus Wislizeni*. (Engelm. in Wislizenus' report.) October 26, 1846.

In addition to the description in Dr. W.'s report, which I have drawn up from dried specimens, I observe in this figure that the species has 21 oblique ribs, is of an oval shape, and bluish green color; the ribs are acute, but not compressed, according to the representation of a section, and the groves corresponding.

5. *Echinocactus*. October 25, 1846; 18 inches in diameter.

Height equal to the diameter; shape ventricose, contracted towards the vertex, therefore somewhat urceolate; with 21 straight sharp ribs; spines apparently 8, straight, brown, color of plant bright green; vertex whitish, (tomentose?) fruit 1 or $1\frac{1}{2}$ inches long, oval, yellowish or reddish. Seed obovate, obliquely truncated at base, full one line long, black, opaque, slightly roughened; embryo curved or hooked, cotyledons accumbent, partly buried in the large farinaceous albumen.

This species is distinct from all other New Mexican species examined by me, and is most probably undescribed. I propose to name it after its zealous discoverer, who has, surmounting numberless difficulties, though occupied by severe and arduous duties, found leisure to do so much for the advancement of our knowledge of the wild countries traversed by him, *Echinocactus Emoryi*.

6. *Cereus*. November 21, 1846; 3 feet high.

There can be but little doubt but that we have here a species before us, which I have re-

* Where the size is not mentioned, the original drawings are the size of nature. W. H. E.

ceived from Dr. Wislizenus and from Dr. Gregg, from the neighborhood of Chihuahua, and which I have described in Dr. W.'s report by the name of *C. Greggii*, erect, branching, with 5 compressed ribs, dark green, with whitish areolæ, and about 8 short dusky spines.

The specimen figured here is very remarkable on account of the fruit, which was unknown to me. Provided the drawing is correct, we have here a smooth oval acuminate fruit, crowned with the remains of the corolla, and supported by a distinct stipe of a bright crimson color. A stipe, as well as such an acumination, I have not seen in any other fruit of a cactus. Fruit, with the long acumination, $2\frac{1}{2}$ inches long, $\frac{3}{4}$ to 1 inch in diameter, stipe about $\frac{1}{2}$ inch long.

7. *Opuntia*. Very abundant on the Del Norte and Gila.

No date nor statement whether the figure represents the natural size or is smaller. The species belongs to the section *ellipticæ* of Salm; it is ascending, older stems prostrate, branches and younger joints erect, 8—10 inches high; joints orbicular obovate, rounded, obtuse or sometimes acutish, of a bluish green color, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, and little less wide; spines short and whitish; berries obovate, scarlet, only about 3 or 4 lines long. If the figure represents the natural size, this species ought to bear the name *O. microcarpa*.

8. *Opuntia*. October 28, 1846; common on the Gila.

Much branched, sub-erect, joints obovate, often acutish, purplish, with two or three longer brown spines directed downwards; fruits obovate, red. In the figure, the joints are $1\frac{1}{2}$ —2 inches long, and 1 — $1\frac{1}{4}$ wide; fruit about 3 lines long.

There are several *Opuntia* known with purple colored joints, but none in the least resembling this, and I must consider it as a distinct species to which I would give the name of *O. violacæa*.

9. *Opuntia*? October 22, 1846; abundant on the Del Norte and Gila.

A remarkable plant, apparently more like a *Mammillaria* than like an *Opuntia*. The fruit is also represented without areolæ or tubercles, exactly like the smooth fruit of a *Mammillaria*; but this may be an oversight in the artist. The habit of the plant suggests the belief that it is an *Opuntia* of the section *cylindrææ*.

Joints or branches ascending, cylindrical, tuberculated, 4—6 inches long; 1 — $1\frac{1}{4}$ inches in diameter; tubercles very prominent, with about 8 long (1 — $1\frac{1}{2}$ inches,) straight spines; fruit obovate, umbilicate, scarlet, towards the top of the branches, about 9 lines long, and 6 in diameter.

It is a distinct species, which I am gratified to dedicate to the skilful artist who has drawn all these figures, Mr. J. M. Stanly; I therefore propose for it the name *Opuntia Stanlyi*.

10. *Opuntia*. November 3, 1846; 4 feet high.

Stem erect, with verticillate horizontal, or somewhat pendulous branches; branches cylindrical, strongly tuberculated, about 8 lines in diameter, with short spines on the tubercles; fruit pale yellow, clavate, tuberculate, umbilicate, 1 to $1\frac{1}{2}$ inches long, 6—8 lines in diameter.

This is probably the *Opuntia arborescens*, Engelm. in Wislizenus's report, though the spines are represented as being shorter than in my specimens of *O. arborescens* from New Mexico and Chihuahua.

11. *Opuntia*. November 2, 1846.

Somewhat resembling the last, but forming "low, wide spreading bushes." Joints more slender, only about 4 or 5 lines in diameter, alternating (not opposite nor verticillate,) forming with the stem an acute angle, sub-erect, tubercles more prominent, areolæ whitish at their lower edge, with 3 dusky deflexed spines; fruit clavate, tuberculate, pale yellow, 1 inch long, 4 lines in diameter.

I believe this to be an undescribed species, and would propose the name for it of *O. Californica*.

12. *Opuntia*. October 10, 1846; abundant. Three feet high, with spreading branches; the same in circumference.

I can see no difference between this figure and a plant which I have received from El Passo, by Dr. Wislizenus, and which I have described in his report under the name of *O. vaginata*.

Nos. 13—15 are no Cacti. In 13, I recognize the *Kaberlinia zucarini*, a shrub common in the chaparals of northern Mexico, which has been collected in flower about Parras and Saltillo, by Drs. Wislizenus and Gregg. The fruit is unknown so far; the specimen figured is, however, in fruit; the berry (?) is globose, $\frac{3}{4}$ —1 line in diameter, crowned with the rudiment of the style. It was collected October 23d, 1846, and is described as a shrub 3 feet high, with low, spreading boughs.

14. Collected November 15, 1846; 4 feet high, rare.

Is, perhaps, another species of the same genus, but the entire absence of flower or fruit makes it impossible to decide. Branches similar, straight, leafless, ending in robust dark spines; but much elongated and sub-erect, not horizontal, as in No. 13.

15. Is entirely unknown to me. Perhaps it is an *amaryllidaceous* plant; the fruit is said to be 5 inches long.

A gigantic cactus was observed along the Gila river, about the middle part of its course,

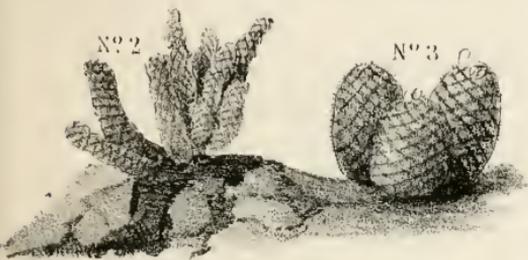
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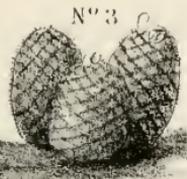
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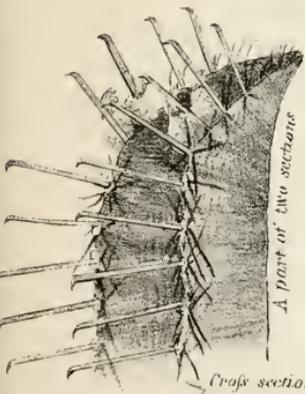
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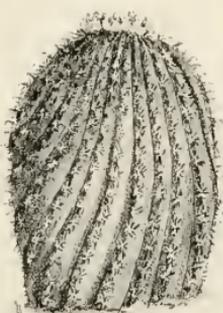


Nº 4



A part of two sections

Cross sections



Nº 8



Nº 5



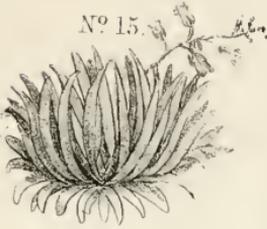
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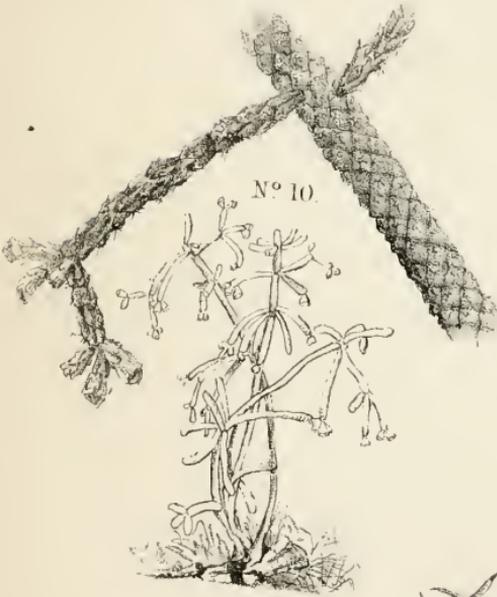
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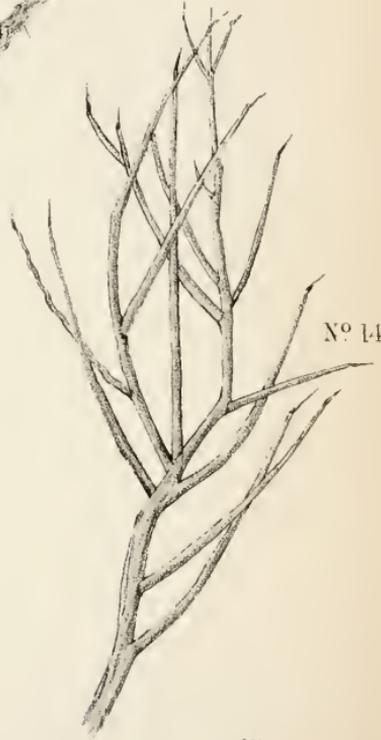
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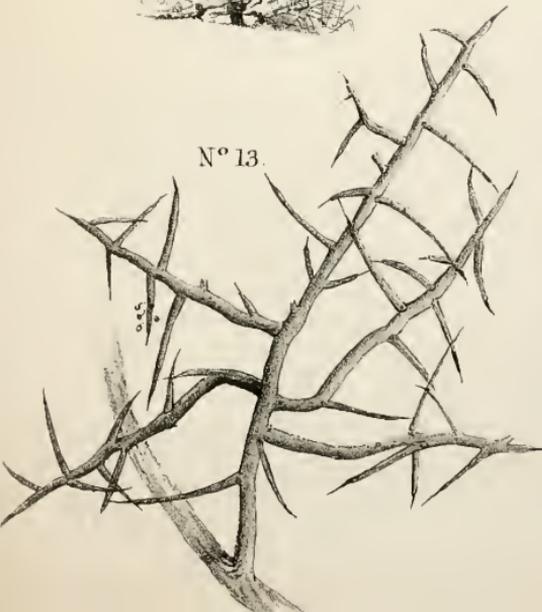
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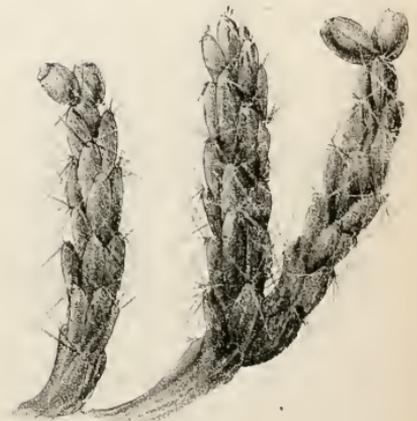
Nº 14.



Nº 13.



Nº 9.



at an elevation of from 2,000 to 4,000 feet; it is frequently mentioned in the report from the 1st to the 9th of November, and figured on several plates, (p. 72 to 79.) It most probably is a true *Cereus*. I judge so from the seed, which fortunately has been preserved. This is obovate, obliquely truncate at base, black, smooth, shining, small. (only about 0.7 lines long;) the embryo is hooked, the cotyledons foliaceous, incumbent; no albumen. If it is a constant fact, that the cotyledons of the seeds of the genus *Pilocereus* are thick and globose and straight, the plant in question cannot belong to that genus, which comprises the most gigantic of the Cactus tribe.

The large *Cereus*. *C. Peruvianus*, is vastly different from our plant, which I would propose to name *Cereus Giganteus*. Unfortunately, I can say but little about the character of this species. The stem is tall, 25 to 60 feet high, and 2 to 6 feet in circumference, erect, simple, or with a few erect branches; ribs about 20, oblique or spiral, (?) no spines, (?) (Emory's notes; probably only below without spines,) fruit produced toward the top of the stem or branches. (None of the fruit was procured, being too late in the season; but the molasses expressed from it by the Indians was procured in abundance at the Pimos village.)

It is called *Pitahaya* by the Californians, but this appears to be a general name applied in Mexico and South America to all the large columnar Cacti which bear an edible fruit; especially to *Cereus variabilis*, which is common on the eastern coast, but is widely distinct from our California giant.

Very truly, yours,

G. ENGELMANN.

APPENDIX G.

BOTANY.

DESCRIPTION OF THE PLANTS COLLECTED DURING THE EXPEDITION: BY DR. JOHN TORREY.

No. 96, ST. MARK'S PLACE, NEW YORK,
August 10, 1853.

DEAR SIR: I have examined the collection of plants that you brought from the headwaters of the Red river, towards the Rocky mountains. The flora of this region greatly resembles that of the upper portion of the Canadian. It is remarkable that there occur among your plants several species that were first discovered by Dr. James, in Long's Expedition, and have not been found since until now. Your collection is an interesting addition to the geography of North American plants, and serves to mark more clearly the range of many western species. For particular remarks on the rarer plants, and descriptions of the new species, I refer you to the accompanying list.

At your request I have had some of the rarer plants drawn and engraved, to illustrate your report to Congress.

I am, dear sir,

Yours truly,

JOHN TORREY.

Captain R. B. MARCY.

Washington, 1853

RANUCULACEÆ.

CLEMATIS PITCHERI, Torr. and Gr., Fl. 1, p. 10. Wichita Mountains; fl. and fr. July 17.

ANEMONE CAROLINIANA, Walt. ; Torr. and Gr., Fl. 1, p. 12. Sources of the Trinity River ; May 3.

DELPHINIUM AZUREUM, Michx. ; Torr. and Gr., Fl. 1, p. 32. Main Fork of the Red River ; fl. May 8—June 16.

PAPAVERACEÆ.

ARGEMONE MEXICANA, Linn. ; Torr. and Gr., Fl. 1, p. 61. Common on the upper waters of the Red River ; May—June 16.

CRUCIFERÆ.

VESICARIA ANGUSTIFOLIA, Nutt., in Torr. and Gr., Fl. 1, p. 101 ; Gray, Pl. Lindh. 2, p. 145. Sources of the Trinity River ; fl. and fr. May 3.

V. STENOPHYLLA, Gray, Pl. Lindh. 2, p. 149 ; and Pl. Wright. 1, p. 10, and 2, p. 13. North Fork of the Red River ; fr. June 14.

PITHYRÆA WISLIZENI, Engelm., in Wisliz. in Mex., p. 95 ; Gray, Pl. Wright. 1, p. 10, and 2, p. 14. Abundant on the headwaters of the Red River ; June 23—July 14.

The specimens of this plant collected by Captain Marcy vary considerably in the leaves, which are often nearly entire. The flowers also vary in size ; the petals being sometimes nearly one-third of an inch in length. The silicles are larger than in specimens collected in New Mexico by Mr. Wright and Dr. Edwards. They are by no means always deeply emarginate at the base, and sometimes they are slightly notched at the summit.

STREPTANTHUS HYACINTHOIDES, Hook., in Bot. Mag., t. 3516 ; Torr. and Gr., Fl. 1, p. 78 ; Gray, Gen. Ill., t. 61. Wichita Mountains to the boundary of the Choctaw Nation ; fl. May 31—June 4.

CAPPARIDACEÆ.

POLANISIA GRAVEOLENS, Raf. ; Torr. and Gr., Fl. 1, p. 123, and Suppl., p. 669. Wichita Mountains ; fl. and fr. July 16. The pods are on a short stipe, and the seeds are more or less rough.

CARYOPHYLLACEÆ.

SILENE ANTIRRHINA, Linn., Torr. and Gr., Fl. 1, p. 191. On the Main Fork of the Red River; fl. May 8.

PARONYCHIA JAMESII, Torr. and Gr., Fl. 1, p. 170; Gray, Pl. Fendl., p. 14. Middle Fork of Red River; fl. May 22.

PORTULACACEÆ.

TALINUM TERETIFOLIUM, Pursh, Fl. 2, p. 365; Gray, Gen. Ill., t. 98. Middle Fork of Red River; fl. May 22, fr. July 5.

MALVACEÆ.

MALVASTRUM COCCINEUM, Gray, Gen. Ill., t. 121; Pl. Fendl., p. 24. *Malva coccinea*, Nutt. *Sida coccinea*, DC.; Torr. and Gr., Fl. 1, p. 235. North Fork of Red River, &c.

CALLIRHÆ INVOLUCRATA, Gray, Pl. Fendl., p. 15, and Gen. Ill., t. 117. *Malva involucrata*, Torr. and Gr., Fl., p. 226. Middle Fork of Red River; fl. May 22.

C. DIGITATA, Nutt. in Jour. Acad. Phil. 2, p. 181; Gray, l. c. Fort Belknap.

LINACEÆ.

LINUM BERLANDIERI, Hook. Bot. Mag., t. 3480; Engelm. in Gray, Pl. Wright. 2, p. 25. Cache creek, and Cross-timbers of the Red River; May.

L. BOOTHII, Plauch., in Lond. Jour. Bot. 7, p. 475; Engelm., l. c. Wichita Mountains; fl. and fr. July 17.

OXALIDACEÆ.

OXALIS VIOLACEA, Linn.; Torr. and Gr., Fl. 1, p. 211. Headwaters of the Trinity River; April 25.

O. STRICTA, Linn.; Torr. and Gr., Fl. l. c. With the preceding.

GERANIACEÆ.

GERANIUM CAROLINIANUM, Linn. ; Torr. and Gr., Fl. 1, p. 207. Headwaters of the Trinity, and on Cache creek ; April—May.

ZANTHOXYLACEÆ.

PTELEA TRIFOLIATA, Linn. ; Torr. and Gr., Fl. 1, p. 215 ; β *mollis*. Torr. and Gr., Fl. 1, Suppl., p. 680. Common on the headwaters of the Red River ; fr. June 16.

ANACARDIACEÆ.

RHUS TRILOBATA, Nutt., in Torr. and Gr., Fl. 1, p. 218 ; Gray Pl. Fendl., p. 28. On the Middle and North Forks of the Red river ; in fruit June 1-16.

R. TOXICODENDRON, Linn. ; Torr. and Gr., l. c. With the preceding in fruit only.

VITACEÆ.

VITIS RUPERTRIS, Scheele, in Linnæa, 21, p. 591 ; Gray, Pl. Lindh., 2, p. 165. Wichita Mountains ; abundant. The fruit was immature, but had attained nearly its full size in the middle of July. They are said to be ripe in August, when they are about the size of large peas, of a deep purple color, and agreeable to the taste. This species much resembles the summer grape of the Atlantic States.

SAPINDACEÆ.

SAPINDUS MARGINATUS, Willd. ; Torr. and Gray, Fl. 1, 255 ; Gray, Gen. Ill., 2, t. 180. Main Fork of Red River.

This is generally known in Texas and Arkansas by the name of *Wild China*. It is a tree, and attains the height of 20 feet, with a trunk 10 inches in diameter. The wood is of a yellow color.

POLYGALACEÆ.

POLYGALA ALBA, Nutt. Gen. 2, p. 87 ; Gray, Pl. Wright. 1, p. 38. *P. Beyrichii*, Torr. and Gr., Fl. 1, p. 670. On Suydam Creek, North Fork of Red River ; fl. June 6.

P. INCARNATA, Linn ; Torr. and Gr. 1, p. 129. Tributaries of the Washita River ; fl. and fr. July 23. This species has not hitherto been found so far west.

KRAMERIACEÆ.

KRAMERIA LANCEOLATA, Torr., in Ann. Lyc. N. York, 2 p. 168 ; Gray, Gen. III., 2, t. 185. Headwaters of the Trinity, and on the Middle Fork of the Red River ; fl. May 4-22.

LEGUMINOSÆ.

VICIA MICRANTHA, Nutt., in Torr. and Gr., Fl. 1, p. 271. Cache Creek and Middle Fork of Red River ; fl. and fr. May 16-22.

RHYNCHOSIA TOMENTOSA, var. *volubilis*, Torr. and Gr., Fl. 1, p. 285. Tributaries of the Washita River ; fl. July 26.

TEPHROSIA VIRGINIANA, Pers. ; Torr. and Gr., Fl. 1, p. 295. Wichita Mountains and upper waters of Red River ; fl. June 4, fr. July 23.

GLYCYRRHIZA LEPIDOTA, Nutt., Gen. 2, p. 106 ; Torr. and Gr., Fl. 1, p. 298. Main and North Forks of the Red River ; fl. June 6, fr. June 26.

INDIGOPERA LEPTOSEPALA, Nutt., in Torr. and Gr., Fl. 1, p. 298. With the preceding ; fl. May 26-June 6.

PSORALEA ESCULENTA, Pursh, Fl. 2, p. 475, t. 22. Mouth of Cache Creek and Wichita Mountains ; May.

P. ARGOPHYLLA, Pursh, Fl. 2, p. 475 ; Hook. Fl. Bor.—Am. 2, p. 136, t. 53. North and Middle Forks of Red River ; fl. May 26-31.

P. FLORIBUNDA, Nutt., in Torr. and Gr., Fl. 1, p. 300. Sources of the Red River ; fl. June 2-9.

PETALOSTEMON VIOLACEUM, Michx., Fl. 2, p. 50, t. 37, f. 2 : Torr. and Gr., Fl. 1, p. 310. With the preceding ; June 2-7.

PETALOSTEMON GRACILE, Nutt. in Jour. Acad. Phil. 7, p. 92 ; Torr. and Gr., Fl. 1, p. 309. Cache Creek ; May 18.

P. MULTIFLORUM, Nutt., l. c. : Torr. and Gr., l. c. On the Wichita Mountains ; fl. and fr. July 15.

PETALOSTEMON VILLOSUM, Nutt., Gen. 2, p. 85 ; Torr. and Gr., Fl. 1, p. 310. Cache creek ; June 14 ; flowers not yet expanded.

DALGÆA AUREA, Nutt., Gen. 2, p. 101 ; Torr. and Gr., Fl. 1, p. 308 ; Gray, Pl. Wright. 2, p. 41. Main Fork of Red River ; fl. July 5.

D. LANATA, Spreng. Syst. 3, p. 327. *D. lanuginosa*, Nutt., in Torr. and Gr., Fl. 1, p. 307. Big Wichita and on the Main Fork of the Red River ; fl. June 27.

D. LAXIFLORA, Pursh, Fl. 2, p. 741 ; Nutt., Gen. 2, p. 101 ; Torr. and Gr., Fl. 1, p. 307. *D. pencillata*, Moricand, Pl. Nouv. Amer., t. 45. Common on all the upper waters of the Red River ; May–July.

AMORPHA CANESCENS, Nutt., Gen. 2, p. 92 ; Torr. and Gr., Fl. 1, p. 306. Wichita Mountains ; fl. May 30.

ASTRAGALUS NUTTALLIANUS, DC. Prodr. 2, p. 289 ; Torr. and Gr. 2, p. 234. Upper waters of the Red River ; fl. and fr. May 5. The flowers are larger than usual in this species.

A. CARYOCARPUS, Ker. Bot. Reg., t. 176 ; Torr. and Gr. Fl. 1, p. 331. Headwaters of the Trinity. May 2 ; in flower only.

OXYTROPIS LAMBERTI, Pursh, Fl. 2, p. 740 ; Torr. and Gr., Fl. 1, p. 339. With the preceding ; fl. in May.

DESMODIUM SESSILIFOLIUM, Torr. and Gr. 1, p. 363. Wichita Mountains. The specimens of this plant collected by Captain Marcy are in a state of remarkable *fasciation*. The branches of the panicle are coalesced (sometimes almost to the summit) into a broad flat mass, which is covered with sessile flowers and fruit.

CLITORIA MARIANA, Linn. ; Torr. and Gr., Fl. 1, p. 290 ; Torr., Fl. N. York, 1, p. 163, t. 24. On the Washita ; fl. July 27.

BAPTISIA AUSTRALIS, R. Br. ; Torr. and Gr., Fl. 1, p. 385. Sources of the Red River ; fl. and fr. June 6–10.

B. LEUCOPHÆA, Nutt., Gen. 1, p. 282 ; Torr. and Gr. l. c. Common on the upper tributaries of the Red River ; fl. April, fr. May.

HOFFMANSEGGIA JAMESII, Torr. and Gr., Fl. 1, p. 293 ; Gray, Pl. Lindh. 2, p. 178. With the preceding ; fl. and fr. June 14–24.

CASSIA CHAMÆCRISTA, Linn., Torr. and Gr., Fl. 1, p. 395. Tributaries of the Washita ; fl. July 22.

SCHRANKIA UNGINATA, Willd. ; Torr. and Gr., Fl. 1, p. 400. Mouth of Medicine River, &c. ; fl. April.

ACACIA LUTEA, Leavenw. ; Torr. and Gr., Fl. 1, p. 403. On the Wichita Mountains ; fl. and fr. July 14. The leaves are remarkably sensitive.

ROSACEÆ.

SANGUISORBA ANNUA, Nutt., in Torr. and Gr., Fl. 1, p. 429. *Poterium annuum*, Hook. Fl. Bor.—Am. 1, p. 198.

ONAGRACEÆ.

ÆNOTHERA RHOMBIPETALA, Nutt., in Torr. and Gr., Fl. 1, p. 493 ; Kunze, in Linnæa, 20, p. 55. Main Fork of Red River ; fl. June 24.

Æ. SINUATA, Linn. ; Torr. and Gr., Fl. 1, p. 294. Wichita Mountains and upper tributaries of Red River ; May–June.

Æ. SPECIOSA, Nutt., in Jour. Acad. Phil. 2, p. 119 ; Torr. and Gr., Fl. 1. c. Big Wichita ; fl. May 8. Middle Fork of the Red River ; fr. June 21.

Æ. LAVANDULIFOLIA, Torr. and Gr., Fl. 1, p. 501 ; Hook. Lond. Jour. Bot. 6, p. 223 ; Gray, Pl. Wright. 1, p. 72. Big Wichita and North Fork of Red River ; fl. May 8, fr. June 6. The leaves in all our specimens of this rare species are nearly glabrous, about one inch and a half long, and 2–3 lines wide, with the apex rather acute. The fruit is well described by Hooker, (l. c.)

Æ. SERULATA, Nutt., Gen. 1, p. 246 ; Torr. and Gr., Fl. 1, p. 501. Common on the upper tributaries of the Red River ; May–June.

GAURA COCCINEA, Nutt. Gen. 1, p. 249 ; Torr. and Gr., Fl. 1, p. 518. North Fork of Red River ; fl. June 6.

G. VILLOSA, Torr. Ann. Lyc. N. York, 2, p. 200 ; Torr. and Gr., Fl. 1, p. 518 ; Gray, Pl. Wright. 1, p. 73. Wichita Mountains ; fr. July 14. The ripe fruit is not always reflexed. It is (including the stripe) about 7 lines long, ovate, strongly tetraquetrous, abruptly contracted at the base, and 2–4-seeded ; the seeds more or less imbricated.

LOASACEÆ.

MENTZELIA NUDA, Torr. and Gr., Fl. 1, p. 535; Gray, Pl. Fendl., p. 47, and Pl. Wright. 1, p. 73; *Bartonia nuda*, Nutt. Gen. 1, p. 297. Wichita Mountains; fl. June 22.

CUCURBITACEÆ.

CUCURBITA PERENNIS, Gray, Pl. Lindh. 2, p. 193; and Wright. Pl. 2, p. 60. *C. fatidissima*, H. B. and Kunth? *Cucumis perennis*, James, in Long's Exped. 2, p. 20; Torr. and Gr. Fl. 1, p. 543. North Fork of the Platte; fl. June 6. Although the cultivated plant seems to be diœcious not unpleasant to the smell, Mr. Wright says, (*vide* Gray, l. c.) that in a wild state it is "certainly monocious, and exhales an unpleasant smell when bruised;" so that it does not differ from the description of *C. fatidissima*, except that the latter is said by Kunth to be an annual, which may be a mistake. The flowers are as large as those of the common pumpkin.

