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Enumeration of the Species of PLANTS collected by Dr. C. C. Parry, and Messrs. Elisha Hall and J. P. Harbour, during the Summer and Autumn of 1862, on and near the Rocky Mountains, in Colorado Territory, lat. 39°—41°.

BY ASA GRAY.

An interesting account by Dr. Parry of his first explorations of the Rocky Mountains in Colorado Territory, made in the summer of 1861, was published in the *American Journal of Science and Arts*, vol. 33, 1862. This was followed by an enumeration of the plants in the choice botanical collection which he made, as determined by myself, Dr. Engelmann and others. The importance of this pioneer exploration, both in a physico-geographical and a botanical point of view, decided Dr. Parry to repeat and extend it the following year, to undertake more full and exact observations upon the configuration of the district, and the altitude of the loftier peaks, and to secure a larger botanical collection. In the latter view, Dr. Parry was joined by two zealous and enterprising botanical companions, Messrs. Hall and Harbour, of Illinois, who devoted their entire energies to the collection of plants. The botanical collection, accordingly, through these conjoint labors and explorations, is full, excellent, and of great interest. Along with a fair proportion of species new to science or new to the region, it brings to light and makes accessible to botanists generally, many of the late Mr. Nuttall's discoveries made almost thirty years ago, and even some of those of his first journey up the Missouri, almost half a century ago, authentic specimens of which hardly exist, except in the herbarium of the Academy, in that of Mr. Durand, at Philadelphia, and in the Hookerian herbarium at Kew.

It is in this regard, namely, on account of the intimate association of the name and scientific career of Nuttall with Philadelphia, and especially with the Academy of Natural Sciences,—the publisher of many of his botanical writings, and the proprietor of his principal botanical collections,—that I have deemed it peculiarly proper to offer the following enumeration for publication in the Academy's Proceedings.

This enumeration is but a reconnaissance of the collection in hand. It might have been much extended by descriptions, remarks, and references; and some of the determinations may probably have to be reconsidered. But I deem it best for our science to publish it at once, as it is, that it may be early in the hands of botanists along with the distributed sets of specimens, thus enhancing the usefulness of the collection, and affording the widest opportunity for the prompt correction of oversights, omissions, or mistakes on my part, of which there may be not a few.

It should be remarked that the general collection, although made by the three associates conjointly, is distributed under the tickets of Messrs. Hall and Harbour,—upon whom indeed the labor of the collection more immediately devolved,—and is numbered quite independently of Dr. Parry's collection of 1861, thus avoiding all danger of confusion between the two. But a small separate collection made by Dr. Parry late in the summer, at stations visited by himself alone, which supplements or helps out the general collection, bears Dr. Parry's numbers of the former year, (which, being already published, are here mentioned only when there is some occasion for it,) or, when of plants not in that collection, the numbers are in continuation of it,—viz.: 398, 399, and so on. Reference to these additional numbers is chiefly made in foot-notes, to which also the characters of new species, &c., are assigned.

The plants were numbered and distributed into sets by Messrs. Hall and Harbour before they were seen by me, and a full set was supplied to me for examination, which serves as a basis for the following list. This accounts for a few misplacements, and also for the occasional mixture of two species 1863.]

under the same number; which, under the circumstances, it was not easy altogether to avoid. The collectors appear to have been somewhat too fearful of distributing the same species under two or more numbers; but the opposite course, in case of doubt, is preferable. Even well-marked varieties had better be kept separate in distributed collections.