SICYDIUM, sp. nov? Fruit $1\frac{1}{2}$ inch in diameter, globose, sessile. Seeds $\frac{1}{3}$ larger than in *S. Lindheimeri*, and more turgid. On the Main Fork of Red River; fr. July 11.

GROSSULACEÆ.

RIBES AUREUM, Pursh, Fl. 1, p. 164; Torr. and Gr., Fl. 1, p. 552. North Fork of Red River; fr. June 4.

UMBELLIFERÆ.

ERYNGIUM DIFFUSUM, Torr. in Ann. Lyc. N. York, 2, p. 207; Torr. and Gr., Fl. 1, p. 603. Wichita Mountains; fl. June 14. This rare species has not been found before, since it was first discovered by Dr. James, more than thirty years ago. It is rather doubtful whether it is diffuse, except, perhaps, when it is old. The specimens of Captain Marcy are less branched than the original one from which the description in the Flora of North America was drawn.

LEPTOCAULIS ECHINATUS, Nutt., in DC. Prodr. 4, p. 107; Torr. and Gr., Fl. 1, p. 609. Headwaters of the Trinity; April 2.

POLYTÆNIA NUTTALLII, DC. Umb, p. 53, t. 13, and Prodr. 4, p. 196; Torr. and Gr., Fl. 1, p. 533. Middle Fork of Red River; fl. June 1. Wichita Mountains; fr. July 16.

EURYTÆNIA TEXANA, Torr. and Gr., Fl. 1. p. 633. Main Fork of Red River; fr. June 11. This plant has hitherto been found only by the late Mr. Drummond, who discovered it in Texas more than twenty years ago. It is an annual, about two feet high; the fine striæ of the stem and branches are roughened upward, with minute points. The umbels are compound and spreading. Flowers minute. Petals white, broadly orbicular, waved on the margin, deeply emarginate, with an inflexed point. Fruit about one-third larger than in Drummond's Texan specimen.

RUBIACEÆ.

OLDENLANDIA ANGUSTIFOLIA, Gray, Pl. Wright. 2, p. 68. *Houstonia angustifolia*, Mich. Fl. 1, p. 85; *Hedyotis stenophylla*, Torr. and Gr., Fl. 2, p. 41. Tributaries of the Main Fork of Red River; fl. May—June.

VALERIANACEÆ.

FEDIA RADIATA, β . *LEIOCARPA*, Torr. and Gr., Fl. 2, p. 52. Upper Red River.

COMPOSITÆ.

LIATRIS SQUARROSA, Willd.; Torr. and Gr., Fl. 2, p. 68; Sweet Fl. Gard., t. 44. Tributaries of the Washita River; fl. July 22—24.

L. ACIDOTA, Engelm. and Gray, Pl. Lindh., p. 10; Gray Pl. Wright. 1, p. 83. *L. mucronata*, Torr. and Gr., Fl. 2, p. 70; not of DC. On the Washita; July 27.

SOLIDAGO ODORA, Nutt.; Torr. and Gr., Fl. 2, p. 219. Wichita Mountains; July 16.

S. MISSOURIENSIS, Nutt. in Jour. Acad. Philad. 7, p. 32, and Trans. Amer. Phil. Soc. (n. ser.) 7, p. 327; Torr. and Gr., Fl. 2, p. 222. With the preceding.

ARTEMISA FILIFOLIA, Torr. in Ann. Lyc. N. York, 2, p. 211; Torr. and Gr., Fl. 2, 417. Upper tributaries of the Red River; May. An abundant shrub, of a grayish white aspect, with numerous branches, and crowded, slender leaves. This is one of the numerous species called *sage* by the hunters. It is found from the plains of the Upper Missouri to the Valley of the Rio Grande, and west to the Colorado.

ACHILLEA MILLEFOLIUM, Linn. ; Torr. and Gr., Fl. 2, p. 409. With the preceding. It is the woolly form that almost exclusively occurs west of the Mississippi.

ZINNIA GRANDIFLORA, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 348 ; Torr. and Gr., Fl. 2, p. 298 ; Torr. in Emory's Rep., t. 4, Gray, Pl. Fendl., p. 81. Main Fork of Red River ; fl. July 2.

RIDDELLIA TAGETINA, Nutt. l. c., p. 371 ; Torr. and Gr., Fl. 2, p. 362 ; Torr. in Emory's Rep., t. 5 ; Gray, Pl. Fendl. p. 93. Main Fork of Red River ; June 25—July 8. The pappus is more hyaline and acute than in specimens from other localities in my herbarium. It is also slightly lacerate at the tip, showing something of a transition to *R. arachnoidea*. The leaves, too, are more woolly and broader than in the more common form of the plant.

RUDBECKIA HIRTA, Linn. ; Torr. and Gr., Fl. 2, p. 307. Wichita Mountains ; fl. June 1. Is *R. bicolor* distinct from this species? Dr. Gray remarks, (Plant. Lindh. 2. p. 227,) that in cultivation, the purple brown of the rays is commonly obsolete or wanting in all the later heads.

ECHINACEA ANGUSTIFOLIA, DC. Prodr. 5, p. 554 ; Torr. and Gr., Fl. 2, p. 306. Wichita Mountains ; June 1.

LÈPACHYS COLUMNARIS, Torr. and Gr., Fl. 2, p. 315. *Rudbeckia columnaris*, Pursh, Fl. 2, p. 575. Common on all the tributaries of the Red River ; June.

HELIANTHUS PETIOLARIS, Nutt. in Jour. Acad. Philad. 2, p. 115 ; Sweet Brit. Fl. Gard. (n. ser.) t. 75. With the preceding.

GAILLARDIA PULCHELLA, Foug. ; DC. Prodr. 5, p. 652 ; Torr. and Gr., Fl. 2, p. 366. Common on the upper tributaries of the Red River ; May—June.

PALAFOXIA CALLOSA, Torr. and Gr., Fl. 2, p. 369. *Stevia callosa*, Nutt. in Jour. Acad. Philad. 2, p. 121 ; Bart. Fl. Amer. Sept., t. 46. *β foliis latioribus*. Tributaries of the Washita ; June.

HYMENOPAPPUS CORYMBOSUS, Torr. and Gr., Fl. 2, p. 372. *H. Engelmannianus*, Kunth.

ACTINELLA LINEARIFOLIA, Torr. and Gr., Fl. 2, p. 383. *Hymenoxys linearifolia*, Hook. Witchita mountains; May 30.

MARSHALLIA CAESPITOSA, Nutt. in DC. Prodr. 5, p. 680; Hook. Bot. Mag. t. 3704; Torr. and Gr., Fl. 2, p. 391. Headwaters of the Trinity river; May.

APHANOSTEPHUS RAMOSISSIMUS, DC. Prodr. 5, p. 310; Gray, Pl. Wright. 1, p. 93. *A. Riddellii*, Torr. and Gr. Fl. 2, p. 189. *Egletes ramosissima*, Gray, Pl. Fendl., p. 71. Little Witchita and upper tributaries of Red River; May—June. The tube of the disk flowers is indurated in all the specimens.

ENGELMANNIA PINNATIFIDA, Torr. and Gr., in Nutt. Trans. Am. Phil. Soc. (n. ser.) 7, p. 343; and Fl. 2, p. 283. Witchita Mountains; May 30.

MELAMPODIUM CINEREUM, DC. Prodr. 5, p. 518; Gray, Pl. Fendl., p. 78; *M. ramosissimum*, DC. l. c., Torr. and Gr. Fl. 2, p. 271. *M. leucanthum*, Torr. and Gr. l. c. Cache Creek; June 21. A variable species.

CHRYSOPSIS CANESCENS, Torr. and Gr., Fl. 2, p. 256; Gray, Pl. Fendl., p. 77. Main Fork of Red River; July 8.

C. HISPIDA, Hook. Fl. Bor.—Am. 2, p. 22, (under *Diplopappus*;) DC. Prodr. 7, p. 279; Torr. and Gr. l. c.

CENTAUREA AMERICANA, Nutt. in Jour. Acad. Phil. 2, p. 117; Bart. Fl. Amer.—Sept., t. 50; Torr. and Gray, Fl. 2, p. 453. Tributaries of the upper Red River; June—July.

CIRSIUM UNDULATUM, Spreng.; Torr. and Gr., Fl. 2, p. 456. With the preceding.

PYRRHOPAPPUS CAROLINIANUS, DC. Prodr. 7, p. 144; Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 430. Headwaters of the Trinity and on Cache Creek; May.

LYGODESMIA JUNCEA, Don.; Hook. Fl. Bor.—Am. 2, p. 295, t. 103; Torr. and Gr., Fl. 2, p. 484. Upper tributaries of the Red River; June. The lower branches are covered at the base with tubers or galls, about the size of cherry-stones, produced by the stings of insects.

L. APHYLLA, DC. Prodr. 7, p. 198; Torr. and Gr., Fl. 2, p. 485. β *Texana*, Torr. and Gr. l. c. North Fork of Red River; June 16. The numerous radical leaves are 3-4 inches long, runcinately pinnatifid. Achenia angular, distinctly tapering upward.

ASCLEPIADACEÆ.

ASCLEPIAS TUBEROSA, Linn.; Michx Fl. 1, p. 117; Sweet. Brit. Fl. Gard., (ser. 2,) t. 24; Decaisne, in DC. Prodr. 8, p. 567. Torr. Fl. N. York, 2, p. 123. Upper tributaries of Red River; May—June. The leaves vary from ovate and amplexicaul to narrowly linear.

A. SPECIOSA, Torr. in Ann. Lyc. 2, p. 218, and in Fremont's First Rep., p. 95. *A. Douglasii*, Hook. Fl. Bor.—Am. 2, p. 53, t. 142; Decaisne, l. c. Wichita Mountains to the upper tributaries of the Red River; fl. June—July; flowers larger than in any other North American species of *Asclepias*.

ACERATES PANICULATA, Decaisne, l. c. p. 521; *Asclepias viridis*, Walt., Fl. Carol. p. 107? *Anantherix paniculatus*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 202. Cache Creek and Middle Fork of Red River, fl. May 16, fr. June.

A. DECUMBENS, Decaisne, l. c. *Anantherix decumbens*, Nutt. l. c. Cache Creek; fl. May 17. The follicles oblong, not muricate.

A. ANGUSTIFOLIA, Decaisne, l. c. *Polyotus angustifolius*, Nutt. l. c. Branch of Cache Creek; fl. May 17.

A. VIRIDIFLORA, Ell. sk. 1, p. 317; Torr. Fl. N. York, 2, p. 124; Decaisne, l. c. *Asclepias viridiflora*, Pursh. Fl. 1, p. 181; Hook. Fl. Bor. Am. 2, p. 53, t. 143. North Fork of Red River; fl. June 4. The specimens collected by Captain Marcy belong to the broad-leaved forms of the plant.

ENSLERIA ALBIDA, Nutt. Gen. 1, p. 164, and in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 203; Decaisne, in DC. Prodr. 8, p. 518. Main Fork of Red River; not in flower.

APOCYNACEÆ.

APOCYNUM CANNABINUM, Linn.; Hook. Fl. Bor.—Amer. 2, p. 51, t. 139; Decaisne, in DC. Prodr. 8, p. 439; Torr. Fl. New York, 2, p.—. Common on the upper tributaries of Red River; May—June.

AMSONIA SALICIFOLIA, Pursh, Fl. 1, p. 184; Decaisne, in DC. Prodr. 8, p. 385. Wichita Mountains; fr. July 16. This is perhaps only a variety of *A. angustifolia*, Michx., and both may not be specifically distinct from *A. tabernæmontana*.

GENTIANACÆ.

SABBATIA CAMPESTRIS, Nutt, in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 167; Griseb., in DC. Prodr. 9, p. 50; Engelm. and Gr., Pl. Lindh. 1, p. 15. On the Washita; fl. and fr. July 27.

ERYTHRÆA BEYRICHI, Torr. and Gr., Fl. 2, ined. *E. trichantha* β . *angustifolia*, Griseb. l. c. With the preceding; fl. and fr. July 26.

EUSTOMA RUSSELIANUM, Don.; Griseb. in DC. Prodr. 8, p. 51. *Lisianthus glaucifolius*, Nutt. l. c. *L. Russelianus*, Hook. Bot. Mag., t. 3626. Washita River to the upper tributaries of the Red River; July.

CONVOLVULACÆ.

EVOLVULUS PILOSUS, Nutt. Gen. 1, p. 174, (as a synonym); Trans. Amer. Phil. Soc. (n. ser.) 5, p. 195. *E. argenteus*, Pursh, Fl. 1, p. 187; Choisy, in DC. Prodr. 9, p. 443; not of R. Br. Middle Fork of Red River; fl. May 22. Choisy doubtfully refers Brown's plant to *E. hirsutus*, Lam., and therefore has adopted Pursh's name.

CONVOLVULUS LOBATUS, Engelm., and Gray, Pl. Lindh. 1, p. 44 (in a note.) *C. hastatus*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 194; not of Thunb. *C. Nuttallii*, Torr. in Emory's Rep., p. 149. Middle Fork of Red River; May 22—June 6. This species has much the appearance of *C. althæoides*, Boss.

C. (IPOMÆA) LEPTOPHYLLUS, Torr., in Frem. First Report, p. 94, and in Emory's Report, p. 148, t. 11. With the preceding.

C. (IPOMÆA) SHUMARDIANUS, (sp. nov. ;) caule gracili subpubescente; foliis ovato-lanceolatis sursum angustatis basi acutis; pedunculis petiolas longioribus sepalis ovatis obtusis. Wichita Mountains; fl. July 17; flowers as large as in *C. panduratus*, which the plant much resembles, but differs in the form of the leaves, and in the broader and more obtuse sepals. Named in honor of Dr. G. C. Shumard, the botanical collector of the expedition.

SOLANACEÆ.

SOLANUM FLAVIDUM, Torr. Ann. Lyc. New York, 2, p. 227; Dunal in DC. Prodr. 13, p. 375. Cache Creek; May. This species is not suffrutescent, as is stated in the original description, but probably annual. Mr. Wright found it on the Rio Grande. The prickles are sometimes almost wanting.

S. CAROLINENSE, Linn.; Torr., Fl. N. York 2, p. 105; Dunal, l. c., p. 305. Wichita Mountains and upper tributaries of the Red River; May–June.

PHYSALIS PUMILA, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 193. With the preceding; May–June. This species has been overlooked by Dunal in DC. Prodr.

SCROPHULARIACEÆ.

CASTILLEJA PURPUREA, G. Don.; Benth., in DC. Prodr. 10, p. 531. *Euchroma purpurea*, Nutt., l. c., p. 180. Sources of the Trinity River; May.

PENSTEMON GRANDIFLORUS, Nutt., in Fras. Cat. 1813, and Gen. 2, p. 53; Benth., l. c., p. 322. *P. Bradburii*, Pursh, Fl. 2, p. 738. North Fork of Red River; fl. June 3. The pedicels vary from three lines to nearly an inch in length.

P. AMBIGUUS, Torr., in Ann. Lyc. N. York, 2, p. 228; Benth., l. c., p. 321. Wichita Mountains; June. This rare and well characterized species has lately been found by Mr. Wright on the upper Rio Grande.

P. COBÆA, Nutt., l. c.; Hook. Bot. Mag., t. 3465; Benth., l. c., p. 326. Upper tributaries of the Red River; May–June.

P. PUBESCENS, Soland.; Torr., Fl. N. York, 2, p. 35; Benth., l. c. Headwaters of the Trinity. Smoothish, with narrower and more entire leaves than usual.

GERARDIA GRANDIFLORA, Benth., Comp. Bot. Mag., 1, p. 206. *Dasystema Drummondii*, Benth., in DC. Prodr. 10, p. 521. On the Washita; fl. July 27.

LABIATÆ.

MONARDA ARISTATA, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 186; Benth., in DC. Prodr. 12, p. 363. Main Fork of Red River; May 24-25. Nuttall says that this species is sometimes perennial; but all our specimens seem to be annual. A variety was found on Cache Creek, in which the teeth of the calyx are aristate from a broad base, and strongly hispid-ciliate. The corolla is not spotted, as in the ordinary form.

M. PUNCTATA, Linn.; Benth., l. c.; Torr., Fl. N. York, 2, p. 59. *M. lutea*, Michx., Fl. 1, p. 16. North and Middle Forks of Red River; May-June. A dwarfish and annual form, in which the corolla is scarcely spotted, was found in the same region.

TEUCRIUM CUBENSE, Linn.; Benth., in DC. Prodr. 12, p. 578. *T. laciniatum*, Torr., in Ann. Lyc. New York, 2, p. 231. Cache creek and Middle Fork of Red River; May. This species was incorrectly described by me as "fruiticulose" in the work quoted.

SCUTELLARIA RESINOSA, Torr., in Ann. Lyc. N. York, 2, p. 232; Benth., in DC. Prodr. 12, p. 427. Cache Creek and Sweetwater Creek; May 18-June 9.

S. PARYULA, Michx., Fl. 1, p. 12; Benth., l. c.; Torr., Fl. N. York, 2, p. 71. *S. ambigua*, Nutt., Gen. 2, p. 37.

VERBENACEÆ.

LIPPIA CUNEIFOLIA, Torr., in Ann. Lyc. N. York, 2, p. 234, (under *Zapania*.) Wichita Mountains, and on the Washita; June 1-27. Schauer has overlooked this species, in his revision of *Verbenaceæ* for DC. Prodr.

VERBENA BIPINNATIFIDA, Engelm. and Gray, Pl. Lindh. 1, p. 49; Schauer, in DC. Prodr. 11, p. 553. *Glandularia bipinnatifida*, Nutt., in Jour. Acad. Phil. 2, p. 123, and in Amer. Phil. Trans. (n. ser.) 5, p. 184. Sources of the Trinity and upper tributaries of Red River; May-June.

BORAGINACEÆ.

EUPLOCA CONVOLVULACEA, Nutt., in Amer. Phil. Trans. (n. ser.) 5, p. 190; DC. Prodr. 9, p. 559. Middle Fork of Red River; fl. June 23. I am now convinced that my *E. grandiflora* (Emory's Report, p. 147) is an unusually large-flowered state of the present species. The plant is abundant on the Upper Rio Grande.

ERITRICHUM JAMESH. *Myosotis suffruticosa*, Torr., in Ann. Lyc. N. York, 2, p. 225; DC. Prodr. 10, p. 114. North Fork of Red River; fl. and fr. June 14. This plant had not been found, till Captain Marcy collected it, since it was discovered by Dr. James, in Long's Expedition. It is a genuine *Eritrichium*, but can hardly be referred to any one of De Candolle's sections of that genus. My description (l. c.) was drawn from old and imperfect specimens, the stems of which were indurated at the base so as to appear suffruticose. As more complete specimens show the plant to be herbaceous, the former specific name is not appropriate. The allied Fendlerian species No. 636 (*E. multicaule* Torr. Mss.) is very hispid and canescent, with spreading hairs, and throws up several stems from a thick root or caudex. Leaves linea-spatulate and obtuse. Flowers on conspicuous pedicels. Fructiferous calyx broadly ovate, nearly erect; the segments ovate-lanceolate and closed over the fruit. Nutlets truncate at the summit, very smooth and shining.

POLEMONIACEÆ.

PHLOX PILOSA, Linn.; Benth, in DC. Prodr. 9, p. 305. Sources of the Trinity; May.

PRIMULACEÆ.

DODECATHÉON MEADIA, Linn.; Pursh, Fl. 1, p. 136; DC. Prodr. 8, p. 56. Sources of the Trinity; fl. May.

SANTALACEÆ.

COMANDRA UMBELLATA, Nutt. Gen. 1, p. 157; Hook. Fl. Bor.—Am. 2, p. 139, t. 79, f. A; Torr. Fl. N. York, 2, p. 160. *Thesium umbellatum*, Linn. Tributaries of the Red River; May. There are few plants that have a wider range in latitude and longitude than this.

EUPHORBIACEÆ.

EUPHORBIA COROLLATA, Linn.; Pursh, Fl. 2, p. 607; Torr. Fl. N. York, 2, p. 175, t. 99. On the Washita; July.

E. MARGINATA, Pursh, Fl. 2, p. 607; Torr. in Ann. Lyc. N. York, 2, p. 224. Main Fork of Red River; July 8. Upper part of the stem hairy.

E. HELIOSCOPIA, Linn.; Torr. Fl. N. York, 2, p. 174, (excl. syn. Pursh;) Gray, Bot. N. States, p. 405. Headwaters of the Trinity; fl. May.

STILLINGIA LANCEOLATA, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 176. *S. sylvatica* β . *salicifolia*, Torr. in Ann. Lyc. N. York, 2, p. 245. Middle Fork of Red River; fl. June 4.

HENDECANDRA TEXENSIS, Klotsch in Erich. Arch. (1841) 1, p. 252; Engel. and Gray, Pl. Lindh. 1, p. 53. *Croton muricatum*, Nutt. in Trans. Amer. Phil. soc. (n. ser.) 5, p. 153. *H. multiflora*, Torr. in Frem. First Rep., p. 96. Middle Fork of Red River; fl. and fr. June 22.

GYNAMBLOSIS MONANTHOGYNA. *Engelmannia Nuttalliana*, Klotsch, l. c. *Croton monanthogynum*, Michx. Fl. 2, p. 215. *C. ellipticum*, Nutt. Gen. 2, p. 235, (excl. syn.); Torr. in Ann. Lyc. N. York, 2, p. 245. Main Fork of Red River; June 24. The *Engelmannia* of Klotsch, which is based on *Croton ellipticum* of Nuttall, must give place to the earlier genus of the same name of Torr. and Gray. I propose for it a manuscript name given to the plant many years ago, when revising the *Euphorbiaceæ* of the United States. Klotsch is wrong in referring *Croton monanthogynum* to *Hendecandra maritima*. In the young specimens of Captain Marcy all the staminate flowers are 8-10 androus: and the later flowers are not unfrequently hexandrous. The petals and sepals vary from three to five.

TRAGIA RAMOSA, Torr. in Ann. Lyc. N. York, 2, p. 245. *T. angustifolia*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 172. *T. brevispica*, Engel. and Gray, Pl. Lindh. 1, p. 54. North Fork of the Red River; June.

CNIDOSCOLUS STIMULOSUS, Engel. and Gray, Pl. Lindh. 1, p. 26. *Jatropha stimulosa*, Michx. Fl. 2, p. 216; Ell. Sk. 2, p. 649. Cache Creek; May 17.

PLANTAGENACEÆ.

PLANTAGO VIRGINICA, Linn.; Torr. Fl. New York, 2, p. 16. Headwaters of the Trinity, fl. May.

P. GNAPHALOIDES, Nutt. Gen. 1, p. 100; Hook. Fl. Bor.—Am. 2, p. 124; Decaisne in DC. Prodr. 13, (Sact. 1,) p. 713. Mouth of the Big Medicine River.

POLYGONACEÆ.

ERIOGONUM LONGIFOLIUM, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 164; Benth. Eriog. in Linn. Trans. 17, page 406. Witcllita Mountains; June.

CHENOPODIACEÆ.

CHENOPODIUM SUBSPICATUM, Nutt. Gen. 1, p. 199? Middle Fork of Red River. The specimens are without either flowers or fruit. Annual, diffuse, and much branched; clothed with whitish furfuraceous scales. Leaves conspicuously petiolate, broadly rhombic ovate, with one or two coarse teeth on each side.

OBIONE CANESCENS, Moq. Chenop., p. 74; and DC. Prodr. 13, (pars 2,)*p. 113; Torr., in Stansbury's Report, p. 395. *O. occidentalis*, Moq. l. c. *Calligonium canescens*, Pursh, Fl. 2, p. 370. *Atriplex canescens*, Nutt. Gen. 1, p. 197. Common on the upper tributary of the Red River.

NYCTAGINACEÆ.

OXYBAPHUS ANGUSTIFOLIUS, Torr., in Ann. Lyc. N. York, 2, p. 237; Choisy, in DC, Prodr. 13, (pars 2,) p. 433. *Calymenia angustifolia*, Nutt., in Fras. Cat. 1813, and Gen. 1, p. 26. Upper tributaries of Red River; June.

O. NYCTAGINEUS, Torr., l. c.; Choisy, l. c. *Allionia nyctaginea*, Michx., Fl. 1, p. 100. *Calymenia corymbosa*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 178; not *Mirabilis corymbosa*, Cav., in which the involucre is one-flowered. With the preceding; May 28.

O. HIRSUTUS, Sweet; Hook. Fl. Bor.-Amer. 2, p. 124; Choisy, l. c. *Allionia hirsuta*, Pursh, Fl. 2, p. 728. With the preceding. \mathcal{N} . Stem erect, 2-3 feet high, sparingly branched; viscosely pubescent; leaves 2-3 inches long, and 1-1½ inch wide, on very short petioles, nearly entire. Flowers in a long, loose terminal and naked panicle; involucre 3-flowered, rotate-companulate. Fruit fusiform, oblong, 5-angled. As in most of the *Nyctaginaceæ*, this plant abounds in cells filled with raphides. These are so abundant in the liber of the root, that they form a layer of a silvery white color.

ABRONIA MELLIFERA, Dougl., in Hook. Bot. Mag., t. 2879; Choisy, l. c. Cache Creek; fl. and fr. May 18. The specimens in the collection agree exactly with Douglas's plant collected in California, and named by Sir William Hooker.

CUPULIFERÆ.

QUERCUS UNdulata, Torr., in Ann. Lyc., 2, p. 248, t. 4. Abundant on the upper tributaries of the Red River. Stems 1-2 feet long, from a thick woody base, sparingly branched above. Leaves oblong, two inches or more in length, undulate, and furnished with 1-3 rather obtuse and scarcely mucronate teeth on each side, densely and softly pubescent underneath, nearly smooth above, thick and somewhat coriaceous.

CONIFERÆ.

JUNIPERUS VIRGINIANA, Linn.; Michx. f. Sylv. 2, p. 353, t. 155; Torr., Fl. N. York, 2, p. 235. *J. sabina*, Hook., Fl. Bor.-Am. 2, p. 166. Middle Fork of Red River.

HYPOXIDACEÆ.

HYPOXIS ERECTA, Linn.; Bart, Fl. N. Amer., 1, t. 35, f. 1; Torr., Fl. N. York, 2, p. 289. Headwaters of the Trinity River; May.

COMMELYNACEÆ.

COMMELYNIA ANGUSTIFOLIA, Linn.; Kunth, Enum. 4, p. 53; Torr., Fl. N. York, 2, p. 332. North Fork of Red River; May-June.

TRADESCANTIA VIRGINICA, Linn.; Bot. Mag., t. 105; Bart. l. c., t. 41; Kunth, Enum. 4, p. 81; Torr., Fl. N. York, 2, p. 333. Abundant on the upper tributaries of Red River; May-June; extremely variable in pubescence, and in the breadth of the leaves.

IRIDACEÆ.

SISYRINCHIUM BERMUDIANA, Linn.; Torr., Fl. N. York, 2, p. 290. Headwaters of the Trinity; May.

NEMASTYLIS ACUTA; with the preceding.

LILIACEÆ.

SCILLA ESCULENTA, Ker. Bot. Mag., t. 1574. *Phalangium esculentum*, Nutt., in Fras. Cat. 1813, Gen. 1, p. 219. *P. Quamash*, Pursh, Fl. 1, p. 226. Headwaters of the Trinity; May.

ALLIUM CANADENSE, Kalm; Pursh, Fl. 1, p. 223; Kunth, Enum. 4, p. 450; Torr., Fl. N. York, 2, p. 308. On Cache Creek; fl. May 14.

A. OCHROLEUCUM, Nutt. Trans. Amer. Phil. Soc. (n. ser.) 5, p. 156; not of Waldst. and Kit. Headwaters of the Trinity; May.

A. RETICULATUM, Fras? Kunth, Enum. 4, p. 435. *A. angulosum*, β . *lenchorhizum*, Nutt. l. c.? Common on the tributaries of Red River. Bulb usually covered with dark reticulated coats, but sometimes naked.

MELANTHACEÆ.

AMIANTHIUM NUTTALII, Gray, in Ann. Lyc. N. York, 4, p. 123. *Helonias angustifolia*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 154. *Amiantanthus*, Kunth, Enum. 4, p. 181. Headwaters of the Trinity; May.

CYPERACEÆ.

CYPERUS SCHWEINITZII, Torr. Cyp., p. 276; Fl. N. York, 2, p. 343. *C. alterniflorus*, Schwein., in Long's 2d Exped., 2, p. 381 (not of R. Br.) Middle and North Forks of Red River; May-June.

C. STRIGOSUS, Linn.; Torr., Cyp., p. 261; Fl. N. York, 2, p. 340, t. 136. Wichita Mountains; July.

CYPERUS ACUMINATUS, Torr. and Hook., in Torr. Cyp. Suppl. Wichita Mountains; July 15.

FIMBRISTYLIS SPADICEA, Vahl, Enum, 2, p. 294; Torr. Cyp., p. 346; Kunth, Enum, 2, p. 237; Torr. Fl. N. York, 2, p. 360. Headwaters of the Trinity; May.

CAREX MUHLENBERGH, Schk. Car. 2, p. 12, f. 178; Schwein. and Torr. Car., p. 304; Torr. Fl. N. York, 2, p. 374. Headwaters of the Trinity, and on Cache Creek; May-June.

C. FESTUCACEA, Schk. Car. f. 173; Carey, in Gray's Bot. N. States, p. 545. *C. straminea*, var. *festucea*, Torr. l. c. With the preceding.

GRAMINEÆ.

PHALARIS ANGUSTA, Nees; Trin. Ic. Gram. t. 78; Kunth, Gram. 2, p. 32. *P. occidentalis*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 144. On Cache Creek; May 16. This plant is certainly *P. angusta* of Trinius, of which I have specimens named by that distinguished botanist. It appears, however, scarcely to differ from *P. microstachya*, DC.

PASPALUM LÆVE, Michx. Fl. 1, p. 44; Trin. Panic. Gen., p. 160; Torr., Fl. N. York, 2, p. 421. Main Fork of Red River; June.

PANICUM PAUCIFLORUM, Ell. Sk. 1, p. 120; Gray, Bot. N. States, p. 613. Headwaters of the Trinity; May.

P. RETICULATUM, (n. sp.): culmo geniculato erecto subsimplici; foliis vaginisque laxè pilosis; panicula oblonga contracta, ramulis racemosis paucifloris; spiculis obovatis acutiusculis glabris breviter pedicellatis muticis; glumis valde inæqualibus; flore neutro bivalvi; palea inferiore (ut in gluma superiora) 7-costulata reticulata, flore hermaphrodito transverse ruguloso. On the Main Fork of Red River; July. Nos. 2090 and 2091, Wright's Coll. N. Mex. 1851-52, are glabrous and more robust forms of this species.

P. OBTUSUM, (H. B. K.?) spicis 5-7 racemosim dispositis erectis; spiculis geminis subimbricatis unilateralibus muticis obovatis obtusis glabris; glumis æqualibus multinerviis; flore inferiore triandro bipaleaceo; flore hermaphrodito subtilissime longitudinaliter striato subnitido.—H. B. and Kunth, Nov. Gen. 1, p. 98? Tributaries of the Washita. Plant glabrous and glaucous, about 18 inches long. Rachis narrowly linear, very flexuous; nerves of the glumes green. Near *P. obtusum*, H. B. K., but differs in the nearly equal glumes, &c. No. 2092 Wright's Coll. N. Mex. 1851-52, is exactly our plant.

ARISTIDA FASCICULATA, Torr., in Ann. Lyc. N. York, 2, p. 154; Kunth, Enum. 2, p. 196. *A. purpurea*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 145. Middle Fork of Red River; May-June.

AGROSTIS (SPOROBOLUS) AIROIDES, Torr. in Ann. Lyc. N. York, 2, p. 151. With the preceding. The axils of the panicle are nearly glabrous in Captain Marcy's specimens.

CALAMAGROSTIS GIGANTEA, Nutt. l. c., p. 143. Middle Fork of Red River; June 23.

CHLORIS VERTICILLATA, Nutt. l. c. With the preceding; June 25. An elegant grass, near *C. alba*, Presl. and Torr. in Emory's Rep. p. 153.

BOUTELOUA RACEMOSA, Lag. Var. Cienc. (1805) p. 141; Torr. in Emory's Rep., p. 154; not of Torr. Fl. N. York. *Dinebra curtispindula*, DC.? Kunth, Syn. Pl. Eq. 1, p. 281; excl. syn. Michx. *Eutriana curtispindula*, Trin. Fund. p. 161 (in part;); Kunth, Enum. 1, p. 280, and Suppl. p. 233; excl. syn. Michx. and Willd. Main Fork of Red River; July. The detailed description of this species by Kunth, l. c., (drawn from a Mexican specimen collected by Humboldt) shows that the *Chloris curtispindula* of Michaux (*Bouteloua curtispindula*, Torr.) is a distinct species, as indicated in Emory's Report, l. c.

CHONDROSIUM OLIGOSTACHYUM. *Atheropogon oligostachyum*, Nutt. Gen. 1, p. 78; Torr. in Sill. Jour. 4, p. 58. *Eutriana? oligostachya*, Kunth. Gram. 1, p. 96, ex. Enum. 2, p. 282. Main Fork of Red River; July 2.

C. PAPILLOSUM. *Atheropogon papillosum*, Engelm. in Sill. Jour. 46, p. 104. With the preceding, of which it is perhaps only a variety. The species of *Chondrosium* and *Bouteloua* are known by the name of *Grama Grasses* in New Mexico and Texas.

PLEURAPHIS JAMESII, Torr. in Ann. Lyc. N. York, 1, p. 148, t. 10; Kunth. Enum. 1, p. 285. Main Fork of Red River; July. Kunth (l. c.) asks whether this is not *Hymenothecium quinquesetum* of Lagasca; but the brief description of that author (in Gen. et. Sp. Pl. Nov. 1816) does not agree with our plant.

SESLERIA DACTYLOIDES, Nutt. Gen. 1, p. 65; Kunth, Enum. 1, p. 323; Torr in Emory's Report, p. 323, t. 10. Upper tributaries of the Red river; July This is the well known Buffalo-grass of the western prairies. It is remarkable that neither the grain nor the fertile flowers of this grass are known.

POA (ERAGROSTIS) OXYLEPIS. *P. interrupta*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 146; not of Lam. Witchita mountains; July. A very neat grass. The specimens of Captain Marcy are only about 18 inches high.

P. ERAGROSTIS. Linn.: Kunth, Enum. 1, p. 333; Torr. Fl. N. York, 2, p. 458. North Fork of Red river; July.

P. ARACHNIFERA: panicula oblonga contracta, ramulis semiverticillatis; spicis subquinquefloris, lato-ovatis, floribus laxis basi et racheos longe lanoso-arachnoideis; glumis inequalibus anguste-lanceolatis, in carina scabris; palea inferiore lineari-lanceolata acutissima obscure 3-5-nervata, carina inferne ciliata.

♂? spiculis 9-10 floris, rachi sparsa lanosa. Headwaters of the Trinity; May.

MELICA GLABRA, Michx. Fl. 1, p. 62. Witchita mountains; May 30.

KOELERIA CRISTATA, Pers. Syn. 1, p. 97; Kunth, Enum. 1, p. 381. *K. nitida*, Nutt. Gen. 1, p. 74. *K. tuberosa*, Nutt. in Amer. Phil. Trans. (n. ser.) 5, p. 148. Headwaters of the Trinity.

FESTUCA NUTANS, Willd., Enum. 1, p. 116; Kunth, Enum. 1, p. 407; Torr. Fl. N. York, 2, p. 471, t. 158. Witchita mountains; June.

F. TENELLA, Willd. l. c.; Kunth, Enum. 1, p. 397; Torr., Fl. N. York, 2, p. 470, t. 154. Headwaters of the Trinity; taller than the plant of the Atlantic States.

UNIOLA LATIFOLIA, Michx., Fl. 1, p. 71; Ell. Sk. 1, p. 167; Kunth, Enum. 1, p. 425. Witchita mountains; July. A tall showy grass, with very large much compressed spikelets.

U. STRICTA, Torr., in Ann. Lyc. N. York, 1, p. 155. *U. multiflora*, Nutt., in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 148. Washita river to the upper tributaries of the Red river; June-July. No. 2033 Wright's Coll. N. Mex. 1851-52 is the same.

TRITICUM REPENS, Linn.; Kunth, Enum. 1, p. 440; Torr., Fl. N. York; 2, p. 474. Common on the tributaries of Red river; May-June. All the specimens are awnless.

ELYMUS CANADENSIS, Linn.; Kunth, Enum. 1, p. 451; Torr., Fl. N. York, 2, p. 476. *E. glaucifolius*, Willd. Cache creek, &c.; June.

HORDEUM JUBATUM, Linn.; Torr., Fl. Mid. and N. States, 1, p. 158; Kunth, Enum. 1, p. 457. Tributaries of Red river.

H. PUSILLUM, Nutt. Gen. 1, p. 87, and Trans. Amer. Phil. Soc. (n. ser.) 5, p. 151; Kunth, Enum. 1, p. 457.

TRIPSACUM DACTYLOIDES, Linn.; Michx. Fl. 1, p. 61; Nutt. l. c.; Kunth, Enum. 1, p. 469. North Fork of Red river; June.

ANDROPOGON JAMESII. *A. glaucum*, Torr., in Ann. Lyc. N. York, 1, p. 153; not of Muhl. With the preceding.

EQUISETACEÆ.

EQUISETUM HYEMALE, Linn.; Pursh, Fl. 2, p. 652; Torr., Fl. New York, 2, p. 482. Main Fork of Red river.

The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is equivalent to a certain boundary value problem for a system of partial differential equations. The second part is devoted to the construction of a fundamental system of solutions of this system. The third part is devoted to the construction of a particular solution of the system. The fourth part is devoted to the construction of the general solution of the system.

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EXPLANATION OF PLATES.

Plate I. ANEMONE CAROLINIANA.

Fig. 1, a stamen, magnified; fig. 2, a head of pistils; fig. 3, a head of ripe achenia, both magnified; fig. 4, a single achenium, more enlarged.

Plate II. DYTHYRÆA WISLIZENI.

Fig. 1, a flower, magnified; fig. 2, the pistil, more enlarged; fig. 3, a ripe pod, with one cell opened, to show the seed—also magnified; fig. 4, the embryo, more magnified.

Plate III. GERANIUM FREMONTII.*

Plate IV. HOFFMANSEGGIA JAMESII.

Fig. 1, a flower; fig. 2, a pod; fig. 3, seed—all moderately magnified.

Plate V. SANGUISORBA ANNUA.

Fig. 1, a flower; fig. 2, the fruit—both magnified.

Plate VI. ERYNGIUM DIFFUSUM.

Fig. 1, a separate leaf; fig. 2, a flower; fig. 3, a petal; fig. 4, the ovary, with the styles and three of the sepals; fig. 5, front view of a stamen and sepal; fig. 6, side view of the same—all but fig. 1 more or less magnified.

Plate VII. EURYTÆNIA TEXANA.

Fig. 1, a mericarp, magnified; fig. 2, transverse section of the same, more magnified.

Plate VIII. LIATRIS ACIDOTA.

Fig. 1, head of flowers, moderately magnified; fig. 2, a single flower, more enlarged; fig. 3, a single bristle of the pappus, still more enlarged.

Plate IX. APHANOSTEPHUS RAMOSISSIMUS.

Fig. 1, a ray-flower; fig. 2, a disk-flower; fig. 3, style of the same; fig. 4, achenium, with its coroniform pappus—all magnified.

* This species was not found by Captain Marcy, but it grows in the region that he explored. The plate was prepared for another government report, which was never published.

Plate X. XANTHISMA TEXANA.

Fig. 1-3, scales of the involucre ; fig. 4, a disk-flower ; fig. 5, achenium and pappus of the same ; fig. 6, ray-flower ; fig. 7, style of the disk-flower—all magnified.

Plate XI. ENGELMANNIA PINNATIFIDA.

Fig. 1, a ray-flower, with an inner involucreal scale ; fig. 2, style of the same ; fig. 3, a disk-flower ; fig. 4, style of the same ; fig. 5, an achenium—all magnified.

Plate XII. ARTIMESIA FILIFOLIA.

Fig. 1, portion of a flowering branch, moderately enlarged ; fig. 2, a single head, more magnified ; fig. 3, the same, longitudinally cut and equally magnified ; fig. 4, a disk-flower, and fig. 5, a ray-flower, both more magnified.

Plate XIII. ERYTHREA BEYRICHI.

Fig. 1, a flower, magnified ; fig. 2, a capsule.

Plate XIV. HELIOTROPIMUM TENELLUM.

Fig. 1, the calyx ; fig. 2, corollo, showing its æstivation ; fig. 3, the same, expanded ; fig. 4, the same, laid open ; fig. 5, fruit ; fig. 6 longitudinal section of the seed—all magnified.

Plate XV. EUPLOCA CONVOLVULACEA.

Fig. 1, a flower, moderately magnified ; fig. 2, the same, laid open and equally magnified ; fig. 3, the stamens, more magnified ; fig. 4, a single stamen, still more magnified ; fig. 5, the pistil, equally magnified ; fig. 6, fruit, with the persistent style ; fig. 7, transverse section of the same, equally enlarged ; fig. 8, longitudinal section of a seed, more magnified.

Plate XVI. PENSTEMON AMBIGUUS.

Fig. 1, a flower, moderately magnified ; fig. 2, the stamens and a portion of the corolla, more enlarged ; fig. 3, the pistil, equally magnified ; fig. 4, capsule twice the natural size, and dehiscent.

Plate XVII. LIPPIA CUNEIFOLIA.

Fig. 1, a bract ; fig. 2, a flower ; fig. 3, the calyx ; fig. 4, the corolla, cut longitudinally, showing the stamens and pistil—all moderately magnified ; fig. 5, the pistil, longitudinally cut, more enlarged.

Plate XVIII. *ABRONIA CYCLOPTERA*.

Fig. 1, involucre, somewhat magnified; fig. 2, fruit of the natural size; fig. 3, transverse section of the fruit, magnified; fig. 4, an achenium, magnified; fig. 5, transverse section of the same, also magnified; fig. 6, the embryo.

Plate XIX. *POA INTERRUPTA*.

Fig. 1, a spikelet; fig. 2, single flower; fig. 3, a caryopsis—all magnified.

Plate XX. *UNIOLA STRICTA*.

Fig. 1, a spikelet, magnified.



Ackerman, Litho & Brodway N. Y.

ANEMONE CAROLINIANA.



Skerman et al. Proc. Bot. NY

DITHYREA WISLIZENI



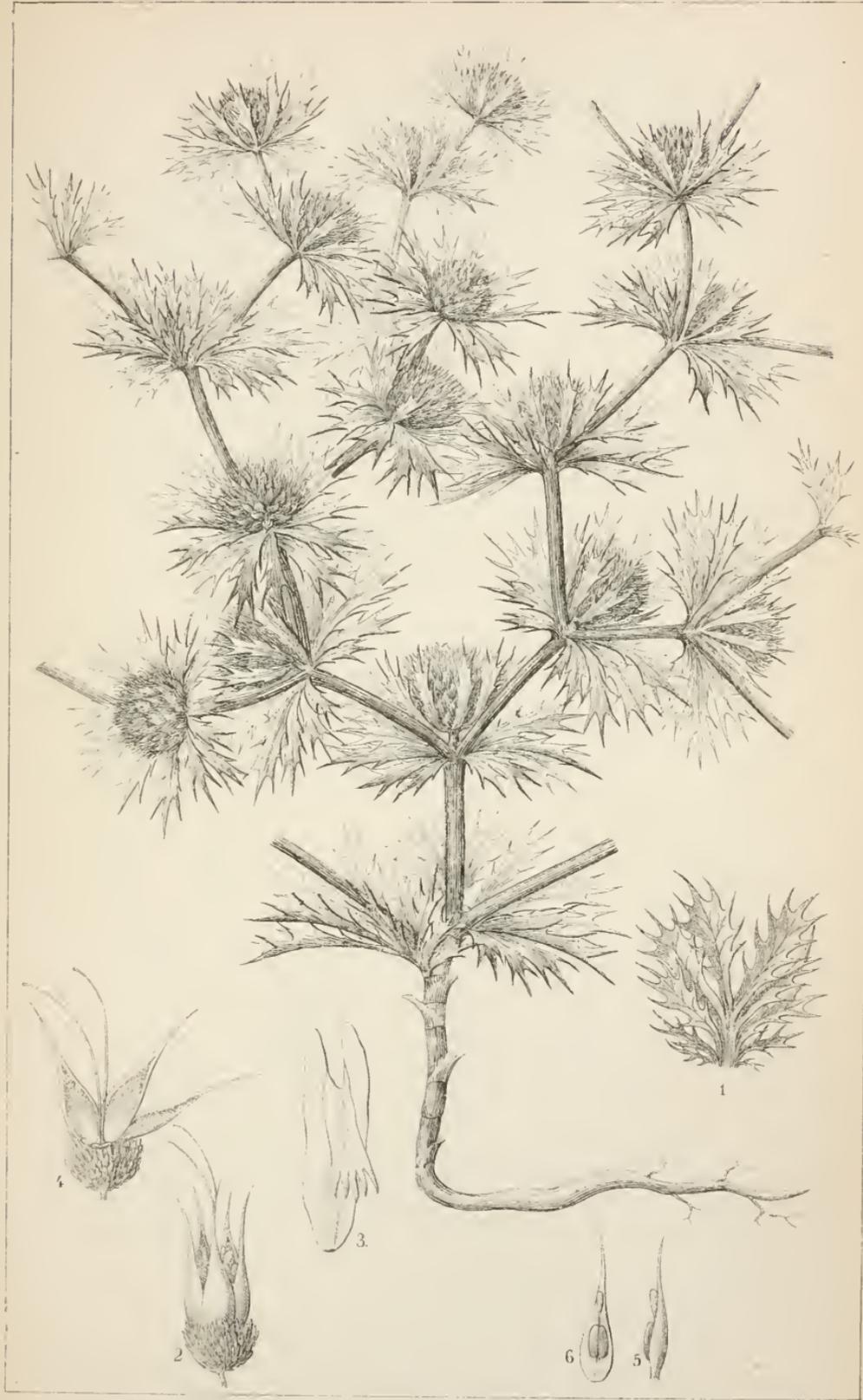
Ackerman Lith 379 Broadway NY

GERANIUM FREMONTII.



SANGUISORBA ANNUA

Ackerman Lith 475 Broadway NY



ERYNGIUM DIFFUSUM.

Ackerman Lith 379 Broadway NY



Abraham Lincoln Brewster

EURYTÆNIA TEXANA



AckermanLith379BroadwayNY

LIATRIS ACIDOTA



APHANOSTEPHUS RACIOSISSIMUS.

A. Kerner Lith. Br. & W. y. M.



ANTHUS ALBA

W. & A. G. B. 1840



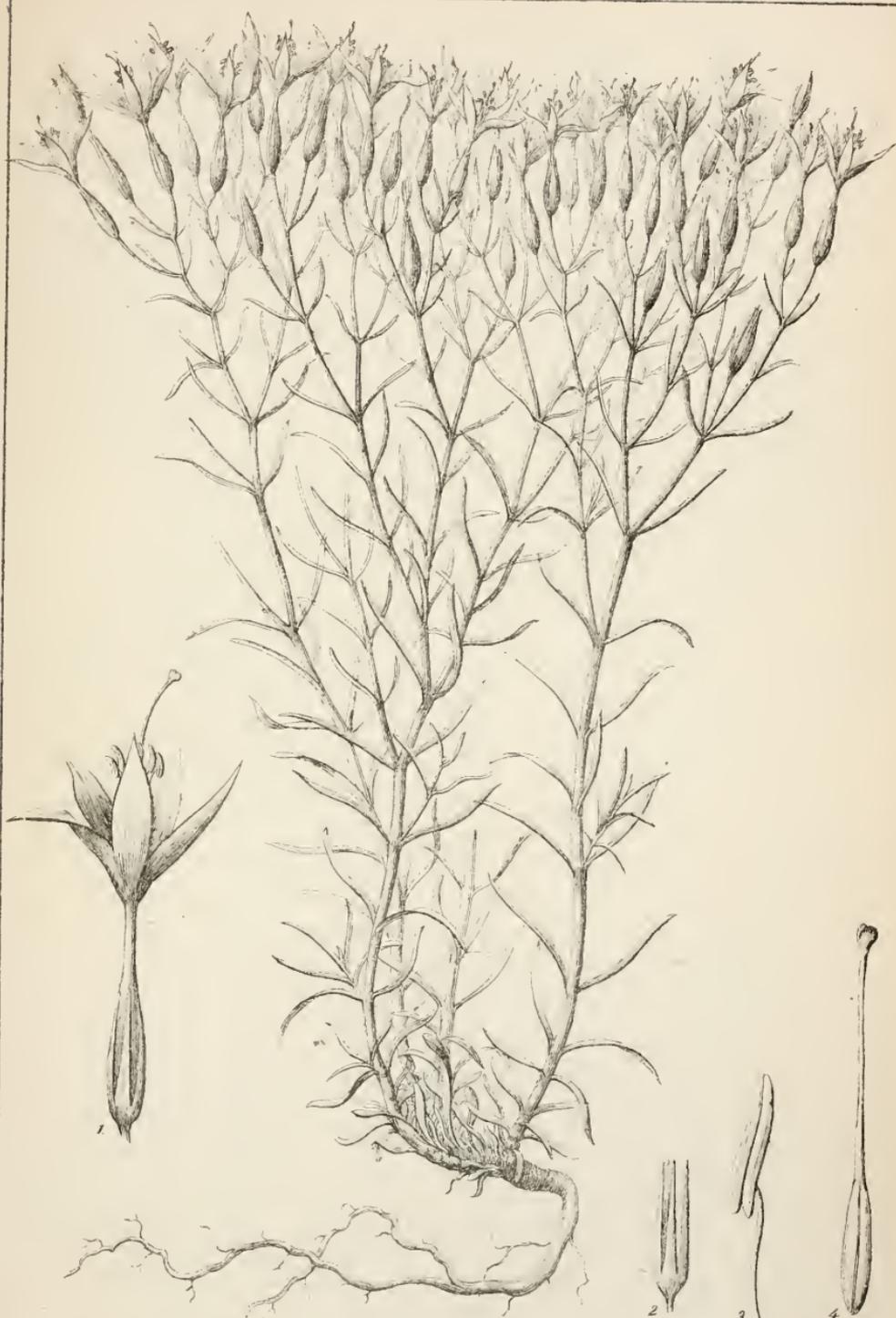
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ENGELMANNIA PINNATIFIDA.



Ackerman Lith. N. B. Wood, N. Y.

ARTEMISIA FILIFOLIA.



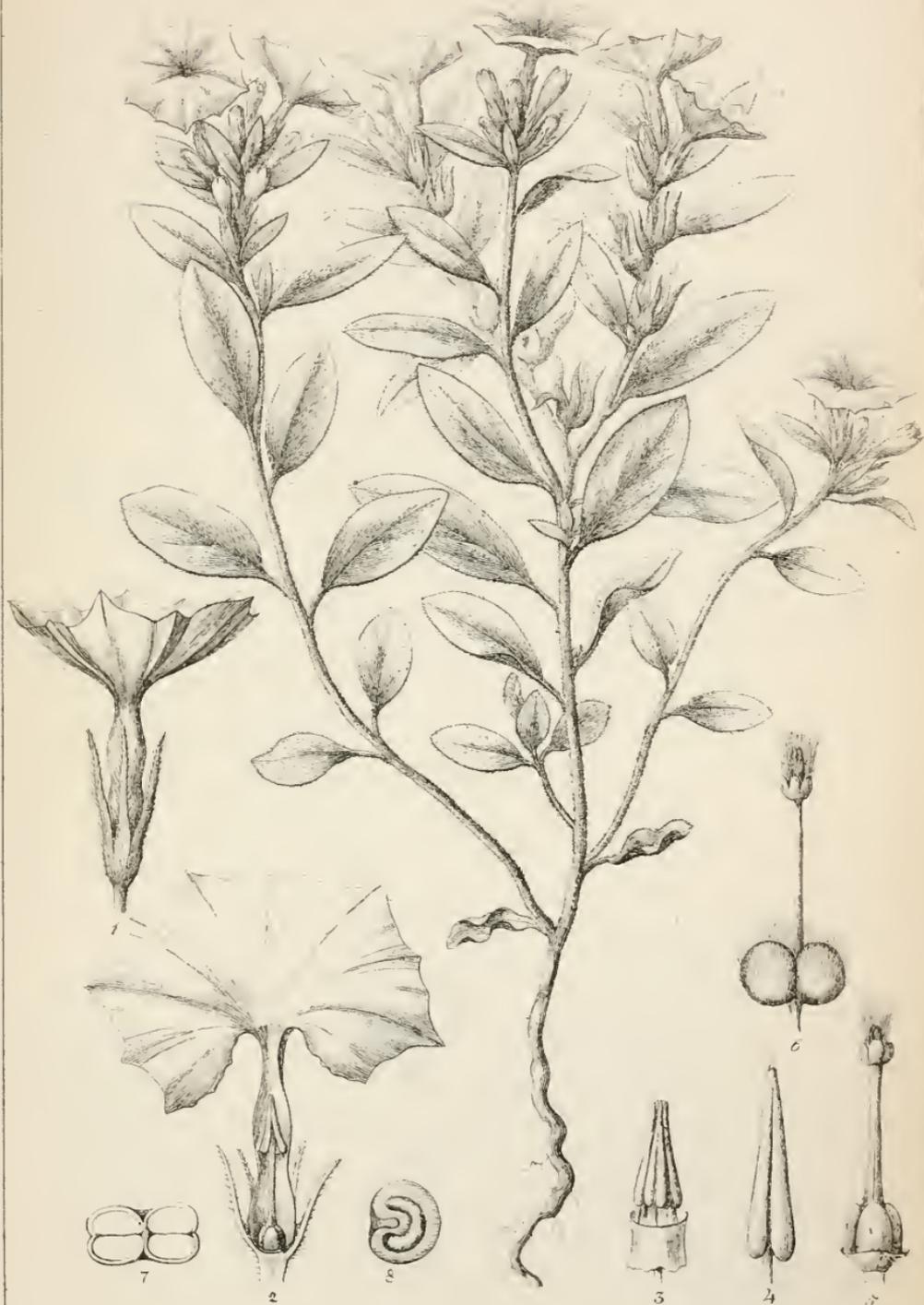
A. Kermanshah. Bot. Beyr. 1871. t. 1.

ERYTHRAEA BEYRICHI



HELIOTROPIUM TENELLUM

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A. Kernan Lith 37. Broa twy NY

EUPLOCA CONVULVACEA.



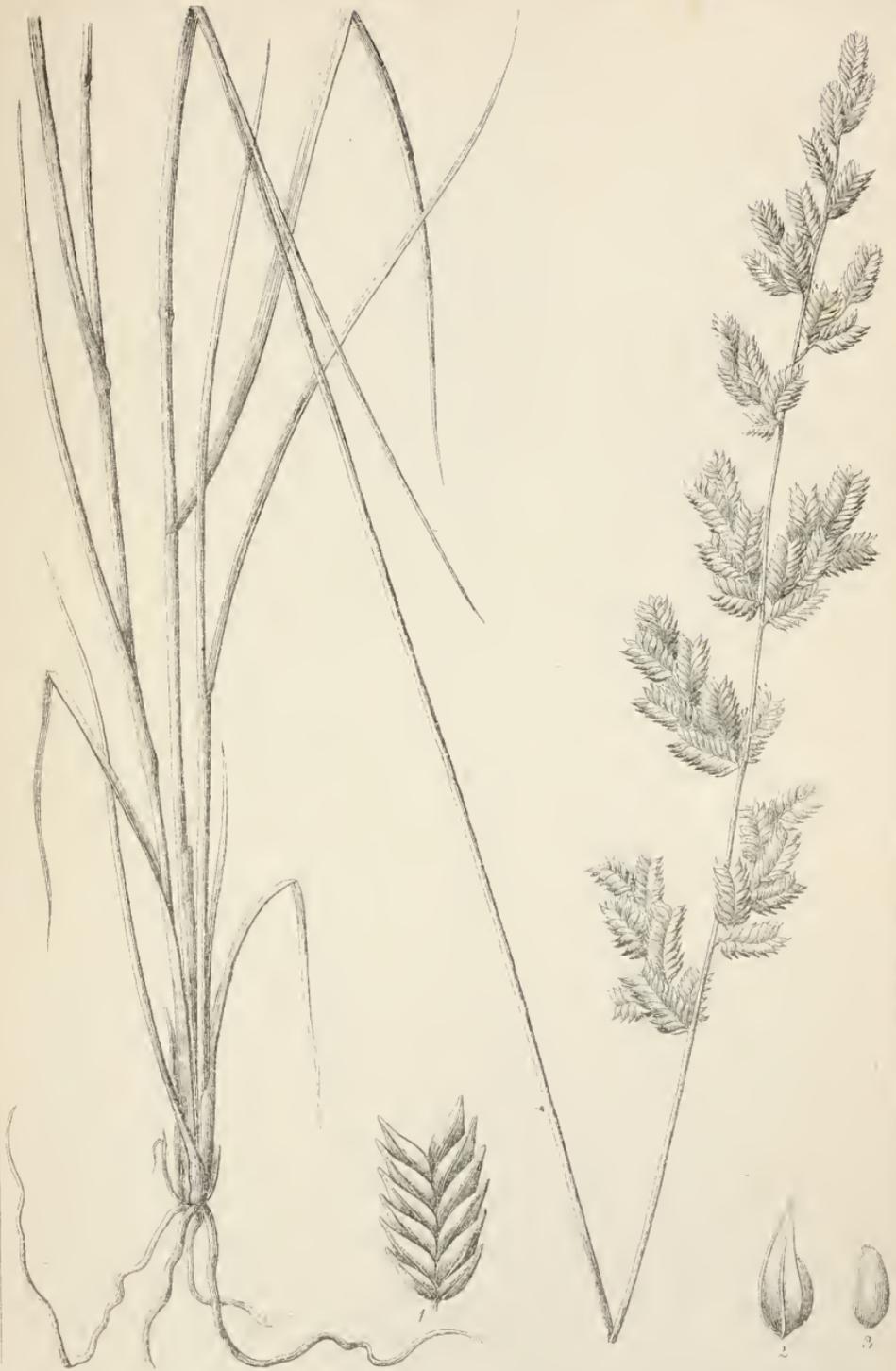
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PENTSTEMÓN AMBIGUUM.



Ackerman Lith 379 Broadway NY

LIPPIA CUNEIFOLIA.



Arkenon, Lathrop, Broadway, N.Y.

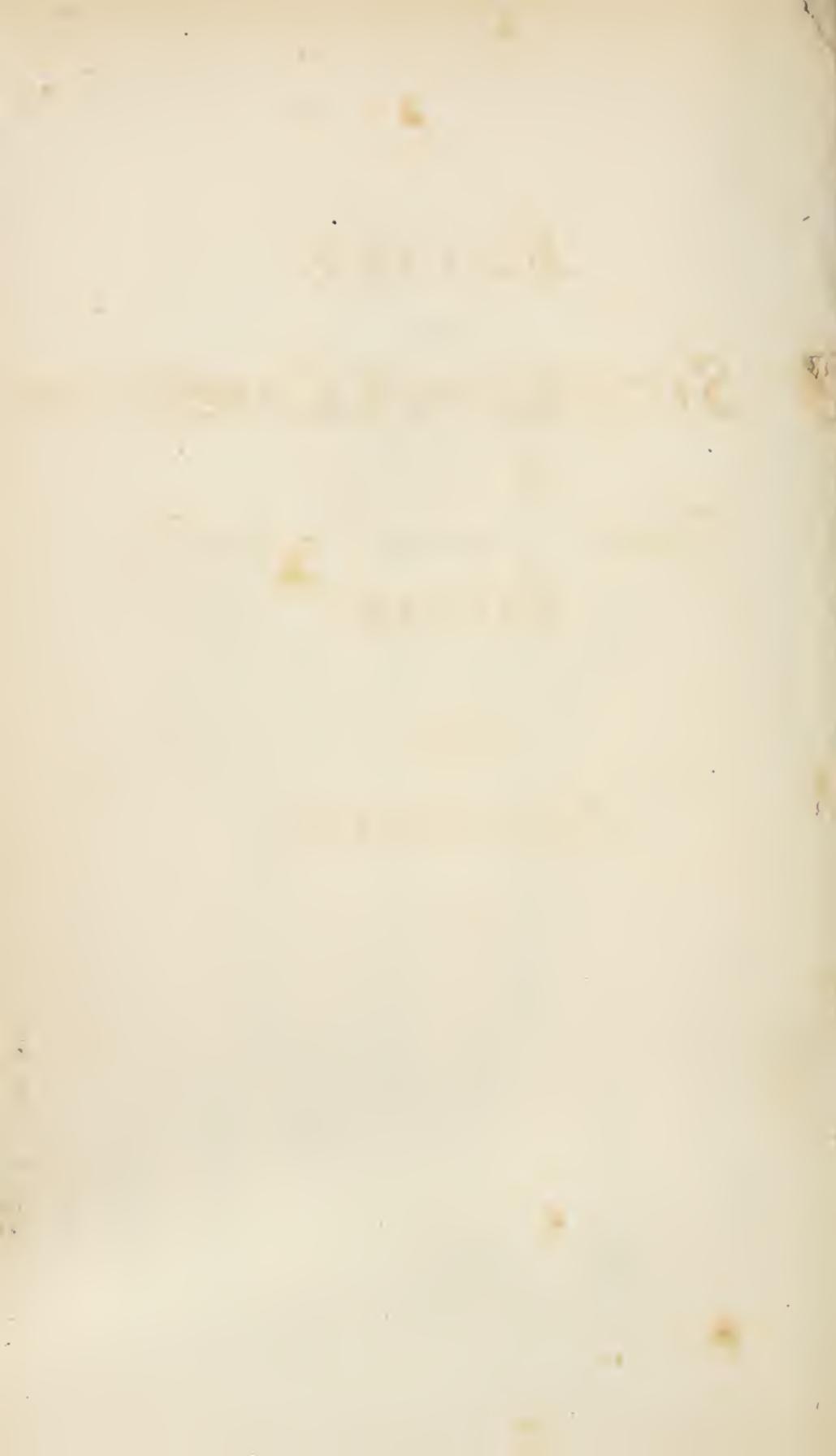
POA INTERRUPTA





Ackerman Lith 379 Broadway N Y

UNIOLA STRICTA.



(No 6)

BOTANY
OF
SITGREAVES EXPEDITION
DOWN THE
ZUNI AND COLORADO
RIVERS

—○—

JOHN TORREY

T

Box 108

STEFAN AND KATE

1910

1911

1912

1913

1914

BOTANY.

BY PROFESSOR JOHN TORREY.

RANUNCULACEÆ.

Clematis ligusticifolia, Nutt., in Torr. and Gray, Fl. 1, p. 9; Gray Pl. Fendl., p. 3. San Francisco mountain; October.

Delphinium azureum, Michx. ; Torr. and Gray, l. c. Zuñi mountain: August; and Laguna Encinatio; October.

Thalictrum Fendleri, Engelm., in Pl. Fendl., p. 5; Gray, Pl. Wright. 2, p. 7. Rio Zuñi; August, (fem. plant.) Bill Williams's river, October. A very distinct species.

BERBERIDACEÆ.

Berberis pinnata, Lagasca, Eleuch., p. 6; Torr. in Emory's report, p. 136. *B. fascicularis*, D. C. Syst. 2, p. 19.

Southern border of New Mexico; in fruit, October. Our specimens have much smaller leaves than are represented in Delessert's figure, (Icon. 2, t. 3,) and the leaflets are not more than three pairs. The same plant was collected by Frémont in northern California, and by Emory on the highlands bordering the Gila.

CRUCIFERÆ.

Turritis patula, Graham; Torr. and Gray, Fl. 2, p. 79; Gray, Pl. Wright. 2, p. 10. San Francisco mountain; October, (fruit.) Dr. Gray states (l. c.) that *Streptanthus virgatus* Nutt. is not distinct from this species.

Vesicaria stenophylla, Gray, Pl. Lindh., 2, p. 149, (adult.) Rio Zuñi; September.

Streptanthus linearifolius, Gray, Pl. Fendl., p. 7; Pl. Wright. 1, p. 7; Pl. Wright. 2, p. 10. Zuñi mountain; August. The root is perennial. The flowers are quite showy.

Thelypodium Wrightii, Gray, Pl. Wright. 1, p. 7, and 2, p. 12. Acoma; August.

Dithyrea Wislizeni, Engelm., in Wislizen. Mem. N. Mex., p. 96; Gray, Pl. Wright. 1, p. 10. Rio Zuñi; September.

Stanleya integrifolia, James, in Long's first exped., 2, p. 17; Torr., in Am. Lyc., N. York, 2, p. 166; Torr. and Gray, Fl. 1, p. 97.

On the Zuñi and Little Colorado rivers; September, October. It is possible that both this species and *S. heterophylla*, Linn., are only states of *S. pinnatifida*, Nutt.

CAPPARIDACEÆ.

Cleome integrifolia, Torr. and Gray, Fl. 1, p. 122; Gray, Gen. Ill., t. 76. Inscription Rock, New Mexico; August.

PORTULACACEÆ.

Portulaca oleracea, Linn.; Engelm., in Gray Plant. Lindheim. 2, p. 154, (in adnot.) Rio Zuñi; September.

Talinum brevifolium, (n. sp.) radice crasso; caule erecto patulo folioso; foliis angusto-spathulatis carnosis, obtusis; floribus axillaribus terminalibusque solitariis; pedunculis brevissimis; sepalis ovatis obtusis; petalis obovatis; staminibus sub-20; seminibus lævibus.

On the Little Colorado; September. Root very thick, and somewhat branching; stem 2-5 inches high, with numerous simple spreading branches; leaves 6-8 lines long, 5½-2 lines wide, crowded; flowers, few toward the summit of the branches, about as large as in *S. teretifolium*; the peduncles erect in fruit; sepals broadly ovate, veined; style about as long as the ovary, three-cleft at the summit; seeds quite even, scarcely shining.

MALVACEÆ.

Sidalcea malvaeflora, Gray, Pl. Wright. 1, p. 16. *S. Neo-Mexicana*, Gray, Pl. Fendl., p. 23. *Sida malvaeflora*, Moç. and Sesse. Laguna Creek, to the western borders of New Mexico; August, October.

Sphæralcea incana, var. *oblongifolia*, Gray, Pl., Wright. 2, p. 21. Inscription Rock; August.

LINACEÆ.

Linum perenne, Linn.; Torr. and Gray, Fl. 1, p. 204. Zuñi mountains; August.

GERANIACEÆ.

Geranium cespitosum, James, in Long's Exped. 2, p. 3; Gray, Pl. Fendl., p. 25. On the Zuñi and San Francisco mountains, New Mexico; August, October.

This rare species first discovered about thirty years ago, by Dr. James, and was not found again for more than a quarter of a century, when Fendler collected it near Santa Fé.

ZYGOPHYLLACEÆ.

Kallstrømeria maxima, Torr. and Gray, Fl. 1, p. 213. On the Zuñi and Little Colorado rivers; September.

VITACEÆ.

Vitis astivalis, Michx. Fl., 2, p. 230; Torr. and Gray, Fl. 1, p. 244. Yampai creek.

Ampelopsis quinquefolia, Michx. Fl. l. e.; Torr. and Gray, l. c. With the preceding. This plant has not been found before so far west.

RHAMNACEÆ.

Frangula Californica, Gray, Gen. Ill., 2, p. 178. *Rhamnus tomentellus*, Benth. *R. oleifolius*, Hook. Fl. Bor. Amer., 1, p. 223. Yampai river.

Ceanothus Fendleri, Gray, Pl. Fendl., p. 29, San Francisco mountain.

There are neither flowers nor fruit on our specimens. The leaves are larger than in Fendler's plant, some of them being more than an inch long.

ANACARDIACEÆ.

Rhus trilobata, Nutt. in Torr. and Gray, Fl. 1, p. 219, ; Gray, Pl. Fendl., p. 28. Western limits of New Mexico. Leaves and young branches clothed with a dense velvety pubescence.

LEGUMINOSÆ.

Vicia pulchella, H. B. K.? Gray, Pl. Wright. 2, p. 32. Laguna Enematio; October.

The specimens in this collection wholly agree with those numbered 943, Pl. Wright II.

Lathyrus polymorphus, Nutt.; Torr. and Gray, Fl. 1, p. 277; Gray, Pl. Fendl., p. 30. Rio Zuñi; September.

L. linearis, Nutt., in Torr., and Gray, Fl. l. c.; Gray, Pl. 2, p. 32. Zuñi mountain; August.

L. palustris, Linn.? var. *foliis elongatis*, &c., Gray, Pl. Wright. 2, p. 32. Inscription Rock; August.

Our plant is exactly like Wright's 946, 1851. Some of the leaflets are nearly four inches long, and scarcely two lines wide.

L. myrtifolius, Muhl. ; Torr. and Gray, Fl. 1, p. 275. Laguna Enematio ; October.

Phaseolus leiospermus, Torr. and Gray, Fl. 1, p. 280. Laguna Enematio.

Psoralea floribunda, Nutt., in Torr. and Gray, Fl. 1, p. 300. Zuñi mountain ; August ; and Bill Williams's river ; October.

Amorpha fruticosa, Linn ; Torr. and Gray, Fl. 1, p. 305. Bill Williams's river ; not in flower.

Eysenhardtia amorphoides, H. B. K. ; Gray, Pl. Lindh., 2, p. 173 ; and Pl. Wright. 1, p. 45. Rio Zuñi.

Glycyrrhiza lepidota, Nutt. Gen. 2, p. 106 ; Torr. and Gray, Fl. 1, p. 298. Rio Laguna ; August, (fruit.)

Trifolium involucratum, Willd. ; D. C. Prodr., 2, p. 204 ; Gray, Plant. Fendl., p. 33. Laguna Enematio ; October.

T. tridentatum, Lindl. Bot. Reg., t. 1070. *T. involucratum*, Torr. and Gray, Fl. 1, p. 318, non. Willd. Ojo Pescado, on the Zuñi ; August.

Hosackia Wrightii, Gray, Pl. Wright. 2, p. 43. Laguna Enematio and San Francisco mountains ; October.

The peduncles of all the flowers in our specimens are extremely short. The stem is suffrutescent.

Oxytropis Lamberti, Pursh ; Torr. and Gray, Fl. 1, p. 339. San Francisco mountain ; October.

Astragalus Fendleri, Gray, Pl. Wright., 2, p. 45. *Phaca Fendleri*, Gray, Pl. Fendl., p. 36. Western borders of New Mexico ; October, (in fruit.)

A. Missouriensis, Nutt. Gen. 2, p. 99 ; Torr. and Gray, Fl. 1, p. 331. On the Rio Grande, below Doña Ana ; July.

Lupinus Mexicanus, Lagasca ; Gray, Pl. Wright. 2, p. 49. San Francisco mountain ; October.

Our specimens agree very well with Wright's 1020 of Coll., 1851.

L. pusillus, Pursh ; Torr. and Gray, Fl. 9, p. 374. Zuñi mountains ; August.

Algarobia glandulosa, Torr. and Gray, Fl. 1, p. 399 ; Gray, Pl. Wright. 1, p. 60. On the Rio Colorado ; November.

Acacia Greggii, Gray, Pl. Wright. 1, p. 65. On Yampai creek. The specimens are without flowers or fruit.

Strombocarpa odorata, *Prosopis odorata*, Torr., in Frem. 2d report, 1, p. 313, t. 1. On the Rio Colorado of the west.

ROSACEÆ.

Cercocarpus pavifolius, Nutt., in Torr. and Gray, Fl. 1, p. 427. Bill Williams's river ; October, (fruit.)

Cowania Stansburyana, Torr., in Stansbury's report, t. 3, with the preceding; October, (flower and fruit.)

This species is readily distinguished from *C. Mexicana*, which it much resembles, by the pinnatifid leaves.

Fallugia paradoxa, Torr., in Emory's report, p.—, t. 2, Gray, Pl. Fendl., p. 41; Pl. Wright. 1, p. 68. On the Zuñi and Yampai creek; November, (flowers and fruit.)

Potentilla diffusa, Gray, Pl. Fendl., p. 41. Zuñi mountain; August.

Horkelia? multifoliolata, sp. nov.; glabrescens; follis radicalibus 51-81 foliolatis; foliolis lato-obovatis approximatis, apice 2-4-lobis, vel subintegris; petalis oblongo-cuneiformibus; staminibus 20; carpellis paucis. Western borders of New Mexico; October.

A remarkable species, nearly allied to one collected in Northern California, by the botanist of Captain Wilke's exploring expedition. From *Horkelia* it differs in its numerous stamens and filiform filaments; from *Potentilla* in its campanulate calyx and narrow unguiculate petals; from both in its few carpels, which seldom exceed six in number.

Photinia arbutifolia, Lindl.; Torr. and Gray, Fl. 1, p. 473. Western borders of New Mexico; October, (fruit.)

The leaves, in our only specimen, are rather obtuse, and slightly serrate. The fruit contains but one perfect seed.

Rosa blanda, Ait.; Torr. and Gray, Fl. 1, p. 459; var.? Nearly glabrous; leaflets mostly 9; prickles scattered, slender, slightly curved. Western borders of New Mexico. Our specimens are without flowers or fruit.

ONAGRACEÆ.

Epilobium coloratum, Muhl.; Torr. and Gray, Fl. 1, p. 489. Laguna creek and Zuñi mountains; August; in flower and fruit.

Oenothera biennis, Linn.; Torr. and Gray, Fl. 1, p. 492; Yampai creek; October; in fruit.

O. coronopifolia, Torr. and Gray, Fl. 1, p. 495; Gray, Pl. Fendl., p. 43. Yampai creek; October.

O. Hartwegi, Benth. Pl. Hartw., p. 1, var. foliis angusto linearibus. Little Colorado, September.

Gaura coccinea, Nutt.; Torr. and Gray, Fl. 1, p. 515. Near the puebla of Laguna; August; in fruit.

LOASACEÆ.

Mentzelia (Bartonia) multiflora, Nutt. Pl. Gamb., p. 180; Gray, Pl. Fendl. p. 43, and Pl. Wright. 1, p. 74. Western part of New Mexico. The only specimen is in fruit; which is urecolate turbinate.

GROSSULACEÆ.

Ribes irriguum, Dougl. in Hort. Trans., 7, p. 516; Torr. and Gray, Fl. 1, p. 547. San Francisco mountain.

R. cercum, Dougl. l. c.; Torr. and Gray, l. c. Zúñi mountains; August; in flower and fruit.

R. aureum, Pursh, Fl. 1, p. 164; Torr. and Gray, l. c. On Yampai creek.

SAXIFRAGACEÆ.

Heuchera rubescens, Torr. in Stanb. Rep. p. 388, t. 5; Gray, Pl. Wright. 2, p. 65. Western part of New Mexico; October. The specimens belong to the large form collected by Mr. Wright and described by Dr. Gray, (l. c.)

UMBELLIFERÆ.

Berula angustifolia, Koch, Fl. Germ. and Helv. 2, p. 317? Gray, Pl. Fendl. p. 55, and Pl. Wright. 2, p. 65. *Sium pusillum*, Nutt. in Torr. and Gray, Fl. 1, p. 611. *S. ? incisum*, Torr. in Fremont's Rep., p. 90. *Helosciadium? Californicum*, Hook. and Arn. Bot. Beech., p. 142? On the Laguna; August.

This plant is widely diffused through the United States. I have specimens from Michigan, collected by the late Dr. Wright; from East Florida, sent by Mr. Buckley; from Col. Frémont, collected on the north fork of the Platte. Dr. Gray has also, in the works quoted above, enumerated several other stations for it. It was found by Dr. Pickering in Oregon, from whence also Mr. Nuttall obtained his *Sium pusillum*, which is pretty certainly our plant. If the plant of Beechey be the same, then it is also a native of California. I have carefully sought, as Dr. Gray has also done, for characters to distinguish it specifically from the European *B. angustifolia*, but have not found them. The chief differences are the narrower fruit, and the entire (not subincised) leaflets of the involucre.

Peucedanum triternatum, Nutt. in Torr. and Gray, Fl. 1, p. 626. *Seseli biternatum*, Pursh, D. C. Prodr. 4, p. 196; Hook. Fl. Bor. Amer. 1, p. 204, t. 94. Laguna Enematio; October; in flower and fruit.

LORANTHACEÆ.

Phoradendron flavescens, Nutt. in Jour. Acad. Philad., (n. ser.) 1, p. 185; Engelm. in Gray, Pl. Fendl., p. 59, and in Gray, Pl. Lindh. 2, p. 213. *Viscum flavescens*, Pursh, Torr. and Gray, Fl. 1, p. 654. Western part of New Mexico; November.

P. juniperinum, Engelm. in Gray, Pl. Fendl. l. c. Parasitic on Juniperus. Little Colorado, and on the San Francisco mountain.

P. Californicum, Nutt. l. c. Engelm. in Gray, Pl. Lindh. 2, p. 213. Parasitic on Strombocarpus. Colorado of California; November; in fruit.

COMPOSITÆ.

Pectis angustifolia, Torr. in Am. Lyc. Nat. Hist. N. York, 2, p. 62. *Pectidopsis angustifolia*, D. C. Prodr. 7, p. —. On the Rio Zuñi and on a mountain between Acona and Laguna. August, September.

Eupatorium ageratifolium, Torr. and Gray, Fl. 2, p. 90. β . *herbaceum*, Gray, Pl. Wright. 2, p. 74. San Francisco mountain and Laguna Enematio, New Mexico; October. Heads mostly about 20-flowered.

Macharanthera canescens, var. *latifolia*, Gray. Pl. Wright. 2, p. 75. *Dieteria asteroides*, Torr. in Emory's report.

There are three forms of this species in the collection: 1, with several erect stems, a caudex, which bears a dense tuft of leaves, with the scales of the involucre slightly squarrose; 2, with loose assurgent branches and strongly squarrose involucre scales; 3, with small narrow, nearly entire leaves. The first occurs on San Francisco mountain; the second on Yampai creek; and the third along the Colorado. October, November.

Aster pauciflorus, Nutt. Gen. 2, p. 154. Torr. and Fl. 2, p. 164. Rio Laguna; August. This species certainly perennial.

A. angustus, Torr. and Gr. Fl. 2, p. 162. *Tripolium angustum*, Lindh. Diffuse and branching from the root, which is annual. Rio Zuñi, near the Puebla. September.

A. multiflorus, var. *commutatus*. New Mexico; October. This is one of the smaller leaved forms.

Erigeron macranthum, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 310; Torr. and Gray, Fl. 2, p. 173. Zuñi mountain; August.

E. delphinifolium, Willd. Hort. Berol., t. 90; Gray, Pl. Wright. 2, p. 77, with the preceding; Laguna Enematio, &c. September, October.

E. divergens, Torr. and Gr., Fl. 2, p. 175, Gray, Pl. Wr. 1, p. 91. Laguna Enematio; October.

Townsendia strigosa, Nutt. l. c. Gray, Pl. Fendl., p. 70, Rio Zuñi; September.

Gutierrezia Euthamiae, Torr. and Gr. Fl. 2, p. 193. Zuñi mountain; August.

G. microcephala, Gray, Pl. Fendl., p. 74. Rio Zuñi. The heads were mostly two-flowered.

Solidago mollis, Bartl. Gray, Pl. Wright. 2, p. 79. *S. incana*, Torr. and Gr., l. c. San Francisco mountain; October.

Lynosiris pulchella, Gray, Pl. Wright. 1, p. 96. Little Colorado; October.

L. depressa, Nutt. Pl. Gamb. p. 171, (under *Chrysothamnus*.) Mountains of New Mexico; September.

The only specimen in the collection agrees exactly with the description of Nuttall in the work quoted. Mr. N. is still of opinion that his Genus *Chrysothamnus* ought to be retained.

L. graveolens, Torr. and Gr., Fl. 2, p. 234. Near Laguna; August.

Aplopappus spinulosus, D. C., Torr. and Gr., Fl. 2, p. 240. Mountain ridge between Laguna and Acona.

A. Nuttallii, Torr. and Gr. l. c. *Eriocarpum grindeloides*, Nutt. Trans. Amer. Phil. Soc. 7, p. 321. On the Rio Zuni; September.

This well-marked species has not hitherto been found since it was detected by Mr. Nuttall in Oregon.

A. (Pyrocoma) racemosa, Torr. and Gray, Fl. 2, p. 244. *Homopappus racemosus*, Nutt. l. c. On the Laguna; October.

A stout plant, with the heads more than an inch in diameter, the rays inconspicuous, and the achenia glabrous. Hitherto this species has been found only on the plains of the Wahlamet, in Oregon.

Chrysopsis villosa, Nutt. Torr. and Gray, Fl. 2, p. 255. San Francisco mountain, and on the Little Colorado; September.

C. canescens, Torr. and Gr., l. c. Rio Laguna; August.

Baccharis brachyphylla, Gray, Pl. Wright. 2, p. 83, var? *foliis minutis, obovato-spatulatis, vel cuneatis integerrimis vel raro apice utrinque unidentatis, involucre pleurisceratis, squamis lanceolatis obtusiusculis glabris*. Yampai creek; November.

Shrubby, with numerous erect branches, which are covered with a resinous aromatic varnish. Leaves mostly about one-third of an inch long, somewhat appressed, rigid, obtuse; sometimes rather acute, mostly entire. Heads 3-4 lines long, either solitary and terminating the several branches, or several together, and nearly sessile. Involucre hemispherical-turbinate, the scales closely appressed, in four or five series. Achenia glabrous. Pappus pale fulvous, about three times the length of the achenia. Accompanying the specimens, (which were female only,) and adhering to one of them was a linear-lanceolate glabrous entire leaf, nearly three inches in length, which seems to have belonged to the lower part of the plant. A species of *Baccharis* nearly allied to this, but apparently distinct, was collected by Major Emory on the Gila, in 1846, and is one of those alluded to in the botanical appendix to his report. It differs from the plant here described, in its smaller and narrower leaves, larger heads, broader and more obtuse involucre scales, with longer and finer pappus. It is very abundant in the valley of the Gila, forming dense "bunches."

Tessaria borealis, Torr. and Gray, in Emory's rep., p. 143, Gray; Pl. Fendl., p. 75; Pl. Wright. 1, p. 102. On the Colorado; abundant on the sand-banks. The long straight branches are used for arrows by the Indians, whence it is called "arrow-wood" by travellers. November.

Ambrosia psilacthya, D. C., Prodr. 5, p. 526; Gray, Pl. Wright. 1, p. 104. (adult.) Bill Williams's river; October.

Franseria Hookeriana, Nutt.; Torr. and Gray, Fl. 2, p. 294. Near the pueblo of Zuffi; September. The spines of the involucre are broadly lanceolate in many of the heads.

Zinnia grandiflora, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 348; Torr. and Gr. Fl. 2, p. 28; Torr. in Emory's rep., p. 144, t. 4. Rio Zuñi and on the Little Colorado; also on the Rio Laguna; August, October.

Lepachys columnaris, Torr. and Gr., Fl. 2, p. 315. On the Zuñi mountain; August.

Helioneris multiflora, Nutt. in Jour. Acad. Philad. (n. ser.) 1, p. 171; Gray, Pl. Fendl., p. 84. On Zuñi and San Francisco mountain; September, October.

Helianthus lenticularis Dougl. in Bot. Reg. t. 1265; Torr. and Gray, Fl. 2, p. 319. Little Colorado; October.

H. petiolaris, Nutt. in Journ. Acad. Phil. 2, p. 115; Torr. and Gr. l. c. Rio Laguna August. Var. *foliis linearilanceolatis*. With the preceding; September 27.

Helianthella uniflora, Torr. and Gr., Fl. 2, p. 334. *Helianthus uniflorus*, Nutt. in Jour. Acad. Phil. 7, p. 37. Bill Williams's river; October.

Achenia obovate-cuneiform, blackish, about 5 lines long and 2 wide, distinctly winged, ciliate; the intermediate squamellæ acute, lacerate, nearly half as long as the persistent slender awns.

Coreopsis cardaminæfolia, Torr. and Gr., Fl. 2, p. 346; Gray, Pl. Wright. 1, p. 108. Zuñi, near the Puebla; September.

Thelesperma gracile, Gray, in Kew Jour. Bot. 1, p. 352. *Cosmidium gracile*, Torr. and Gray, Fl. 2, p. 250. Rio Laguna. Achenia strongly verrucose on one side.

Saxivitalia Aberti, Gray, Pl. Fendl., p. 87, and Pl. Wright. 1, p. 111. On the Colorado; September. The achenia are wholly awnless in all the specimens of this collection.

Ximenesia encelioides, Cavan. Ic. 2, p. 60; Torr. and Gr. 2, p. 359; Gray, Pl. Fendl., p. 87. Little Colorado and head of the Rio Laguna; September, October.

Gaillardia aristata, Pursh, Fl. 2, p. 573; Torr. and Gr. Fl. 2, p. 366. On the Little Colorado and Zuñi; September.

Hymenopappus flavescens, Gray, Pl. Fendl., p. 97. On the Zuni; September.

Bahia oppositifolia, D. C. Prodr. 5, p. 656; Torr. and Gray, Fl. 2, p. 376; Gray, Pl. Fendl., p. 99. *Trichophyllum oppositifolium*, Nutt. Gen. 2, p. 167. On the Zuñi, near the Puebla; September. A rare species, first detected by Mr. Nuttall on the Upper Missouri, and not found afterwards for more than thirty years.

Riddellia tagetina, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 371; Torr. and Gr. Fl. 2, p. 362; Torr. in Emory's report, t. 5. On the Rio Laguna and Rio Zuñi; also along the Little Colorado; August, October.

Actinella Richardsonii, Nutt. l. c.; Torr. and Gray, Fl. 2, p. 381; Gray, Pl. Fendl., p. 101. San Francisco mountain; October. Rays 3-4 lobed. Pappus nerveless.

A. glabra, Nutt. l. c. Torr. and Gr. l. c. Rio Zuñi ; September.

Hymenothrix? Wrightii, Gray, Pl. Wright. 2, p. 97. New Mexico ; October 21

The particular station of this remarkable species is not recorded. The specimens are scarcely more than a foot high, and the root seems to be annual ; in all other respects, except in the broader lobes of the leaves, the plant agrees with Dr. Gray's description (l. c.) The marginal flowers appear somewhat bilabiate, from the union (sometimes nearly to the summit) of the lobes of the corolla.

Achillea millefolium, Linn. ; Torr. and Gr. Fl. 2, p. 409. Laguna, &c., October.

Artemisia frigida, Willd. ; Torr. and Gr. Fl. 2, p. 424. On the Zuñi mountain ; August.

A. dracunculoides, Pursh, Fl. 2, p. 521 ; Torr. and Gr. l. c. Yampai creek : November.

A. Canadensis, Michx. Fl. 2, p. 129 : Torr. and Gr. l. c. San Francisco mountain ; October.

Senecio filifolius, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 414 : Torr. and Gr. Fl. 2, p. 444. On the Rio Zuñi ; August, September.

Cirsium undulatum, Spreng. : Torr. and Gray, Fl. 2, p. 456. Zuñi mountain and San Francisco mountain ; August, October.

Stephanomeria runcinata, Nutt. l. c. : Torr. and Gray, l. c. New Mexico ; October 24.

ASCLEPIADACEÆ.

Asclepias verticillata ? *leptophylla* : stem slender, with several lines of pubescence, otherwise glabrous, nearly simple ; leaves verticillate in fours, narrowly linear, somewhat revolute on the margin, green on both sides ; the midrib underneath thick and prominent ; peduncles pubescent, shorter than the leaves ; umbels few-flowered ; lobes of the corolla ovate ; hoods ovate on the back, the horn subulate-falciform, exserted ; gynostegium on a short stalk ; follicles lanceolate, slender, glabrous. Rio Laguna ; August. A common New Mexican plant, differing from *A. verticillata* of the Atlantic States in its longer, broader, and far less crowded leaves, fewer-flowered umbels, longer horns, shorter stipe of the gynostegium, &c.

Acerats decumbens, De Caisne in D. C. Prodr. 8, p. 522, Torr. in Emory's report. *Anantherix decumbens*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 202. On the Rio Laguna ; October : in fruit.

GENTIANACEÆ.

Gentiana Saponaria var. *puberula*, Torr. and Gray, in Gray, Bot. N. St. *G. puberula*, Michx. San Francisco mountain : October.

Eustoma Russeliana, G. Don ; Griseb. in D. C. Prodr. 9, p. 51. *Lisianthus glaucifolius*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 197. Valley of the Rio Grande : July.

POLEMONIACEÆ.

Gilia pulchella, Dougl.; Benth. in D. C. Prodr. 9, p. 313. On the San Francisco and Zuñi mountains, New Mexico; August, October.

G. glomeruliflora, Juss.? Benth. l. c.? On the Zuñi river, and in other parts of New Mexico. Fl. and fruit, September, October. There are from 3 to 4 ovules in each cell of the ovary.

G. longiflora, G. Don; Benth. l. c. *Cantua longiflora*, Torr. in Amer. Lyc.; N. York, 2, p. 221. Ojo de Gallis, head of Rio Laguna; August.

Phlox nana, Nutt. Plant. Gambel. p. 153. Laguna Enematio, and other parts of New Mexico; September. A dwarf species, resembling *P. subulata*, but with larger and broader leaves.

FOUQUIERACEÆ.

Fouquieria splendens, Engelm. in Wisliz. Exped., p. 98; Gray, Pl. Wright, I., p. 76, and II., p. 63. *F. spinosa*, Torr. in Emory's rep., p. 147, t. 8; excl. syn. On Carrissa creek, California; December 10, in flower.

A widely diffused species, being found from the San Pedro, in Western Texas, to near the Pacific ocean. Mr. Thurber, of the Mexican boundary survey, found *F. spinosa*, near Rayon, in Sonora, and I have what appears to be *F. formosa* collected by Mr. Rich, in Lower California. It strongly resembles *F. splendens*, except in the looser inflorescence, and the spines are an inch long; while in Kunth's description of *F. formosa* they are said to be "brevissimis." In *Philæteria horrida*, Liebm., however, (which is pretty certainly the same species,) the species are described as from half to two-thirds of an inch long. Liebmann, without being aware that his *Philæteria* was a *Fouquieria*, referred the plant to *Polemoniaceæ*, and long before Willdeman considered *F. spinosa* as a species of *Cantua*; so that several botanists have noticed the resemblance of *Fouquieria* to *Polemoniaceæ*.

HYDROLEACEÆ.

Eriodictyon glutinosum, Benth. Bot. Sulph., p. 35; Chois. in D. C. Prodr. 10, p. 183. *Wigandia? Californica*, Hook. Bot. Beech. Suppl. p. 364, t. 88.

Branches and leaves thickly covered with an aromatic varnish, which is very soluble in alcohol. Yampai creek.

SOLANACEÆ.

Solanum Jamesii, Torr. in Anu. Lyc. N. York, 2, p. 227; Dunal in D. C. Prodr. 13, pars 1, p. 40. Also. *S. pinnatisectum*, Dunal, l. c.? Zuñi mountain; August. Not an uncommon species in New Mexico.

Datura metel, Linn.; Dunal, l. c. Common in New Mexico. Fl. and Fr. August, October. *D. meteloides* of Dunal seems to be scarcely distinct. The alternate teeth of the corolla are often indistinct.

SCROPHULARIACEÆ.

Castilleja pallida, Kth.; Benth. in D. C. Prodr. 10, p. 31. On the Zuñi mountains; August.

Orthocarpus luteus, Nutt. Gen. 2, p. 57; Benth. l. c., with the preceding; August.

Cordylanthus ramosus, Nutt. Mss.; Benth. in D. C. Prodr. 10, p. 597. Laguna Enematio; October. Plant about a span high. It is the same as 450 Wright, Coll. 2, 1849.

Maurandia antirrhiniflora, Willd.; Benth. in D. C., Prodr. 10, p. 296. Acoma, August.

Pentstemon Torreyi, Benth. l. c. On the Zuñi mountains; August. A very showy species, with bright red flowers. Not uncommon in New Mexico.

CONVOLVULACEÆ.

Quamoclit hederifolia, Chois. in D. C. Prodr. 9, p. 336? On the Rio Zuñi; September.

The peduncles are only 2-3 flowered; sepals ovate; obtuse, with an abrupt stout awn about its own length.

Convolvulus lobatus, Engelm. and Gray, Pl. Lindh., 1, p. 44, (in adnot.) *C. hastatus*, Nutt., in Trans. Amer. Phil. Soc., (n. ser.), 5, p. 114. *C. Nuttallii*, Torr., in Emory's report, ed. 1, p. 149. Puebla of Laguna; August.

This species was omitted, by mistake, in the second edition of Emory's report.

BORAGINACEÆ.

Lithospermum hirtum, Lehm.; D. C. Prodr. 10, p. 78. On San Francisco and Zuñi mountains; August, October.

Echinosperrum patulum, Lehm.; D. C. Prodr. 10, p. 137. On the Zuñi river; August.

LABIATÆ.

Salvia lanceolata, Willd.; Benth., in D. C. Prodr. 12, p. 299. *S. trichostemoides*, Pursh, Fl. 1, p. 19; Torr., in Ann. Lyc., N. York, 2, p. —. Rio Laguna, and river Zuñi; August.

Monarda punctata, Linn.; Benth., in D. C. Prodr. 12, p. 3. β (?) *humilis*. Annual, low; leaves oblong lanceolate; narrowed at the base into a short petiole; bracts oblong, colored, calyx nearly glabrous; the teeth triangular lanceolate, short; corolla pubescent. On the Zuñi; September. Plant scarcely a span high. Perhaps a distinct species.

Mentha Canadensis, Linn. ; Benth. l. c. *♀ glabrata*, Benth., l. c. *M. borealis*, Michx. Fl. 2, p. 2. Rio Laguna ; August.

Cedronella Mexicana, Benth. Lab., p. 502: Zuñi mountains ; August.

VERBENACEÆ.

Verbena bracteosa, Michx. Fl. 2, p. 14 ; Schaur, in D. C. Prodr. 11. p. 545. Rio Zuñi ; September.

PLUMBAGINACEÆ.

Statice Californica, Boiss, in D. C. Prodr. 12, p. 643. Zuñi mountains ? August. Not sufficiently distinct, I fear, from *S. timonium*.

POLYGONACEÆ.

Polygonum aviculare, Linn. ; Gray, Bot. N. States, p. 338. On the Zuñi ; August. A large form, with greatly elongated assurgent branches, which are two feet or more in length.

Eriogonum orthocladon (Torr. mss., in D. C. Prodr. ined. :) perennæ, albido-tomentosum ; foliis omnibus radicalibus ovato-oblongis longe petiolatis pedunculo (vel caule) erecto scapiformi nudo stricto, supra medio 2 (rare 3) fido, ramis erectis indivisis vel rarissime bifidis ; involucris campanulato-tubulosis solitariis sessilibus distantibus, apice 5-dentatis ; perigoniis glabris, laciniis obovatis æqualibus. On the Zuñi and San Francisco mountains ; August, October. Leaves all radical, springing from a short thick caudex, about two inches long, clothed (like the rest of the plant) with a white flocculent pubescence. Scape 2-3 feet high, terete, straight, divided above the middle into two, or rarely three, straight erect branches, both of which are sometimes again forked ; involucres somewhat unilateral along the upper part of the branches, many-flowered, somewhat truncate, but distinctly five-toothed at the summit ; pedicels exserted, articulated close to the flower, glabrous ; bracts filiform, plumose, as long as the pedicels ; filaments glabrous ; styles twice as long as the ovary, recurved.

This, and the following new species, I communicated to Mr. Bentham, who, I believe, has described them in his monograph of Eriogonæ, prepared for the forthcoming volume of De Candolle's Prodrômus.

E. pharnaceoides, (Torr., l. c. :) annum, erectum, e basi ramosissimum ; ramis pubescentibus filiformibus ; foliis lineari-lanceolatis acutis basi attenuatis subtus albo-tomentosis ; involucris terminalibus solitariis companulatis longe-pedunculatis ; 5-fidis, laciniis acutis ; perigoniis glabris, laciniis exterioribus avatis obtusissimis basi utrinque subsaccatis, interioribus linearibus longioribus. Western part of New Mexico ; October. Also collected by Mr. Wright and Dr. Bigelow, on the Rio Grande. Stem 8-15 inches high, divaricately branching from the base in a verticillate manner ; the branches very slender ; leaves 6-10 lines long, 3 to

8 at each joint, verticillate, dull green and pubescent above, clothed with a white wool underneath; involucre about two lines long, many-flowered, woolly, five-cleft below the middle; the segments ovate lanceolate, and very acute; pedicels exerted, jointed close to the flower, glabrous; bracteoles filiform, plumose; exterior segments of the brownish-red perigonium concave, erect, with a shallow saccate projection on each side of the base; interior segments one-third as broad as the outer one, emarginate, ovary glabrous, acuminate, crowned with three very short styles; filaments glabrous; achenium triquetrous; seed ovate, acuminate; cotyledons flat: radicle elongated, ascending. A very distinct species, but related to *E. Abertianum*.

E. alatum, (Torr., l. c.); perenne; caule erecto subflexuoso folioso, ramis alternis erectis paniculatis; foliis spathulatis hirsutis; pedunculis terminalibus ternis; involucri solitarii campanulatis 5-fidis; perigoniis glabris, laciniis æqualibus; acheniis tripartitis. On the Zuñi river; September. Root stout and blackish, descending to a great depth; stem 1-3 feet high, arising from a short thick caudex, which is clothed with the remains of leaves. Radical leaves 2-4 inches long, and 3-5 lines wide, almost villous, with long hairs, mostly obtuse; stem leaves much smaller, and gradually diminishing in size upward, all of them erect. Branches solitary and distant, subdivided in a trichotomous manner, each division bearing a single involucre, which is about $2\frac{1}{2}$ lines long, and pubescent. Pedicels glabrous, a little exerted, jointed close to the flower; perigonium not enlarging after flowering; the segments lanceolate; filaments glabrous; ovary oblong, triquetrous, longer than the styles; achenium nearly four lines long, with three very conspicuous membranaceous wings; seed ovate, triangular; embryo straight.

This remarkable species was first detected by Colonel Frémont in upland prairies, at the sources of the Plata, in 1843, and again in 1845 in "Bahia Salada," in the Rocky mountains. Lieutenant Abert found it on the Raton mountains in 1846.

E. Jamesii, Benth. in D. C. Prodr. 14, (ined.) *E. sericeum*, Torr. in Ann. Lyc. N. York, 2, p. 241, excl. syn. Head of the Rio Laguna, and on the Zuñi mountains; August, September. This is a common species in New Mexico. No. 617 Wright, col. 2, is the same.

E. cernuum, Nutt. Pl. Gambel., in Jour. Acad. Phil., (ser. 2,) 1, p. 162. On the Zuñi river: September. A small annual species. Captain Stansbury found it on Green river, west of the Rocky mountains; Colonel ——— in the South Park of the same mountains: and Lieut. Simpson on the Sierra de Tenu-che.

E. effusum, Nutt. l. c.; β ? *leptophyllum*, suffrutescens, multicaulis; ramis erectis foliosis albotomentosis demum glabrescentibus; foliis angusto-linearibus subglabris; pedunculis composite-trichotomis; involucri campanulato-tubulosis pauci-(sub 6)-floris truncatis obscure quinqueidentatis; perigoniis glabris, laciniis obovatis æqualibus. Rio Zuni; September. About ten inches high: stems numerous from a ligneous base, slender, leafy to the peduncles: leaves about an inch long, and scarcely a line wide; in the dry state revolute on the margin, nearly glabrous. Peduncles many times trichotomous, forming a compound fastigiato

cyme; the bracts somewhat subulate. Involucre about two lines long, and less than a line in breadth. Flowers exserted, erect, larger than the involucre. Bracteoles filiform, glandularly pubescent. Filaments pubescent. Styles longer than the ovary. Achenium triquetrous. This plant differs from *E. effusum* in the leafy and more slender stems; much narrower leaves, and nearly toothless involucre, as well as in some less important characters; but it may be only a variety of that species.

NYCTAGINACEÆ.

Abronia cycloptera, Gray, in Sill. Journ. (n. ser.) 15, p. —. *A. (Tripterocalyx) micrantha*, Torr. in Frém. 1st rep., p. 96, and in Emory's rep., p. 149; Choisy, in D. C. Prodr. 13, p. 436. Near the pueblo of Zuñi; September.

A. mellifera, Dougl. mss. in Hook. Bot. Mag. t. 2879; Choisy, l. c. Carissa creek, California; December.

Oxybaphus angustifolius, Sweet, Hort. Brit. p. 567; Choisy, in D. C. Prodr. 13, p. 433. *Allionia linearis*, Pursh, Fl. 2, p. 728. On the Zuñi, and near the pueblo of Laguna; August, September.

Quamoctidion multiflorum, Torr.; Gray, l. c. *Oxybaphus multiflorus*, Torr. in Ann. Lye. N. York, 2, p. 237. *Nyctaginea? Torreyana*, Choisy, l. c. Rio Laguna; August.

SALOLACEÆ.

Cycloloma platyphyllum, Moq. Chenop., p. 18, and in D. C., Prodr. 13, (pars post.) p. 60. *Salsola platyphilla*, Fl. 1, p. 174. *Kochia dentata*, Willd Enum. 1, p. 28, t. 28. Near the pueblo of Zuñi; September. Much branched from the root, and widely spreading.

Sarcobatus vermicularis, Torr. in Emory's rep., p. 150. *S. Mar'quitiana*, Nees. *Frémontia vermicularis*, Torr. in Frémont's 1st and 2d reports. *Batis vermicularis*, Hook. Ojo del Harra, on the Zuñi; August.

Obione canescens, Moq. Chenop., p. 74; and in D. C. Prodr. 13, (pars post.) p. 112. *Atriplex canescens*, Pursh, Fl. 2, p. 370. *Pterochiton occidentale*, Torr. and Frém. in Frém. 2d rep., p. 318. *P. canescens*, Nutt. in Jour. Acad. Phila. (n. ser.) 1, p. 184. *Obione occidentale*, Moq. l. c. On the Little Colorado of New Mexico, and on the Colorado of California; October, November; in fruit.

O. lentiformis: caule suffruticoso ramosissimo inermis subtereti; ramis paniculatis; foliis orbiculari-deltoides, vel subcordatis, sinuato-paucidentatis vel subintegris, petiolatis, lepidoto-farinosi, cinereo-ineanis; fructibus sessilibus numerosissimis ad ramulos congestis; bracteis orbicularis integris vel remote repando denticulatis basi coalitis; disco nudo. On the Colorado of California; November; in fruit. Also found by Major Emory on the Gila, near its mouth.

This species is remarkable for its very abundant, small, lentiform, fruits (about two lines in diameter,) which completely cover the paniculate spreading branches. The leaves are from half an inch to nearly an inch long.

Corispermum hyssopifolium, Linn.; Pursh, Fl. 1, p. 8; Moq. in D. C. Prodr. 13, (pars post.) p. 140. *C. hyssopifolium*, β . *Americanum*, Nutt. Gen. 1, p. 4. On the Zuffi; September.

Acanthochiton: gen. nov. Flores dioci, heteromorphi. Mas. Perigonium ebracteatum? Vel 1-2 bracteatum, 5-sepalum; sepalis æquolibus erectis. Stamina 5; filamenta filiformia; antheræ oblongæ biloculares. Fem. Perigonium 1-2 phyllum vel nullum. Stamina 0. Ovarium ovatum compressiusculum; styli 2-4, filiformes intus stigmatosi. Utriculus ovato-ellipticus, membranaceus, subcompressus, apterus circumscissis dehiscens. Semen verticale, compressum; albumen centrale, farinaceum. Embryo annularis; radícula infera. Herba annua glabriuscula. Folia lanceolato, integra. Flores axillares, sessiles; masculi glomerati; feminei glomerato-spicati, foliorum bractealium cordato-falciformium spinescentium basi reconditi.

A. Wrightii. Near the puebla of Zuni, and on the Little Colorado; September. Plant about a foot high; the female much more branching than the male; nearly glabrous. Leaves narrowly lanceolate, a little undulate, or sometimes crenulate, on the margin; acute, and usually tipped with short mucro, tapering at the base into a petiole; penninerved, the nerves prominent underneath. Staminate flowers in small roundish clusters in the axils of all the leaves, from the middle of the stem to the summit, giving the appearance of a leafy interrupted spike. Perianth sometimes apparently naked at the base, but often with one or two bractioles; leaflets lanceolate, very acute. Stamens shorter than the perianth. Flowers in the pistillate plant also in numerous axillary clusters, or rather short spikes. Bracts broadly cordate-falcate, coriaceous, squarrose, reticulately veined, crenulate on the margin, tipped with a sharp and somewhat rigid point, each enclosing and concealing a single flower. Perianth consisting of one or two lanceolate or spatulate scales—sometimes wanting. No traces of stamens. Ovary glabrous and even, with a single ovule; styles usually three or four, seldom two. Utricle opening transversely a little above the middle. Seed dark brown. Embryo slender, forming a nearly complete circle.

This plant was first detected in Western Texas, in 1849, by Mr. Wright; it has much the habit of *Agriophyllum*, but differs in being dioecious, and in the even, circumscissile utricule. It is an anomalous *Chenopodiacea*, and might, perhaps, be referred to *Amaranthaceæ*.

SAURURACEÆ.

Anemiopsis Californica, Nutt. in Ann. Nat. Hist., 1, p. 136; Hook. and Arn. Bot. Beech., p. 390, t. 92. Valley of the Rio Grande, a few miles below Donna Ana; July.

EUPHORBIACEÆ.

Hendecandra Texensis, Klotzch, in Erich. Arch. (1841) 1. p. 252. *H. multiflora*, Torr. in Frém. 1st report. *Croton muricatum*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 173. Ojo Pescadi, head of the Rio Zuñi; August.

Euphorbia maculata, Linn.; Gray, Bot. N. St., p. 406. Rio Laguna; August.

E. herniarioides, Nutt. l. c.: Engelm. and Gray, Pl. Lindh. 1, p. 52. Little Colorado; October.

JUGLANDACEÆ.

Juglans rupestris, Engelm. (mss.): foliis numerosis, (17-23,) lanceolatis apice attenuatis, basi obliquis inequalibus subfalcatis margine integris vel remote denticulatis petiolisque minute pubescentibus; fructibus globosis compressiusculis glanduloso-pubescentibus; nuce longitudinaliter sulcato; putamine creberrimo. New Mexico, in various places, commonly in stony places. Also found in western Texas.

This species is usually a shrub 8-12 feet high, but, in favorable situations, sometimes rising to thirty feet. Leaves a foot or more long; leaflets 2-3 inches long, and 6 to 8 lines wide, often perfectly entire; fruit about the size of a musket-ball, usually depressed, globose, the pulp thin; nut about 6 lines in diameter, rather deeply sulcate, the sulcæ simple or forked; shell remarkably thick, so that the kernel is scarcely larger than a pea.

I first received specimens of this plant from Dr. J. M. Bigelow, when he was attached, as botanist, to the Mexican Boundary Commission, in 1850. He thought it was probably a new species, and wished me, in case it should prove to be undescribed, to name it *J. Whippleana*, in compliment to Lieut. Whipple, who was also a member of the Boundary Commission. Accordingly I read an account of it, under this name, before the American Scientific Association, in August, 1851; but the description was not published. Afterwards I was informed that Dr. Engelmann had obtained the plant before me, and had already named it *J. rupestris*, which name is therefore adopted. Last year I received from Dr. Woodhouse, and also from Dr. Bigelow, specimens of what I at first took for a second new species of *Juglans*, very near *J. rupestris*, but with broader and more closely serrated leaflets, with fruit three times larger, as well as less strongly sulcate, and the shell is proportionably thinner. It was figured and engraved before I began to doubt whether it was a distinct species. For the present it may be noticed as a variety, thus:

β major; foliis oblong-lanceolatis; fructibus subovato-globosis apiculatis leviter sulcatis.

Dr. Woodhouse found the plant in western New Mexico, and Dr. Bigelow collected it at the Copper Mines.

SALICACEÆ.

Salix longifolia, Muhl.; Carey in Gray's Bot. N. St., p. 429. Yampai creek.

Two other species of *Salix*, both apparently distinct from any in the Atlantic States, occur in the collection, but they cannot be certainly determined, for want of the flowers.

Populus tremuloides, Michx. Fl. 2, p. 143; Michx. f. Sylv. 1, p. 125, t. 99, f. c. San Francisco mountain.

P. monilifera, Ait.; Michx. f. Sylv. 1, p. 116, t. 96, f. 2. On the Yampai and Little Colorado.

P. angustifolia, James; Torr. in Ann. Lye. N. York, 2, p. 249. On the Zuñi. The leaves are broader than in the original specimens collected by Dr. James, in Long's Expedition, being rhombic ovate.

PLATANACEÆ.

Platanus Mexicanus, Moric. Pl. Var. d'Amer., t. 26. *P. Californicus*, Benth. Bot. Sulph., p. 54. Santa Isabella, California; December; in fruit. The balls of fruit are nearly an inch in diameter, and there are six on one stalk, in a long raceme.

CUPULIFERÆ.

Quercus Gambelii, Nutt. Pl. Gamb. in Jour. Acad. Phil. (n. ser.) 1, p. 179. San Francisco mountain; with mature fruit. A variety with the lobes of the leaves more acute was collected on the Zuñi. Mr. Nuttall remarks that this species approaches *Q. obtusiloba* in the leaf, but I think it more resembles *Q. alba*. It is near *Q. Douglasii*, Hook, and *Q. Hindsii*, Benth.

Q. oxyadenia: foliis ovatis subcordatis brevipetiolatis subcoriaceis, repandodentatis, dentibus mucronatis supra-pallidæ viridibus glabrescentibus subtus ferrugineo-pubescentibus cupula hemispherica, squamis arete appressis; glande oblongo conica elongata acutissima cupulam 4-5-plo superante. Santo Isabelle, California. Leaves $1\frac{1}{4}$ -2 inches long, probably evergreen, pale green and rather dull above, clothed with a ferruginous pubescence underneath; the veins pale and very prominent. Scales of the cup ovate-lanceolate, rather obtuse, very closely appressed, glabrous, and of a chestnut color. Glands about an inch and a half long, tapering to a long sharp point. Allied to *Q. agrifolia*, but differing in the form of the acorns, as well as in the size and outline of the leaves. Nuttall, however, has represented his *Q. agrifolia* (in North Amer. Sylv., pl. 2) with long-pointed acorns.

Q. agrifolia, Nees; Hook. Icon. 3, t. 377; Hook. and Arn. Bot. Beech., p. 391. Yampai Creek; October, (ripe fruit.) A dwarf, much branched species, seldom attaining a greater height than eight feet. Our specimens agree exactly with the figure of Hooker, above quoted.

Q. oblongifolia: foliis coriaceis (perennantibus) oblongis utrinque obtusis intergerimis glabris apice muticis; fructibus sessilibus solitariis; cupula hemispherica turbinata, squamis ovatis convexis; glande ovata cupulam triplo superante obtusa cum umbone parvo conico.

Western New Mexico. This very neat species of live-oak I am obliged to describe as a new species, as I cannot find that it has been hitherto noticed.

URTICACEÆ.

Humulus Lupulus, Linn.; Gray, Bot. of N. St., p. 435. *H. Americanus*, Nutt. in Jour. Acad. Phil. (n. ser.) 1, p. 181. On the Rio San Francisco of Western New Mexico. I cannot find sufficient characters for distinguishing the N. American from the European hop.

CONIFERÆ.

Pinus edulis, Engelm. in Wislitz. Mem. N. Mex., p. 88. Head of the Rio Laguna, New Mexico, and Carissa creek, California; September, December, (with mature cones.) The seeds of this species are edible, and much esteemed by the Indians. It is related to the singular *P. monophylla*, Torr., described in Frémont's 1st report.

P. macrophylla, Engelm. l. c.? On the Zuñi mountains; August. Differs from the description of Dr. Engelmann in the leaves being constantly in threes, and shorter (about $7\frac{1}{2}$ inches long,) and in the smaller cones.

Pinus (Abies) Douglassi, Sabine Mss. in Hook, Fl. Bor. Am., 2, p. 162, t. 183? San Francisco mountains, 7,000 feet above the sea. Our specimens are without fruit, and we therefore cannot be certain of the species, but the foliage agrees exactly with Douglas's plant.

Juniperus.—Three species of this genus occurs in the collection 1. A large tree, with a trunk sometimes two feet in diameter, and bark more than four inches thick. The leaves of the ultimate branches are very minute, rhombic ovate and acute, convex, closely imbricated, with a conspicuous resiniferous gland on the back. The fruit is spherical, as large as a rifle-ball, covered with a blue bloom, minutely and sparingly tuberculate, and usually contains three seeds. It grows in the western part of New Mexico. 2. A tree attaining the height of thirty feet, with a smooth bark; differing from the preceding in its stouter branchlets, broadly ovate, more obtuse, and much more convex leaves. The fruit (also covered with a bloom) is a little smaller, inclining to ovate, less tuberculous.

and contains but a single extremely thick-shelled seed. It was found along the Yampai creek and on the Little Colorado. 3. A large shrub, with ovate rather acute obtusely carinate leaves. The berries are only a little larger than in *J. Virginiana*, the pulp is copious and sweetish, and the seed is usually solitary. It grows on the Zuñi river. The first species may be *J. occidentalis*, Hook.; the second is, I suspect, *J. tetragona*, Schlecht.; and the third is probably new.

Ephreda antisiphilitica, Berland.; Endl. Syn. Conif., p. 263. On the Zuñi and Yampai rivers. The specimen of Berlandier was collected on the Rio Grande, near Laredo, from whence we also possess specimens that agree with the description of C. A. Meyer, (quoted by Endlicher, l. c.) and are identical with Dr. Woodhouse's plant. It is a common species in New Mexico, and is everywhere used by the natives as a remedy for gonorrhœa, a disease that is too common in New Mexico.

NOTE.

The botanical collections placed in my hands for examination by Dr. Woodhouse, consisted of three portions. The first were made chiefly between the Neosho and Arkansas rivers, and on the North Fork of the Canadian. The flora of this region embraces a great many plants of the States east of the Mississippi, and although a full catalogue of the species was prepared, it was not considered as of sufficient value to publish it. Some of the more interesting plants found between the Neosho and the Arkansas are *Hypericum Drummondii*, *Talinum aurantiacum*, *Oenothera rhombipetala*, *Discopleura Nuttallii*, *Eryngium Leavenworthii*, *Heliotropium tenellum*, Torr., (*Lithospermum tenellum*, Nutt.) and *Fraxinia Florida*.

Of those found on the North Fork of the Canadian, the following are the more important: *Cleomella angustifolia*, *Dithyrea Wislizeni*, *Hosackia Purshiana*, *Rosa foliolosa*, *Oenothera Jamesii*, *Mentzelia ornata*, *Eryngium diffusum*, *Heterotheca scabra*, *Cosmidium filifolium*, *Coreopsis aristosa*, *Rudbeckia alismaefolia*, *Solidago Missouriensis* and *petiolaris*, *Amphiachyrsis dracunculoides*, *Fernonia Arkansasana*, *Echinacea angustifolia*, *Centaurea Americana*, *Lobelia Texensis*, *Gilia longiflora*, *Euploca convolvulacea*, *Sabbatea campestris*, *Ipomœa leptophylla*, *Asclepias speciosa*, *Eustenia albidula*, *Hemlockandra Texensis*, *Euphorbia arenaria*, *Eriogonium annuum* and *longifolium*, and *Yucca angustifolia*.

The Texan collection was much richer, and a catalogue of it was also prepared, but omitted at the suggestion of Dr. Woodhouse, as Mr. Wright, and the botanists of the Mexican Boundary Commission, had so recently explored the route passed over by Captain Sitgreaves. Most of the plants in this part of the collection were gathered between San Antonio and El Paso del Norte. There are very few of them that are not included in Dr. Gray's *Plantæ Wrightianæ*, as far as that work is published. Beyond *Compositæ*, the following are the principal: *Specularia ovata*, (*Dysmicodon oratum*, Nutt.), *Campylocera leptocarpa*, Nutt., *Chilopsis linearis*, *Stenandrium barbatum*, Gray, *Calophanes linearis*, *Leucophyllum Texanum*, *Pentstemon dasyphyllum*, *Cobaea* and *Grahami*, *Solanum Texanum*, *Erythraea Beyrichii*, *Heliotropium inundatum*, and *Greggi*, Torr. mss., *Salvia formosa*, Benth., *Asclepias longicornis*, *Tetralæa Wrightii*, Gray, *Acleisanthes longiflora*, Gray, *Quercus Emoryi*, *Juglans rupestris*, β ? *Greenia* ² *Arkansana*, Nutt., *Cheilanthes gracilis*, and *Selaginella convoluta*, Spring.

The third collection was made between El Paso and California, in the latter part of the summer and autumn of 1851. Most of the plants were found on the route from Laguna to the Puebla of Zuñi, a tributary of the Colorado of the West. The Zuñi mountains (Sierra de Zuñi) rise to the height of 7,545 feet. When the party reached California, it was so late in the season that very few plants were in a proper state for the herbarium, and the collection is accordingly meagre in specimens from the western extremity of the route. It is hoped that the list here given will at least contribute to our knowledge of the botanical geography of our far western territories.

JOHN TORREY.

EXPLANATION OF THE PLATES.*

Plate 1. *STANLEYA INTEGRIFOLIA*.

Fig. 1, a flower magnified; fig. 2, a silique, equally magnified.

Plate 2. *VERNONIA ARKANSANA*.

Fig. 1, a flower; fig. 2, the style; fig. 3, an achenium, with its pappus—all magnified.

Plate 3. *BAHIA INTEGRIFOLIA*.

Fig. 1, a ray-flower; fig. 2, a disk-flower; fig. 3, a style of the same; fig. 4, achenium—all magnified.

Plate 4. *LINOSYRIS PULCHELLA*.

Fig. 1, a single flower, magnified; fig. 2, the style, more magnified.

Plate 5. *TESSARIA BOREALIS*.

Fig. 1, a female flower; fig. 2, a central hermaphrodite flower—both moderately magnified; fig. 3, pappus of the female flower, more magnified; fig. 4, pappus of the hermaphrodite, equally enlarged.

Plate 6. *HYMENOTHRIX WRIGHTII*.

Fig. 1, a marginal flower; fig. 2, a disk-flower; fig. 3, style of the latter; fig. 4, pappus; fig. 5, an achenium—all more or less magnified.

PLATE 7. *GILIA LONGIFLORA*.

Fig. 1, a flower laid open, but little magnified; fig. 2, the calyx, more enlarged; fig. 3, a stamen; fig. 4, part of the style and the stigma, with the lobes connivent; fig. 5, diverging lobes of the style after anthesis; fig. 6, a capsule; fig. 7, transverse section of the same—all magnified.

* Plates Nos. 1 and 12 represent two plants not contained in the New Mexican collection, but they are natives of Texas. They were prepared for another government report, which was not published.

Plate 8. *ERIOGONUM ALATUM*.

Fig. 1, involucre ; fig. 2, a single flower, with its bract ; fig. 3, the pistil ; fig. 4, achenium ; fig. 5, transverse section of the same ; fig. 6, the seed ; fig. 7, the embryo—all magnified.

Plate 9. *ERIOGONUM ORTHOCLADON*.

Fig. 1, an involucre ; fig. 2, perigonium and bracteole ; fig. 3, achenium—all magnified.

Plate 10. *ERIOGONUM EFFUSUM* β ? *LEPTOPHYLLUM*.

Fig. 1, involucre and flowers ; fig. 2, a separate flower ; fig. 3, a stamen ; fig. 4, the pistil—all magnified.

Plate 11. *ERIOGONUM PHARNACEOIDES*.

Fig. 1, an involucre ; fig. 2, a flower, with its bracteole ; fig. 3, an exterior sepal ; fig. 4, an interior sepal ; fig. 5, an achenium ; fig. 6, the embryo—all magnified.

Plate 12. *ERIOGONUM UMBELLATUM*.

Fig. 1, involucre and flowers, moderately enlarged ; fig. 2, a single flower, without its pedicel—more magnified ; fig. 3, an exterior sepal ; fig. 4, an interior sepal ; fig. 5, a stamen ; fig. 6, an achenium ; fig. 7, transverse section of the same ; fig. 8, the embryo—all magnified.

Plate 13. *ACANTHOCHITON WRIGHTII*.

The principal figure on the right hand is the male plant, and that on the left the female.

Fig. 1, a mature utricle, with its persistent styles ; fig. 2, the seed ; fig. 4, transverse section of the same ; fig. 3, the embryo ; fig. 5, a male flower ; fig. 6, a sepal ; fig. 7, a stamen—all magnified.

Plate 14. *OBIONE LENTIFORMIS*.

Fig. 1, the fructiferous bracts, magnified ; fig. 2, the achenium, more magnified.

Plate 15. *JUGLANS RUPESTRIS*.

Fig. 1, the fruit ; fig. 2, a nut ; fig. 3, the same, cut transversely—all of the natural size.

Plate 16. *JUGLANS RUPESTRIS*, β ?

Fig. 1, the fruit ; fig. 2, a nut—both of the natural size.

Plate 17. QUERCUS OXYADENIA

A branch of the natural size.

Plate 18. QUERCUS GAMBELII.

A branch of the natural size.

Plate 19. QUERCUS OBLONGIFOLIA.

A branch of the natural size.

Plate 20. PINUS EDULIS.

Fig. 1, a pair of leaves ; fig. 2, a seed—both of the natural size.



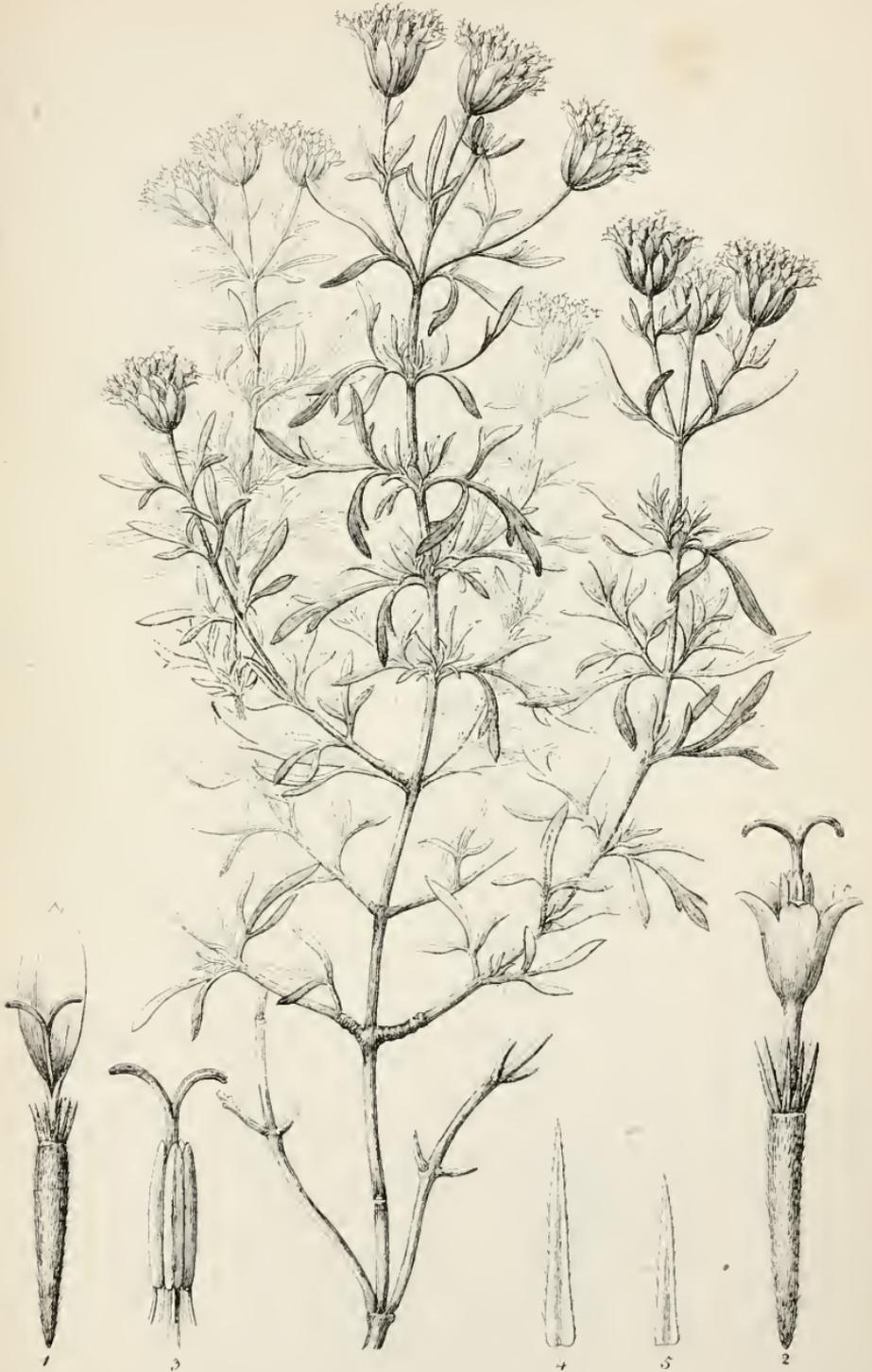
STANLEYA INTEGRIFOLIA

A. Kerman lith. 379 Broadway NY



A. Kerman Lith. 379 Fro. dw NY

VERNONIA ARKANSANA.



Ackerman Lith 379 Broadway NY

BAHIA OPPOSITIFOLIA.



LINOSYRIS PULCHELLA.

Ackerman Lith. 379 Broadway



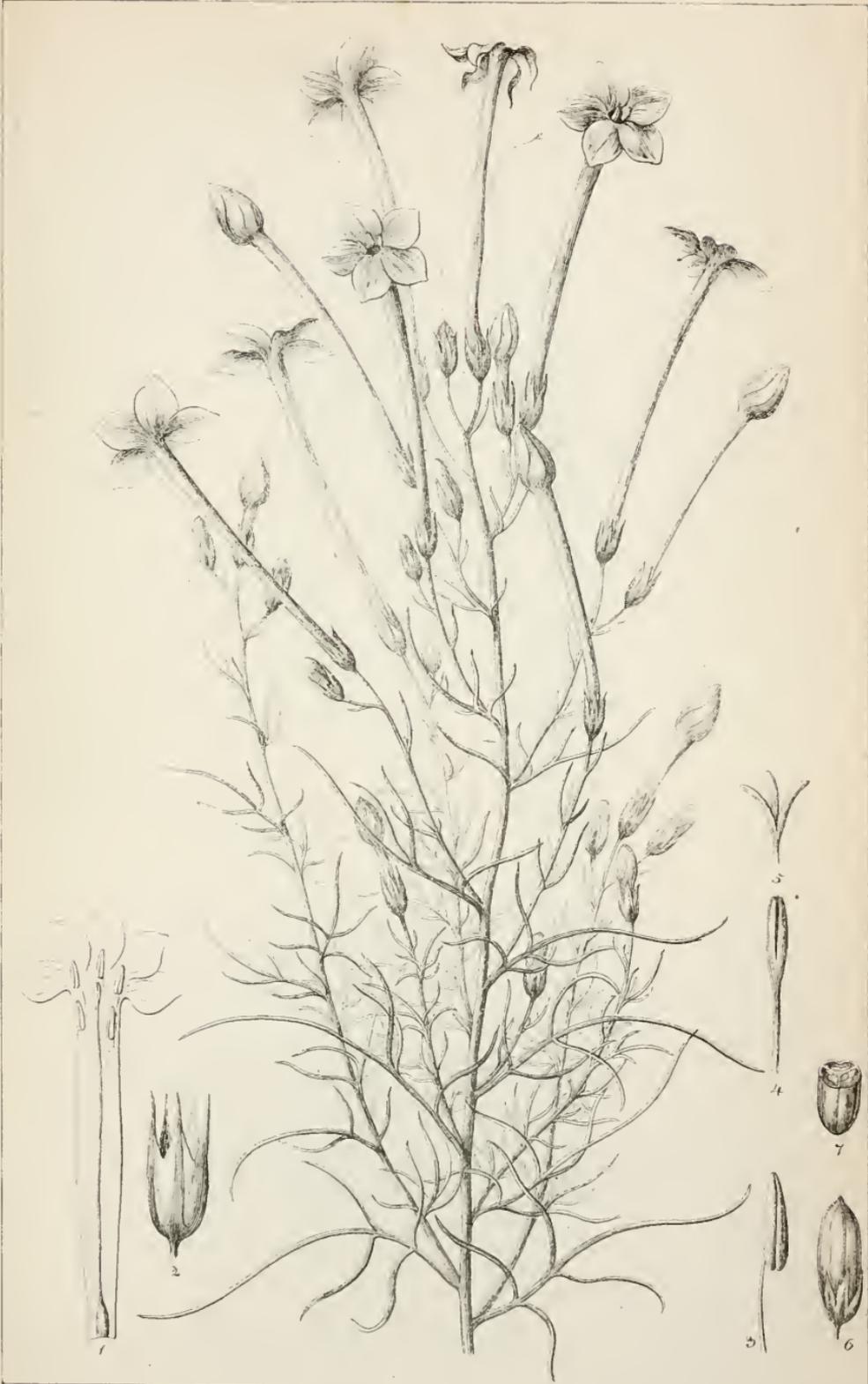
TESSARIA BOREALIS

A. Kerman Lith. 379. From Gray NY

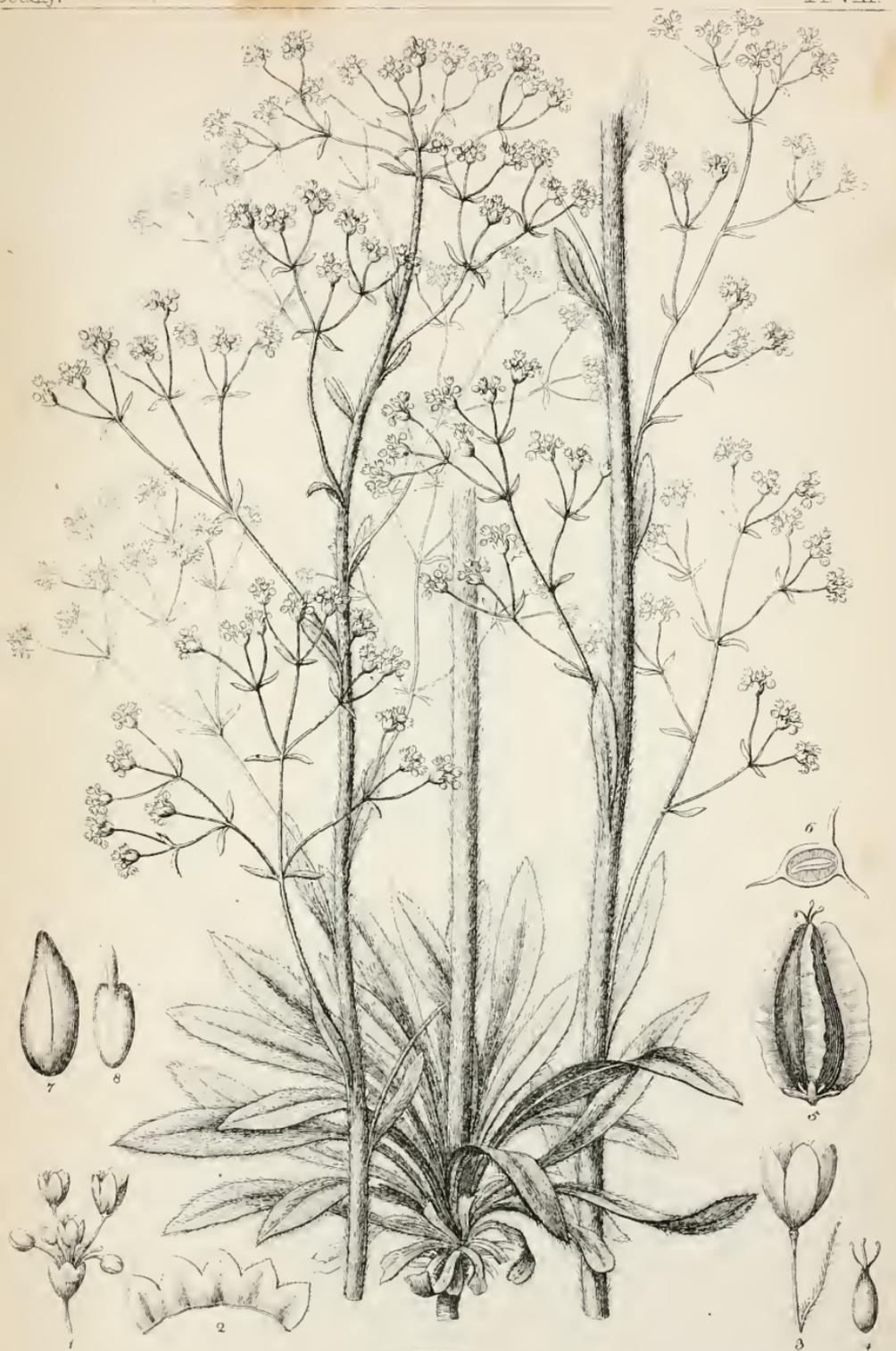


HYMENOTHRIX WRIGHTII

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GILIA LONGIFLORA.



ERIOGONUM ALATUM.

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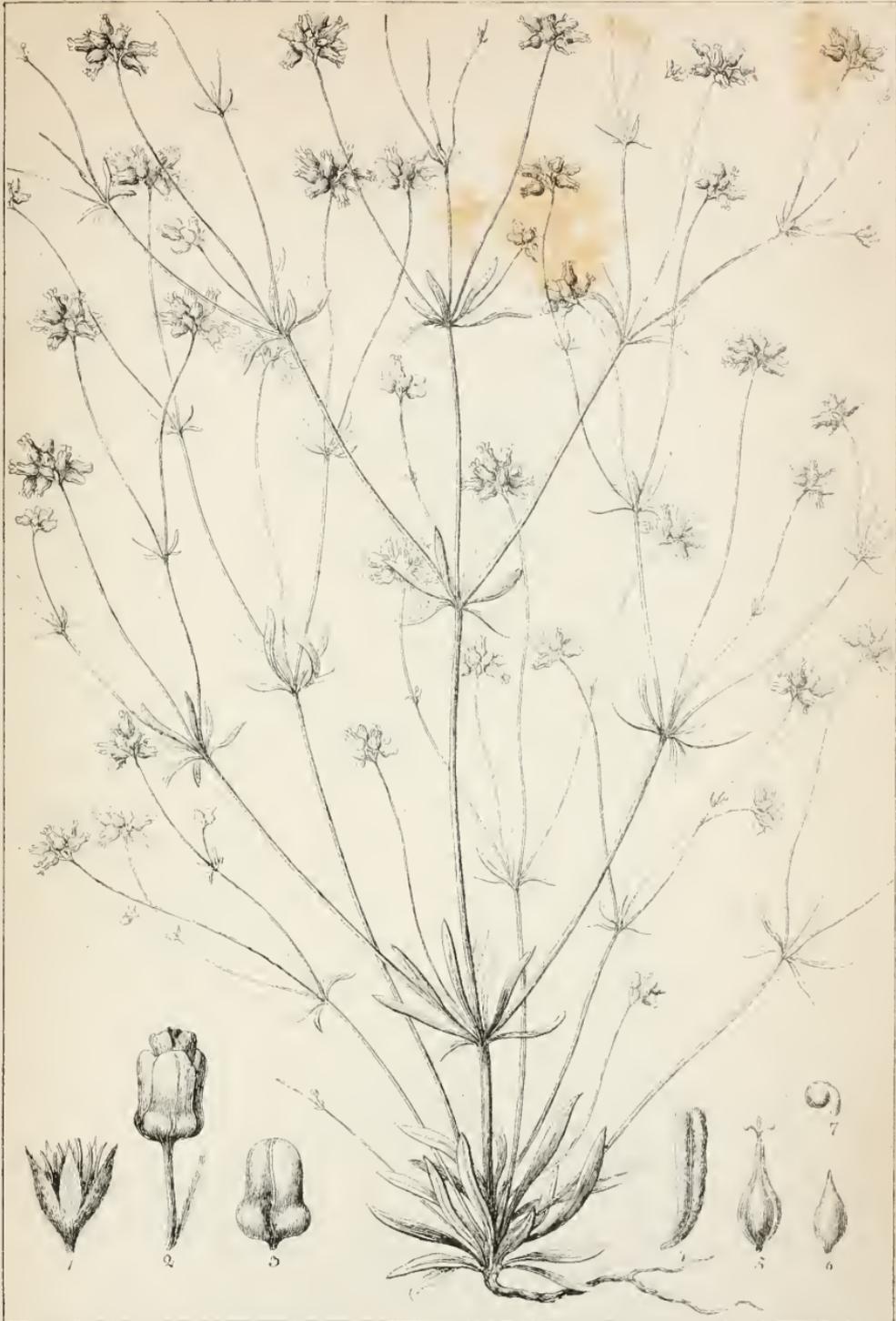
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ERIOGONUM ORTHOCLADON.



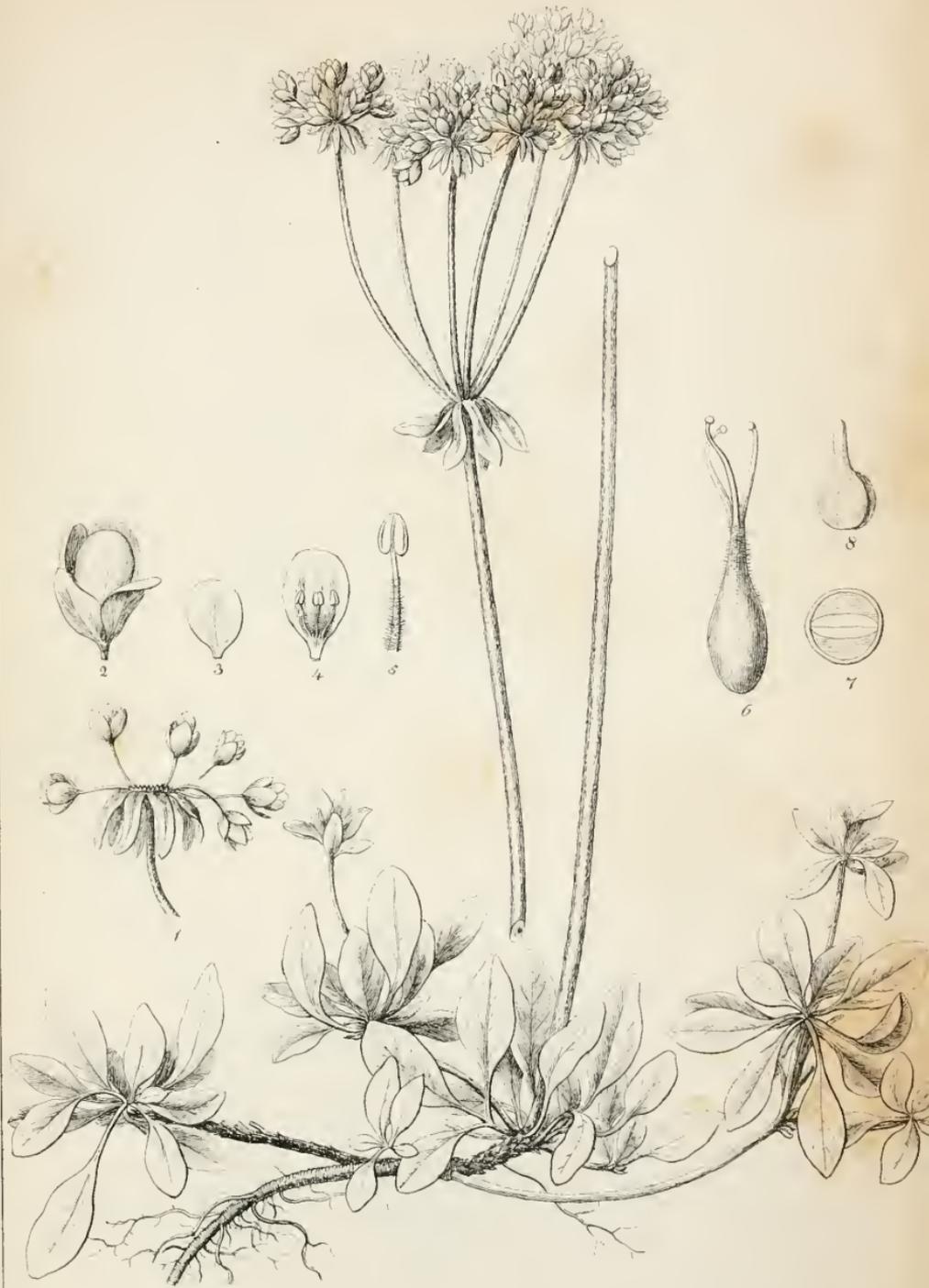
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ERIOGONUM EFFUSUM, β



Ackerman Lith 379 Broctway NY

ERIOCYON PHARNACEOIDES



ERIOGONUM UMBELLATUM

Ackerman Lith 379 Broadway



ACANTHOCHITON WRIGHTII

WRIGHTII (WRIGHT) WRIGHT



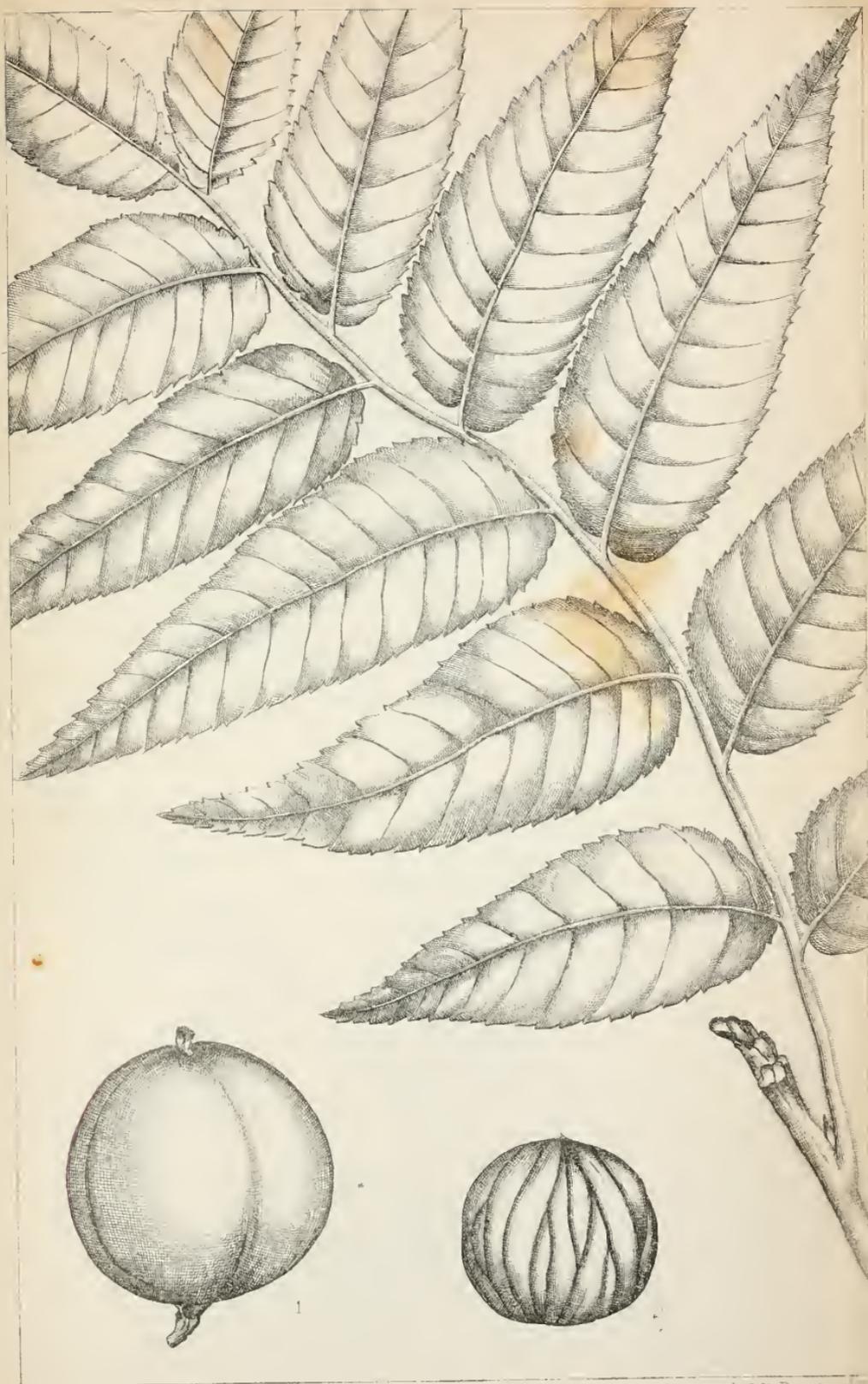
OBIONE LENTIFORMIS.



JUGLANS RUPESTRIS

Ackerman Lith 379 Broadway NY





Ackerman Lith 379 Broadway

JUGLANS RUPESTRIS β ?



QUERCUS OXVADENIA.

American Lith. Bro. & Co. N.Y.



QUERCUS GAMBELII

Ackerman Lith 379 Broadway, N.Y.



AckermanLith379 BroadwayNY

QUERCUS OBLONGIFOLIUS.

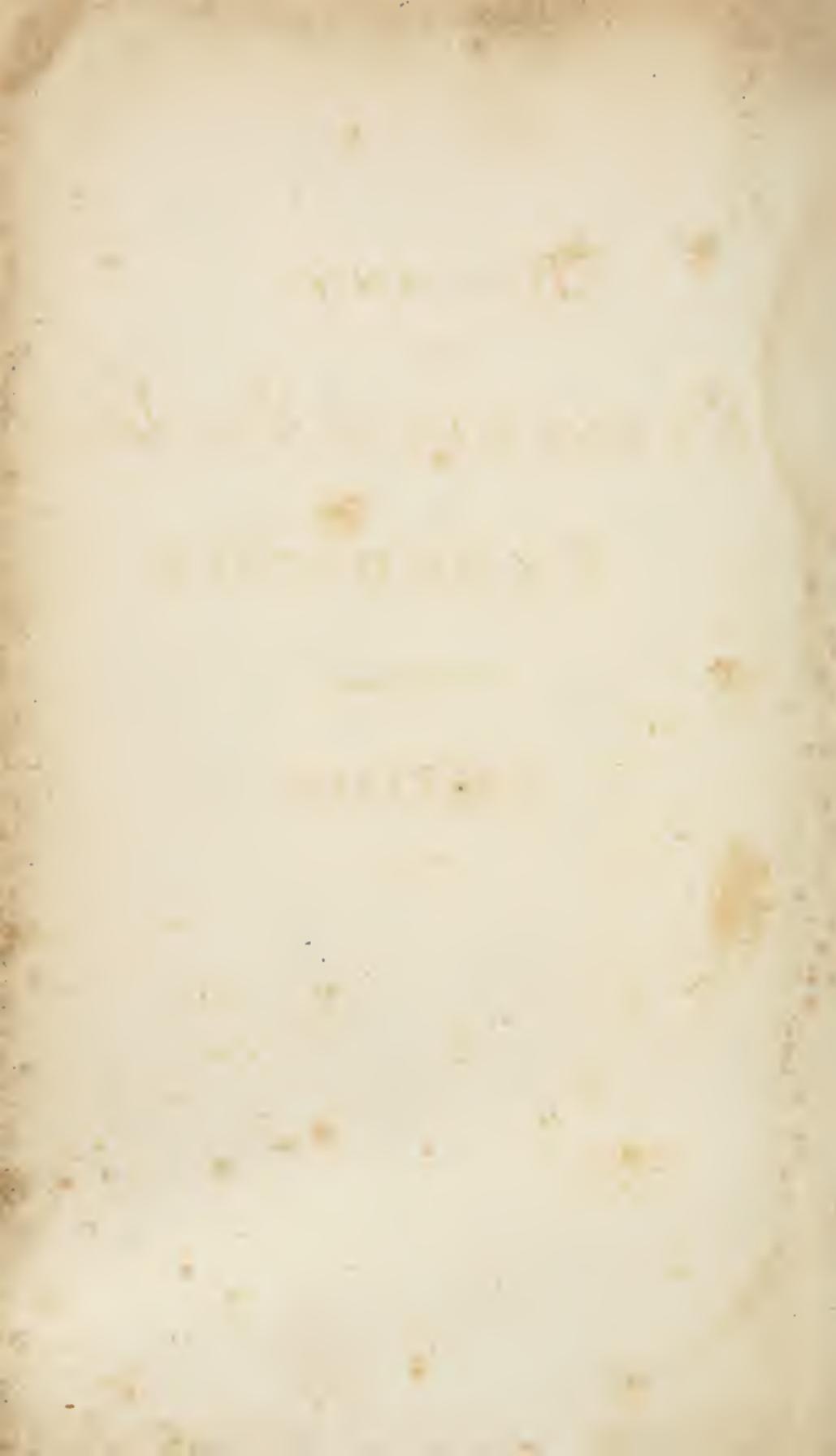


PI. EDULIS



ABELTARIA SPINOSA

W. & A. G. & CO. LONDON



(No 7)

BOTANY
OF
STANSBURY'S SALT LAKE
EXPEDITION

—○—

JOHN TORREY

—

Catalogue of Plants collected by the
Expedition of Professor John Torrey

1843

APPENDIX D.

BOTANY.

BY JOHN TORREY.

CLEMATIS LIGUSTICIFOLIA, Nutt.—East base of the Black Hills. In fruit September 29th. Tails of the carpels more than an inch long, and very slender.

ANEMONE PENNSYLVANICA, Linn.—Great Salt Lake Valley.

DELPHINIUM AZUREUM, Michx.—With the preceding. Fl. May 2d-19th.

BERBERIS (MAHONIA) AQUIFOLIUM, Pursh.—With the preceding; on the sides of the mountains. Fl. May 19th.

ARGEMONE HISPIDA, Gray, Plant. Fendl., No. 16.—With the preceding. Called the "Thistly plant" by the inhabitants. In fruit May 19th.

VIOLA PEDUNCULATA, Torr. and Gray.—Borders of the Salt Lake.

CORYDALIS AUREA, Willd.—Stansbury's Island, Great Salt Lake. Fl. June 26th.

ERYSIMUM ASPERUM, D C.—Shore of the Salt Lake and along Weber's River. May-June.

STREPTANTHUS CRASSICAULIS, Torr. (Sp. nov.): glaucus; caule glabro inflato fistuloso; foliis oblongis runcinato-pinnatifidis vel runcinatis longe petiolatis; floribus erecto-patulis; petalis (purpureis) linearibus obtusiusculis calyce villosolano duplo longioribus.

Mountain side, on the east shore of the Salt Lake. Fl. May 30. Found also on the tributaries of the Uintah River, Utah Territory, by Colonel Frémont. Annual. This species is easily distinguished by its inflated hollow stem and very woolly calyx. The leaves are

mostly radical and deeply pinnatifid; the terminal lobe much larger than the others, and triangular or deltoid. The stem is simple, from one to two feet high, more or less inflated toward the base, and nearly naked above. The flowers are nearly sessile, in a long terminal raceme, erect when first expanded, but finally becoming patulous. Calyx about half an inch long, the sepals oblong-lanceolate and woolly externally. The petals are dark purple, with a pale waved margin. Filaments all free. The siliques are not known.

Plate I. *Streptanthus crassicaulis*, of the natural size. Fig. 1, a sepal, showing the inner face and part of the hairiness on the back. Fig. 2, a petal. Fig. 3, the stamens and pistil. Fig. 4, a separate stamen. All magnified.

S. SAGITTATUS, Nutt. in Jour. Acad. Nat. Sc. Philad. VII., p. 12; not Hook. and Arn.—Shore of the Salt Lake, May 6.

SISYMBRIUM CANESCENS, Nutt.—West shore of Salt Lake.

PHYSARIA DIDYMOCARPA, Gray, Pl. Illustr. I., p. 162, (in a note.) *Vesicaria didymocarpa*, Hook.—On Green River. In fruit September 12th.

CLEOME LUTEA, Hook. Fl. Bor. Amer. I., p. 70, t. 25. *C. aurea*, Nutt?—Carrington's Island, Salt Lake. Fl. June 18.

Except in the greater length of the stipe and the large size of the plant, I see nothing to distinguish *C. aurea* of Nuttall from this species.

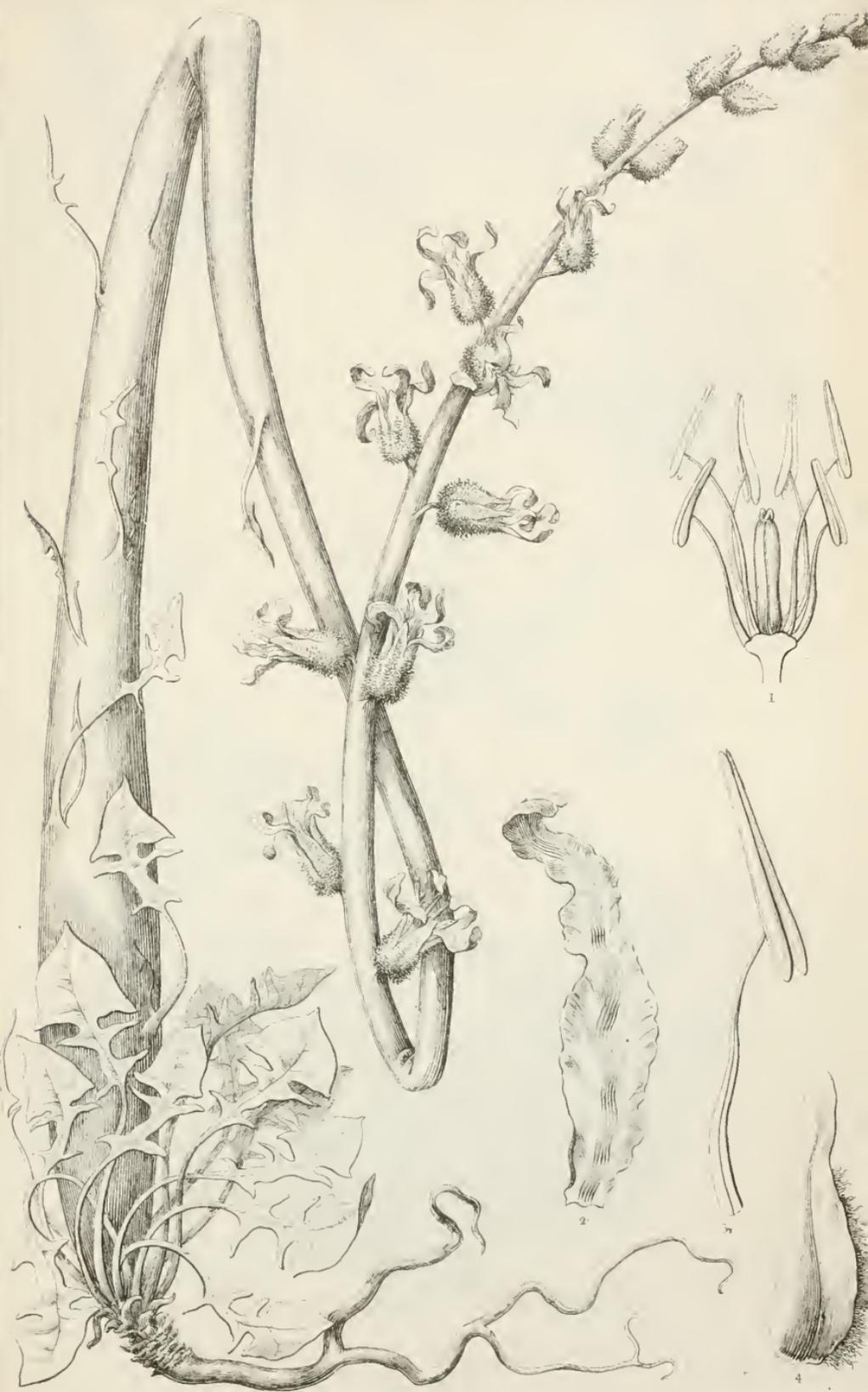
SIDALCEA MALVÆFLORA, Gray, mss. *S. Oregana*, Gray, Pl. Fendl., p. 20. *Sida malvæflora*, Lindl. *S. Oregana*, Nutt.—Antelope Island, Salt Lake. Fl. June 18–30. A white-flowered variety occurred in the same locality.

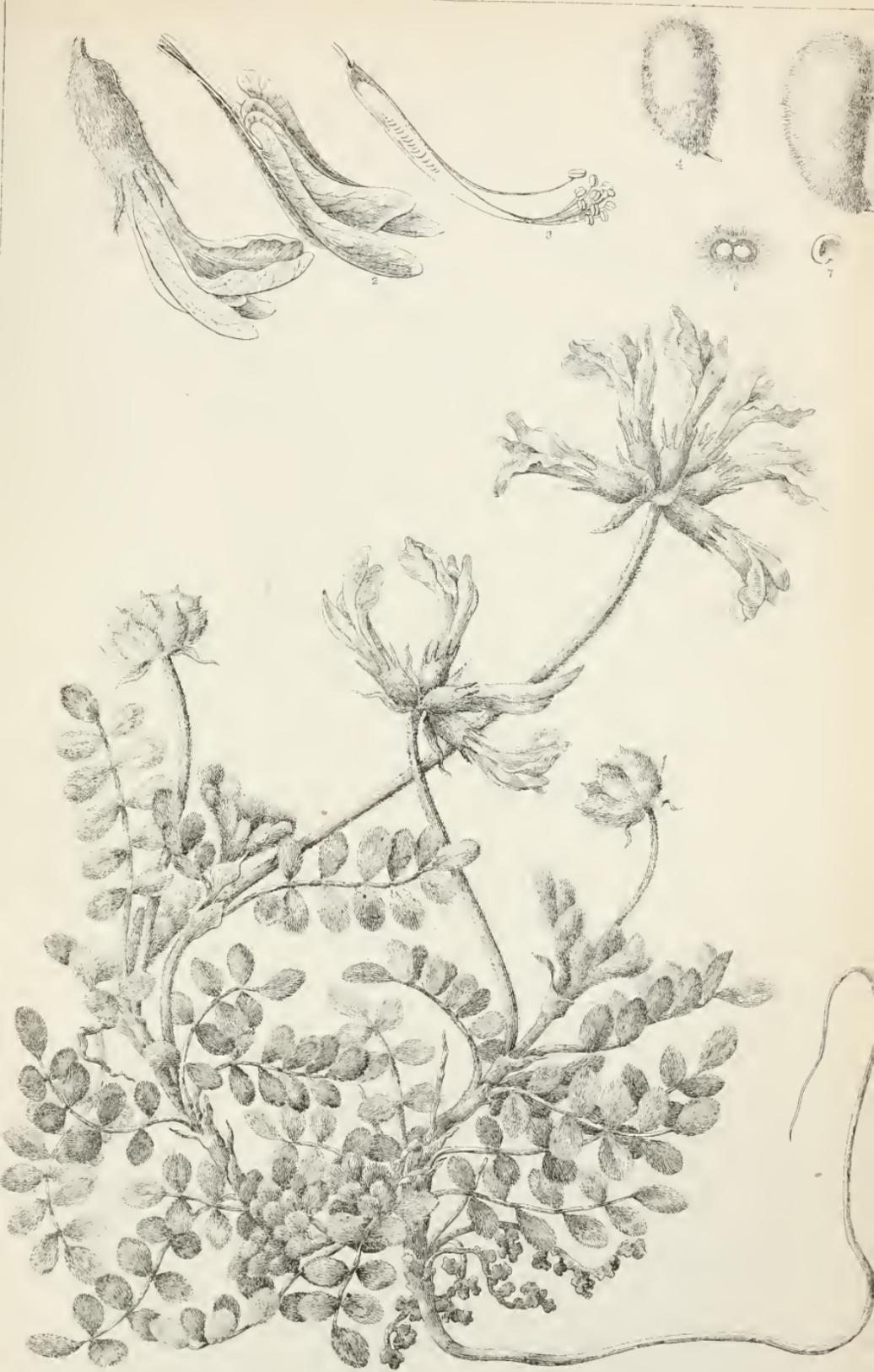
MALVASTRUM COCCINEUM, Gray, Gen. Ill. t. 121, Pl. Fendl. p. 24. *Cristaria coccinea*, Pursh. *Sida coccinea*, D C., Torr. and Gr. Fl. 1. p. 682.

Var. β *GROSSULARIÆFOLIUM*. *M. grossulariæfolium*, Gray, l. c. *Sida grossulariæfolia*, Hook. and Arn.—Islands and shore of the Salt Lake. May and June.

The var. β does not differ from the ordinary form of *M. coccineum*, except in the larger size of the plant and in the less divided leaves.

CALLIRHOE INVOLUCRATA, Gray, Gen. Ill. 2, t. 117; Pl.





PHACA MOLLISSIMA Torr

A specimen of the same, No. 10, from the same locality.

Fendl. p. 16. *Malva involucrata*, Torr. and Gr. Fl. 1, p. 226. Upper waters of the Platte. The large tapering root is said to be edible.

VICIA AMERICANA, Muhl.—Valley of Salt Lake, June 1.

CICER ARIETINUM, Linn.—Sandy bottom land in the Valley of Salt Lake; probably introduced. This plant has also been found by Dr. Pickering on the banks of the Kooskooskee, or Clear Water, in Oregon; and I have received it from Southern California, where it was doubtless taken by the Spaniards. It is a little remarkable that it should now be found apparently wild in the interior of Oregon and in the valleys of Utah.

PHACA MOLLISSIMA, Nutt. in Torr. and Gr. Fl. 1, p. 350. *Astragalus Purshii*, Dougl. in Hook. Fl. Bor.—Amer. 1, p. 152.

Var. β UTAHENSIS; foliolis. 6–8—jugis, obovatis; pedunculis folio longioribus. Shores and islands of the Salt Lake. This plant is abundant in the Territory of Utah, and I have not received it from any other region. It differs from the ordinary form of *P. mollissima*: and if there were not what appear to be intermediate states of it, I should consider it a distinct species. It is less branched, and has more numerous leaflets than the var. β . The flowers are violet, four to six in number, in a short spiked raceme. The nearly mature legume is densely clothed with long woolly cream-coloured hairs, and very closely resembles that of *P. mollissima*. Our plant has much the appearance of *Astragalus glareosus*, Dougl. (*A. argophyllus*, Dougl.) and which, I suspect, is a *Phaca*, but the leaves and fruit are different.

Plate II. *Phaca mollissima*, var. *Utahensis* of the natural size. Fig. 1, a flower. Fig. 2, the wings and heel. Fig. 3, the stamens. Fig. 4, mature fruit of the var. α . Fig. 5, cross section of the same. Fig. 6, immature fruit of var. *Utahensis*.

ASTRAGALUS ADSURGENS, Pall.?—West shore of the Salt Lake, in sandy soil. Flowers white, shaded with purple. This plant seems intermediate between *A. adsurgens* and *A. striatus*, Nutt. The legumes were not found. May 1.

OXYTROPIS LAMBERTII, Pursh.—Upper waters of the Platte, &c.; frequent.

HEDYSARUM MACKENZII, Richards. App. Frankl. Journ. ed. 2, p. 28.—Promontory Range, Utah. Fl. May 1.

LUPINUS ALBICALLIS, Dougl.?—High grassy land, Antelope Island, Salt Lake. Fl. June 30. A suffrutescent species densely clothed with short appressed almost silvery hairs. The leaflets are mostly in sevens, oblanceolate and acute. The flowers are nearly as large as in *L. perennis*, in rather dense, somewhat verticillate spikes; and the upper lip of the calyx is strongly saccate or slightly spurred.

COWANIA STANSBURIANA, Torr. (Plate III.) *C. foliis pinnatifido—5-7-lobatis, lobis oblongis; floribus flavis. C. plicata?* Torr. in Frém. 2d Report, p. 314; not of Don. Stansbury's Island, Salt Lake. Colonel Frémont collected this plant in the mountains of California, along the Virgin River, a tributary of the Colorado. It is nearly related to *C. Mexicana*, Don, (in Linn. Trans. 14, p. 574, t. 22, f. 1.) which has also yellow flowers; but the leaves in that species are three-parted, with linear segments, and they have a long narrowly cuneate base.

A third species of this genus, *C. plicata*, Don, was introduced into England from Mexico in 1835, and is figured in Sweet's British Flower Garden, (t. 400.) This is clearly the plant afterward described and beautifully figured by Zuccarini in his Plant. Nov. v. minus cognitæ, under the name of *Cowania purpurea*. It is also *Greggia rupestris* of Engelmann, in Wislizenius's Jour.

The *C. Stansburiana* is a shrub attaining the height of from six to twelve feet. It is much branched, and the young twigs are glandular. The leaves grow mostly from short spurs. They are ovate in outline, 4-6 lines long, deeply cut into five or seven lobes, and whitish tomentose underneath, except the strong green midrib, but green and somewhat glabrous above. They are revolute on the margin, of a coriaceous texture, and sparingly dotted with conspicuous glands. The flowers are solitary, terminal, and on short peduncles. The calyx-tube is turbinate and glandular; the segments are broad and obtuse. Petals sulphur-yellow, broadly obovate, two or three times the length of the calyx-segments. Styles persistent, beautifully plumose, and in fruit an inch or more in length. Achenium linear-oblong, striate, and clothed with short appressed hairs. For further remarks on the genus *Cowania*, see *Plantæ Fremontianæ*, in the Smithsonian Contributions, vol. 6.

Plate III. *Cowania Stansburiana*; a branch of the natural size. Fig. 1, a leaf of the natural size. Fig. 2, upper surface of a leaf magnified. Fig. 3, under surface of the same. Fig. 4,

a flower-bud. Fig. 5, a flower laid open. Fig. 6, a petal. Fig. 7, plan of the flower. Fig. 8, a pistil. Fig. 9, front view of the style and stigma. Fig. 10, side view of the same. Fig. 11, a carpel of the natural size. Fig. 12, the same magnified. Fig. 13, a stamen seen in front. Fig. 14, the same seen from behind. Fig. 15, longitudinal section of a ripe carpel, showing the erect seed. Fig. 16, transverse section of the same. All the figures except No. 1 are more or less magnified.

SPIREA DUMOSA, Nutt. Mss.; Hook. Lond. Jour. Bot. 6, p. 217; Gray, Pl. Fendl. p. 40. *S. discolor*, Torr. in Ann. Lye. N. York, 2, p. 195; not of Pursh.—Stansbury's Island, Salt Lake. Fl. June 26.

Plate IV. *Spiraea dumosa*; a branch of the natural size. Fig. 1, the fructiferous calyx. Fig. 2, a carpel. Fig. 3, the same laid open.

S. OPULIFOLIA, var. *PAUCIFLORA*, Torr. and Gr. Fl. 1, p. 414.—Summit of a mountain on Stansbury's Island, Salt Lake. Fl. June 26. A tall, much branched shrub, with leaves scarcely more than half an inch in diameter.

CENOTHERA CÆSPITOSA, Nutt.—Shore and islands of the Salt Lake. May and June. Usually acaulescent, but sometimes throwing up a branching stem about six inches high. The flower is from two to three inches in diameter, white and fragrant. *C. montana*, of Nuttall, is hardly distinct from this species, and perhaps *C. marginata* should be regarded as a variety of the same.

C. SCAPOIDEA, Nutt. in Torr. and Gr. Fl. 1, p. 506.—Western shore of the Salt Lake. Fl. and fr. May.

C. ALBICAULIS, Nutt.; Torr. and Gr. Fl. p. 495.—Islands of the Salt Lake. Fl. June. Stem about a foot high; the flowers small, white, and inodorous.

GAYOPHYTUM RAMOSISSIMUM, Torr. and Gr. Fl. 1, p. 513.—Antelope Island, Salt Lake. Stem about eighteen inches high, with very slender branches, and flowers even smaller than in Mr. Nuttall's specimen of this plant. The pedicles are about twice as long as the ripe pod.

MENTZELIA ORNATA, Torr. and Gr., and Gray, Pl. Fendl. p. 47. *Bartonia ornata*, Nutt.—Islands of the Salt Lake. In our speci-

mens there are only five petals; and the filaments of the five outermost stamens are only a little dilated, while the anthers are perfect: but in other specimens, collected by Colonel Frémont, there are ten petals, of which five inner ones are rather smaller than the others; and so they are described by Mr. Nuttall. Sir William Hooker thinks that *M. lavicaulis* is not distinct from this species; but Dr. Gray states (l. c.) that it differs in its yellow flowers, which open in the sunny hours, while in *M. ornata* they are white, and open toward sunset.

M. ALBICAULIS, Dougl.; Torr. and Gr. l. c.—Valley of the Salt Lake.

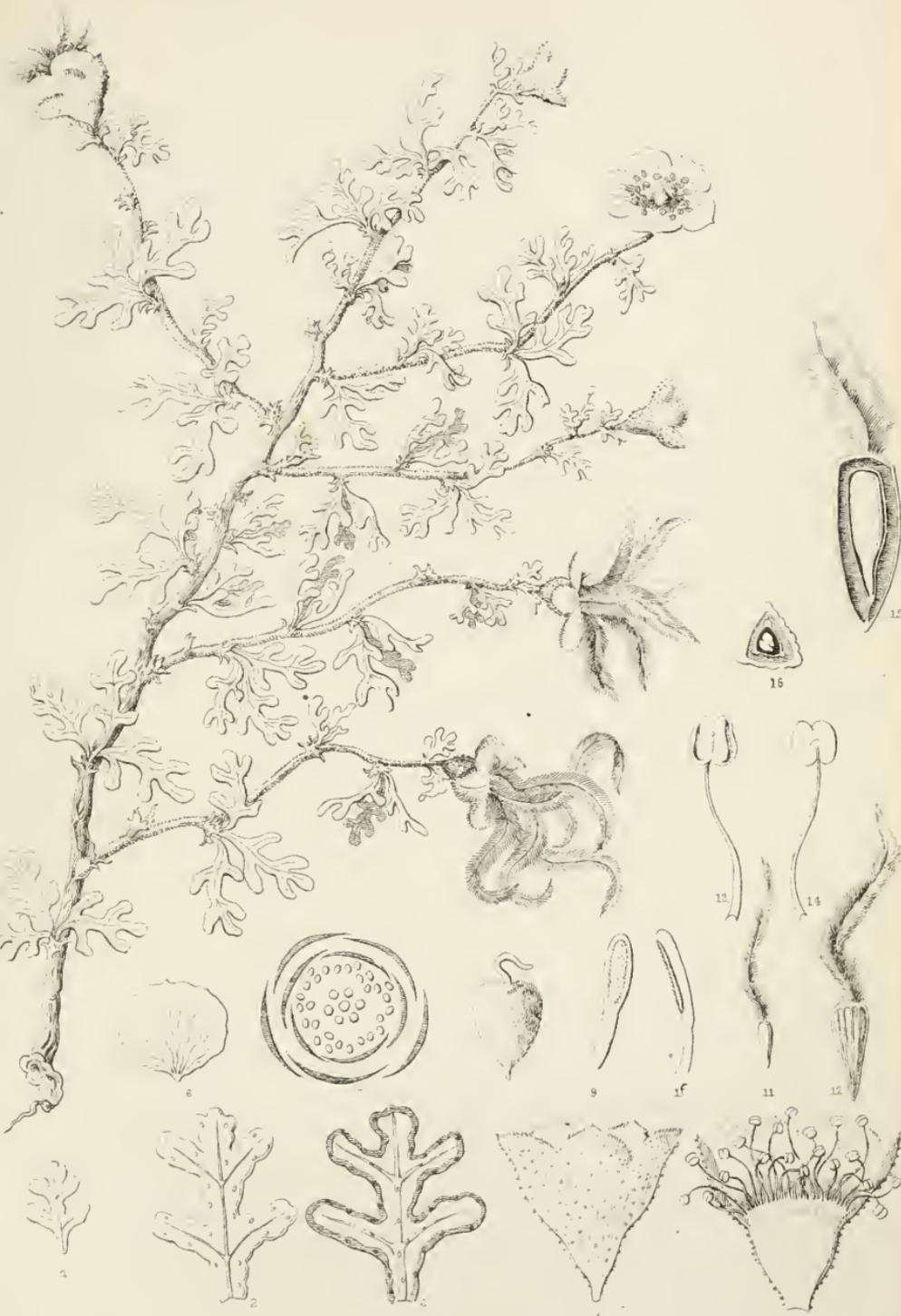
EROBIUM CICUTARIUM, L'Herit.—Islands of the Salt Lake. Fl. June. This plant is widely spread over the western part of North America, from the Rocky mountains to the Pacific, and is doubtless indigenous.

HEUCHERA RUBESCENS, Torr. (sp. nov. :) scapo nudo glabro vel scabriusculo; foliis suborbicularibus breviter 5-7-lobatis glabriusculis, lobis crenato-dentatis, dentibus setoso-mucronatis, vel obturis; panicula oblongo thyrsoidæa sublaxa; staminibus exsertis; petalis linearibus calyce æquali longioribus.

Stansbury's Island, Salt Lake. Fl. June 26. Rhizoma thick and somewhat ligneous, clothed with brown vestiges of leaves. Leaves an inch or an inch and a-half in diameter, nearly orbicular, mostly cordate at the base, somewhat coriaceous, either wholly glabrous or very sparingly strigose-pubescent, moderately 5-7-lobed, and the lobes crenate, or broadly toothed. The teeth usually mucronate and sometimes ciliolate. Petioles 2-4 inches long. Scapes varying from a span to fifteen inches high, entirely naked, except a few remote appressed scales. Panicle rather loose and few (15-20) flowered. Flowers about one-third larger than in *H. Americana*. Bracts lanceolate and often toothed. Calyx purplish-red, campanulate, pubescent; the segments linear-oblong, obtuse, and nearly equal. Petals narrowly linear, persistent, about as long as the stamens. Styles much exserted.

This species has the foliage of *H. parvifolia*, the inflorescence of *H. hispida*, and the calyx of *H. Americana*.

Plate V. *Heuchera rubescens*, of the natural size. Fig. 1, a flower. Fig. 2, the same laid open. Fig. 3, transverse section of a capsule. Fig. 4, a seed. All the figures are magnified.



LYNCHIA STANBROOKII

Arch. Bot. 1871, p. 100, f. 10





CRATAEGUS MOLLIS Nutt.

Art. 1000, h. L. 379 Broadway N.Y.

PEUCEDANUM BITERNATUM, (var. ? PLATYCARPUM.)—Fructibus obovatis, alis membranaceis disci sesquialtoribus.—With the preceding. Except in the broadly-winged fruit, this plant does not appear to differ essentially from *P. biternatum*, Nutt.

THASPIUM MONTANUM, Gray, Fl. Fendl. p. 57? On a mountain bordering the Salt Lake. Fl. May 25. One specimen has a perennial root, crowned with several spreading scapiform stems, which are (in the flowering state) from five to eight inches long. The whole plant is very glabrous and somewhat glaucous. The leaves are bi-tripinnatifidly cut, with oblong, acute, entire, or incised lobes. The yellow flowers are in dense umbels, with numerous rays. There is no involucre, and the involuclcs consist of 7–9 linear-lanceolate leaflets. The carpels of the young fruit are furnished with five broad, undulate wings. The vittæ in the intervals seem to be solitary, or sometimes double.

ASTER OBLONGIFOLIUS, Nutt.—Stansbury's Island, Salt Lake, June 26.

ERIGERON CONCINNUM, Torr. and Gray, Fl. 2, p. 174.—Valley of Salt Lake, May 30.

DIETERIA PULVERULENTA, Nutt. in Torr. and Gray, Fl. 2, p. 101.—Green River, Sept. 12.

SOLIDAGO MISSOURIENSIS, Nutt.—With the preceding.

LINOSYRIS VISCIDIFLORA, Torr. and Gray, Fl. 2, p. 234—var. SERRULATA; ramulis scabriusculis; foliis anguste linearibus trinerviis rigidiusculis acutis, margine serrulato-scabris; capitulis fastigiato-corymbosis subquinquefloris; squamis oblongo-lanceolatis glabris subquinquefariam imbricatis laxiusculis, exterioribus multo brevioribus, corollis glabris.—Valley of the Salt Lake.

GRINDELIA SQUARROSA, Dunal.—Bear River, near the Hot and Cold Springs. Fl. May 10.

STENOTUS CÆSPITOSUS, Nutt. in Torr. and Gray, Fl. 2, p. 238.—Valley of the Salt Lake.

AMBROSIA CORONOPIFOLIA, Torr. and Gray, Fl. 2, p. 291.—Table land at the northern extremity of Salt Lake Valley, Sept. 19.

LAPHAMIA STANSBURI, Gray, Plant. Wright, 1, p. 101 and 129. *Monothrix Stansburiana*, Torr. in Stansb. Rep. ed. 1, p. 390.—

Crevices of limestone rocks on Stansbury's Island, Salt Lake. Fl. June 26.*

The lower part of the stem is thick and ligneous, but the branches are herbaceous. These are about a span high, and are minutely glandular-pubescent. The leaves are scarcely half an inch in diameter, broadly ovate, or almost orbicular in outline, often subcordate at the base, with a few coarse, obtuse teeth, or almost lobed; the lower ones mostly opposite, but the upper ones often alternate. Heads 6-8 lines in diameter. Scales of the involucre in two or three series lanceolate, acute, glandularly puberulous, somewhat villous at the tip. Rays 6-10; the limb longer than the tube, and nearly twice as long as the involucreal scales. Disk—flowers constantly 4-toothed in all my specimens. Achenium obovate-oblong, compressed, slightly hispid-ciliate on the margin, crowned with a single rigid, upwardly scabrous bristle.

This genus is nearly related to *Perityle* of Bentham, (Bot. Sulph. p. 23,) but differs in the absence of squamellæ on the achenium, and in other characters.

Plate VI. *Laphamia Stansburii*, (*Monothrix Stansburiana*.) of the natural size. Fig. 1, a leaf. Fig. 2, a head of flowers. Fig. 3, an involucre laid open, the flowers removed to show the receptacle. Fig. 4, the same divided longitudinally. Fig. 5, an inner and an outer scale of the involucre. Fig. 6, a ray flower. Fig. 7, a disk flower. Fig. 8, corolla of the disk flower laid open. Fig. 9, branches of the style and their appendages.

CHENACTIS STEVIoidES, Hook. and Arn.; Torr. and Gray, Fl. 2, p. 371.—Strong's Knob, Salt Lake, June 10. Several of the ray flowers have the corolla dilated, but the lobes still nearly equal, and, as is the pappus, considerably shorter than in the disk flowers.

C. Tenuifolia of Nutt. is scarcely distinct from this species.

C. Achilleefolia, Hook. and Arn.; Torr. and Gray, Fl. 1. c.—Stansbury's Island, June 20. Stems about a span high, several

*The *Laphamia* of Dr. Gray, although published subsequently to *Monothrix*, must take precedence of that genus, as it now embraces one species with a pappus of many bristles, another with a bisetose pappus, and two other species that are quite destitute of a pappus; so that the latter name is no longer appropriate.



HEUCHERA RUBESCENS Torr

Acsermen Lith 670 Broadway NY

from one root. Leaves somewhat fleshy, densely clothed with a white tomentum; the lobes very small, obtuse, and much crowded. Heads few (3-6) in a terminal corymb. Flowers of the ray and disk nearly alike, funnel-form. Pappus of about ten oblong, obtuse, denticulate scales; five of which, in the disk flowers, are nearly as long as the tube of the corolla, and the five other about half as long. Scales in the ray flowers much shorter than the corolla tube.

Plate VII. *Chenactis achilleæfolia*, of the natural size. Fig. 1, a head of flowers. Fig. 2, an exterior scale of the involucre. Fig. 3, an interior scale of the same. Fig. 4, a disk flower. Fig. 5, cross section of an achenium. Fig. 6, a ray flower. Fig. 7, branches of the style and appendages. Fig. 8 and 9, scales of the pappus from a disk flower.

LAYIA GLANDULOSA, Hook. and Arn.; Torr. and Gray, Fl. 2, p. 394.—Valley of the Salt Lake, east side.

ACHILLEA MILLEFOLIUM, Linn.—Islands of the Salt Lake, June.

ARTEMISIA TRIDENTATA, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 398.—Green River, Sept. 12. Many of the larger species of the genus are called "Sage" by the hunters and emigrants.

A. FRIGIDA, Willd.; Torr. and Gray, Fl. 2, p. 424.—With the preceding.

A. LUDOVICIANA, Nutt., Gen. 2, p. 143.—With the preceding.

A. CANADENSIS, Mich., Fl. 2, p. 129.—With the preceding.

SENECIO FILIFOLIUS, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 414.—Green River, September.

S. HIDROPHILUS, Nutt. l. c.—Valley of the Salt Lake.

S. HOOKERI, Torr. and Gray, Fl. 2, p. 438.—Weber River, May 16. Scales of the involucre with black villous tips.

TETRADYMIA NUTTALLII, Torr. and Gray. *T. spinosa*, Nutt., l. c.—Shore of the Salt Lake, May 5. A thorny shrub, about four feet high.

CIRSIIUM UNDULATUM, Spreng.—Stansbury's Island, Salt Lake. Fl. June 24.

STEPHANOMERIA RUNCINATA, Nutt. in Trans. Amer. Phil. Soc. 7, p. 427.—Carrington's Island, Salt Lake.

LYGODESMIA JUNCEA, Don; Hook., Fl. Bor. Amer. 1, p. 295.—Stansbury's Island, Salt Lake, June 23. The heads in our specimens are quite as large as in *L. grandiflora*. Captain Stansbury states that the flowers are purple.

MALACOTHRIX SONCHOIDES, Torr. and Gray, Fl. 2, p. 486.—Shore of the Salt Lake, and on Carrington's Island, May 30. The pappus is decidedly double in this species. The outer series consists of five slender, nearly glabrous, and somewhat persistent bristles; the inner of about fifteen scabrous capillary bristles, which are caducous, and separate in a ring. I have seen the same character in two or three other species. Dr. Gray, in his *Plantæ Fendleriæ*, (p. 113, No. 453,) says that he noticed in "*M. sonchoides*, *M. Coulteri*, and especially in *M. Californica*, that two (opposite) bristles of the pappus are naked, instead of barbellate, and rather stronger and less desiduous than the others." In *M. sonchoides* I believe the outer series always consists of five bristles; but in some species they are variable in number, and in others are entirely wanting.

CREPIS ACUMINATA, Nutt. l. c.; Torr. and Gray, Fl. 2, 489.—Stansbury's Island, Salt Lake, June 23. This is the tallest of our indigenous species of Crepis. Some of our specimens are about three feet high. The radical leaves (including the petioles) are more than a foot in length.

Plate VIII. *Crepis acuminata*, of the natural size. Fig. 1, a separate flower magnified, as are the following. Fig. 2, an achenium with its pappus. Fig. 3, one of the hairs of the pappus.

TROXIMON CUSPIDATUM, Pursh, Fl. 2, p. 742.—Valley of the Salt Lake.

CASTILLEJA HISPIDA, Benth. in Hook. Fl. Bor. Amer. 2, p. 105.—Shore of the Salt Lake, May.

C. MINIATA, Dougl. in Hook. Fl. Bor. Amer. l. c.—With the preceding.

C. SESSILIFLORA, Pursh, Fl. 2, p. 738.—Weber River.

PENTSTEMON GRANDIFLORUM, Nutt. in Fras. Catal., 1813.—On the Arkansas River.

ERITRICHUM GLOMERATUM, D. C. Prodr. 10, p. 131. *Myosotis glomerata*, Nutt.—Near Salt Lake City. Fl. April 29.



MONARDA GLABERRIMA Torr.

ALMA MATER



ECHINOSPERMUM FLORIBUNDUM, Lehm.; Hook. Fl. Bor. Amer. 2, p. 84.—Valley of the Malade, Sept. 25. Near *E. deflexum*.

AMSINCKIA LYCOPSOIDES, Lehm.; D C. Prodr. 10, p. 117.—Shore of the Salt Lake. Fl. May 5th.

MERTENSIA DRUMMONDII, G. Don; D C. Prodr. 10, p. 86.—Salt Lake Valley.

LITHOSPERMUM? CIRCUMSCISSUM, Hook. and Arn., Bot. Beech. Voy., suppl. p. 370.—On Green River. In my account of the plants collected in California and Oregon by the United States Exploring Expedition, I have made this plant the type of a new genus, (*Piptocalyx*), allied to *Eritrichium*, from which it differs in its naked corolla and deciduous calyx.

HYDROPHYLLUM CAPITATUM, Dougl.; Benth. Trans. Lin. Soc. 17, p. 273.—Ogden's Pass, May 15.

EUTOCA HETEROPHYLLA, Torr. (n. sp.): erecta scabro-pubescent; foliis oblongo-linearibus subsessilibus integris vel ad basin utrinque unilobatis, lobis oblongis v. linearibus; floribus brevi-pedicellatis; lobis calycinis spathulato-linearibus obtusiusculis; corolla patenti-campanulatâ calyce sesquilongiore; placentis multiovulatis.—Valley of the Salt Lake, on the eastern side.

Annual; about a foot high. Radical leaves spatulate; the cauline ones broadly linear, 1–1½ inch long; either entire or furnished on each side at the base (sometimes only on one side) with a spreading, narrow, acute lobe, so that the leaves appear somewhat halberd-form. Racemes short, terminating the branches. Length of the calyx about three and a-half lines long, Corolla wide, campanulate, almost rotate, about five lines long; the lobes short and rounded. Appendages ten, narrow, connivent in pairs between the bases of the filaments. Stames nearly equal, a little shorter than the corolla. Style somewhat exerted; 2-lobed at the summit. Ovary with 15–20 ovules attached to each placenta. This species resembles *E. phacelioides*, Benth., but differs in the nearly sessile narrower leaves; the larger and broadly campanulate corolla, many-ovuled placentæ, &c.

GILIA (IPOMOPSIS) PULCHELLA, Dougl. in Hook. Fl. Bor. Amer. 2, p. 74.—Ogden Pass, May 15.

COLLOMIA LINEARIS, Nutt. Gen. Amer. pl. 1, p. 126.—With the preceding.

PHLOX HOODII, Richards. in Frankl. Jour. app. ed. 2, p. 6, t. 28.
—Mountains near the Salt Lake, April and May.

P. LONGIFOLIA, Nutt. Jour. Acad. Philad. 7, p. 41.—North-west shore of the Salt Lake, and near the mouth of Bear River, May 10.

PHYSALIS LANCEOLATA, Mich.—Salt Lake Valley, June.

GENTIANA AFFINIS, Griseb. Gent. p. 289.—Moist places, Aug. 18.

ACERATES DECUMBENS, Decaisne in D C. Prod. 8, p. 522.
Anantherix decumbens, Nutt.—Mountain on Stansbury's Island, Salt Lake, June 26. Stems often assurgent. Calyx and corolla green. Crown dark purple.

COMANDRA UMBELLATA, Nutt. Gen. 1, p. 157; Hook. Fl. Bor. Amer. 2, p. 139 t. 179.—Stansbury's Island, Salt Lake. Fr. June 20.

RUMEX VENOSUS, Pursh, Fl. 2, p. ? Green River. Fr. September 12.

ERIGONUM UMBELLATUM, Torr. in Ann. Lyc. Nat. Hist. New York, 2, p. 241.—Valley of the Salt Lake.

E. FREMONTII, Torr.—With the preceding.

SARCOBATUS VERMICULARIS, Torr. in Emory's Report, p. 149.
S. Maximiliani, Nees. *Fremontia vermicularis*, Torr. in Frémont's first and second Reports. "Pulpy Thorn" of Lewis and Clark's travels.—Strong's Knob, Salt Lake, Fl. June 10.

GRAYIA POLYGONOIDES, Hook. and Arn. Bot. Beech. Voy. suppl. p. 338, Hook. Ic., 271. *G. spinosa*, Moq. in D C. Prodr. 11, p. 110.—Carrington's Island, Salt Lake.

CHENOPODINA LINEARIS, Moq. in D C. Prodr. 11, p. 164, excl. syn. Ell. and Michx.—Mountain on the west shore of the Salt Lake. Fl. May 30. This plant attains the height of about three feet. The lower part of the stem is stout and shrubby. It differs entirely from the *C. maritima* of the Atlantic States; yet the authors who describe it as *not* shrubby are quoted by Moquin under *C. linearis*.

ARTHROCNEMUM FRUCTICOSUM, Moq. Chenop. Enum. p. 111, and in D C. Prodr. 11, p. 151?—North shore of the Salt Lake. A common plant in all the salines of New Mexico and California. It is a shrub about one foot high, and much branched. The joints of the branches are more or less compressed, and emarginately



CREPIS ACUMINATA Nutt

bifid at the summit. The spikes are cylindrical and are not jointed; the flowers being alternate, and immersed in deep excavations of the rachis. The calyx is quadrangular, and consists of four cohering sepals, which are cucullate, spongy at the summit, and at length separate from each other. There is but a solitary stamen. The seed is loose in the utricle, oblong, and the embryo forms about half of an ellipse.

OBIONE CANESCENS, Moq. Chenop. p. 74, and *O. occidentalis*, Moq. in D C. Prodr. 11, p. 112. *Pterochiton occidentale*, Torr. and Frém., in Frém. second Rep. p. 318. *Obione tetraptera*, Benth. Bot. Voy. Sulph. p. 48.—On Green River. Fr. September 10. This is a variable species, especially in the characters of the mature fructiferous calyx. Sometimes it is furnished with short, irregular-toothed wings, and at other times the wings are very broad and nearly entire.

O. CONFERTIFLORA, Torr. and Frém. l. c.—With the preceding.

ABRONIA MELLIFERA, Doug. Mss. Hook. Fl. Bor. Amer. p. 2, 125, Bot. Mag. l. 2879.—Strong's Knob, Salt Lake. Fl. June 10. Easily distinguished from *A. umbellata* by its broad involueral leaves and green flowers. In Frémont's first Report, p. 96, and in Emory's Report, p. 149, I noticed a peculiarity of the embryo; the inner cotyledon being constantly abortive. The same character exists in all the species of this genus: but I have not observed it in any other nyctagineous plant.

SHEPHERDIA ARGENTEA, Nutt. Gen. Amer. Pl. 2.—Black's Fork of the Green River. Fr. September 12.

EPHEDRA AMERICANA, Willd. Spec. Pl. 4, p. 860? Endl. Synops. Conif. p. 254.—Shore of the Salt Lake. A leafless shrub with very numerous branches, growing about four feet high. It is very doubtful whether it be the same as Willdenow's plant, which is a native of Quito. Although it is not uncommon in the interior of California and in New Mexico, I have never received the female flower or the fruit. All my specimens are males. *E. Americana* is described as monœcious. The *Ephedra* noticed in Emory's Report under the name of *E. occidentalis*, (a mistake for *E. Americana*,) differs from this species in its three-parted sheaths with long subulate points.

TRIGLOCHIN MARITIMUM, Linn.—Pursh, Fl. 1, p. 257.—Stansbury's Island, Salt Lake, June 24.

POLYGONATUM CANALICULATUM, Pursh, Fl. 1, p. 235.—Valley of the Salt Lake?

AMIANTHIUM NUTTALLII, Gray, Melanth. in Ann. Lyc. Nat. Hist. N. York, IV., p. 123. *Helonias angustifolia* and *H. paniculata*, Nutt.—Valley of the Salt Lake. Fl. May 1.

AMBLIRION, Rafin. in Journ. de Phys. 89, p. 102; Bernhardt, Bot. Zeit. 1835, p. 395? (ex Kth. Enum. 4, p. 255.) *Lilium* § *Amblirion*, Endl. gen. sub No. 1098. *Fritillaria* § *Eucrinum*, Nutt.

A. PUDICUM, var. BIFLORUM, Torr. *Lilium pudicum*, Pursh, Fl. 1, p. 228, f. 1.; Schult. Syst. 7, p. 401. *Fritillaria pudica*, Spreng. Syst. 2, p. 64; Nutt. in Journ. Acad. Phil. 7, p. 54. Hook. Fl. Bor. Amer. 2, p. 182; Kunth Enum. l. c.—Promontory Range, Valley of Salt Lake. Fl. April 12.

This rare and interesting plant was long ago proposed as a distinct genus by the late Mr. Rafinesque. It is allied both to *Fritillaria* and to *Lilium*. It differs from both in the want of nectaries. Unfortunately the fruit is not known, so that it cannot be compared with those genera in an important character. Our specimens are all two-flowered. The root is flat, orbicular, and toothed round the border, with a cluster of little tubers on the upper side at the base of the stem. The leaves are linear, and from two to four inches long. The flowers are yellow, nodding, about an inch in length, somewhat obconical, or funnel-form, and entirely destitute of a nectariferous groove. The stigma is simple and undivided.

According to Mr. Nuttall, *Fritillaria tulipifolia* of Caucasus is another species of this genus. I have also specimens of what may prove to be a third species, collected by Colonel Frémont on the Feather River, California; for the style, though thickened at the summit, is undivided, and the nectary is wanting: but there are several flowers in a loose racemose panicle.

Plate IX. *Amblirion pudicum*, of the natural size. Fig. 1, a sepal magnified, as are all the following. Fig. 2, a stamen showing the back of the anther. Fig. 3, a front view of the same. Fig. 4, the pistil. Fig. 5, a cross section of the ovary.



AMELANCHIER CANADENSIS.

Afternoon, Litchfield, N.Y.

ALLIUM STELLATUM, Fraser, Bot. Mag. t. 1576.—Weber River, May 23.

A. RETICULATUM, Fraser, Bot. Mag. t. 1840.—Wahsatch Mountains, June.

CALOCHORTUS LUTEUS, Nutt. in Jour. Acad. Phil. 7, p. 53; probably not of Douglass.—Valley of Salt Lake. The root is called "sego" by the natives, and is much esteemed by them as food. It is bulbous, and varies in size from that of a pea to that of a filbert. Our plant agrees exactly with the description of Nuttall, who was probably mistaken as to the colour of the flower. The inner sepals seem to be *white*, except at the claw, which is yellow. I have not been able to institute a comparison between this plant and Douglass's *C. luteus*; but if ours proves to be distinct, it may be called *C. Nuttallii*.

ERYTHRONIUM GRANDIFLORUM, Pursh, Fl. 1, p. 231. Lindl. Bot. Reg. t. 1786.—With the preceding.

TRITELEIA GRANDIFLORA, Lindl. Bot. Reg. fol. 1293. Hook. Fl. Bor. Am. 2, p. 186, t. 198, B.—Valley of Salt Lake. Fl. May.

JUNCUS BALTICUS, Willd.; Hook. Fl. Bor.—Amer. 2, p. 189.—Antelope Island, Salt Lake, June 1.

SISYRINCHIUM BERMUDIANA, Linn. *S. anceps*, Cavan.—Walnut Creek.

HYPOXIS ERECTA, Linn.—Upper Arkansas.

SCIRPUS TORREYI? Olney.—Gray, Bot. N. States, p. 526?—Stansbury's Island, Salt Lake. Fr. June 26.

Differs from *S. Torreyi* in its longer and larger spikes, and in shorter point of the achenium; but in other respects it agrees.

ERIOCOMA CUSPIDATA, Nutt. Gen. 1, p. 40.—Antelope Island, Salt Lake, June 18. A beautiful grass, which seems to be distinct from *Stipa*.

KOELERIA CRISTATA, Pers.—Gray, Gram. and Cyp. 1, No. 45.—With the preceding.

HORDEUM JUBATUM, Linn.—Torr. Fl. 1, p. 158.—Antelope Island, Salt Lake, June.

AGROPYRUM REPENS, Gaert.—With the preceding.

ELYMUS STRIATUS, Willd.—With the preceding.



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