## ENUMERATION.

### RANUNCULACEÆ.

1. *ATRAGENE ALPINA*, L. 2. *CLEMATIS DOUGLASSI*, Hook. 3. *C. EROETICI-FOLIA*, Nutt. 4. *PUISATILLA NUTTALLIANA*, Gray, which I am now convinced is properly referred to *P. patens*, and especially by Regel to his var. *Wolfgangiana*. Some of the specimens are very large and fine. 5. *ANKERON MELTIFIDA*, DC., both red and white-flowered. 6. *A. CAROLINIANA*, Walt.; on the plains. 7. *A. NARCISIFLORA*, L., from the alpine region; not before known this side of Russian America; fine specimens, with the flowers only three, two, or one to the involucre. 8. *THALICTRUM FERRERI*, Engelm.; the diagnosis noted in the Enum. Pl. Parry, p. 12, and now the species itself is obtained, "on low mountains." 9. *T. SPARSIFLORUM*, Turcz.\* in fruit, "the whole plant with a very heavy narcotic odor," according to Dr. Parry. 10. *T. ALPIMUM*, L., large specimens. 11. *RANUNCULUS CYRIBALASIA*, Pursh. 12. *R. HYPERICIFORMIS*, Botib. var. *scissus*, C. A. Mey. "In water or in swamps, at middle elevations in the mountains, or subalpine;† from the station and from the size of the plants so much approaching the small and emersed form of *R. Parryi* var. *repens*, Hook., (*R. Gmelini*, DC., of which a few specimens were also collected,) that it might belong to that species except for the want of a style; mature fruit not collected. 13. *R. (CYTHOANTHUS) NUTTALLI*, the very rare *Cyrtorrhynchos ranunculus*, Nutt. in Torr. and Gray Fl., which is rightly determined by Bentham and Hooker to have the ovule erect, and therefore to be a *Ranunculus*, notwithstanding the nervous achenia. † 14. *R. ESCANCOLEUM*, Schlecht., Hook.; same as the broader-leaved specimens of Parry's No. 80; has glabrous peduncles, smaller flowers, and shorter styles than *R. siccus*, but Greenland specimens of Vahl's collection approach it. 15. *R. AFRICUS*, R. Br. var. *leucocarpus*, Trautv.; the same as narrow-leaved specimens mixed last year with Dr. Parry's No. 80 (vide Sibb. Jour., 33, p. 404); may be a form of *R. auricomus* if that ever has glabrous achenia, but they compose a rather oblong or cylindrical head. 16. *R. AFRICUS*, var. *cardiophyllus*. (*R. cardiophyllus*, Hook.) The flowering specimens, with their cordate-rotund radical leaves, villos pubescence and large flowers (the corolla a full inch in diameter) perfectly accord with Hooker's figure, except that the stature is dwarf, and the young carpels show a rather long style, as figured; but accompanying fruiting specimens wholly accord with *R. affinis*. 17. *R. AFRICUS*, n. sp., † No. 81, of last year's collection of Dr. Parry, who has now supplied the fruit; and the species proves to be a new and peculiar, handsome and strictly alpine one. ‡ 18. *R. FRANKULA*, L.

\*Dr. Regel's note under this species, in his elaborate revision of *Thalictrum*, is headed on a misreading of my first note in Pl. Wright, 2, p. 8, where to *T. sparsiflorum* is referred *T. alpinum*, Hook., non DC. The Canadian species is wholly different, and a native only of the mountains of Carolina.

† *RANUNCULUS (CYTHOANTHUS) NUTTALLI*: petals supra basin reflexæ; stylis incurvis, stigmaspermatum; achenia terga multiseriata Nuttallii; glaber, nonpedicellæ; radice fasciculata; foliis radicalibus intertrichotis, segmentis 2-3-partitis, lobis oblongis linearibus; caulis 2-3-flores; ramis folio parvisubrotatis panicularis; petalis speculatilis apicis, lobis ætiam latis paulo superantibus; styli longis gracilib; acheniis trijugis subpennis in capitulum globosum collectis. Eastern side of the Rocky Mountains; Independence Rock on the West Water of the Plains, Nuttall.

‡ Mixed in some sets, I fear, with a little of *R. Escobolus* or of the real *R. affinis*.

§ *RANUNCULUS AFRICUS*, (sp. nov.) humilis, villo parvisubrotatis glaberratis; radice fasciculato-bifida; caulibus basi ramentaceo-supra 1-3-flores; ramis erectis simpliciterminatis unifloris; caulis segmentis decem-trichotis 2-3-flores; foliis bipedatis-partitis segmentis sagittatis linearibus pediculis basi scaribus dilatatis; pedunculo brevi; corolla supra calicem (perianthium ultra pedicellum diametro) petalis subellipticibus apicis ovibus subvillosis duplo longioribus, squamulis be

var. *repens*. 19. *R.* An ambiguous little plant from the alpine region, which might be mistaken for a smaller form of Parry's 79.\* 20. *MICOSTEMUM MIXIDIA*, L., from South Park, with somewhat more of a beak to the siliqua than in Eastern or European specimens. 21. *CARITHA LEPTOCOMPA*, DC. 22. *TROLLIUS LAXUS*, Salisb. var. *obiflorus*, Gray, in Bull. Jour. 33; well-developed specimens. Divisions of the leaves less deeply incised than in the Eastern U. S. plant. 23. *AGROSMIA VULGARIS*, var. *brevislyra*. 24. *A. CERULEA*, Torr., equally beautiful with the specimens of last year. 25. *DELPHINIUM ELATUM*, L., var., Parry's No. 84. 26. *D. SCOTILOIDUM*, Gray. 27. A high alpine form of the last. 28. *D. MEXICANUM*, DC.; but if collected east of the Mississippi might be taken for *D. tricolor*. 29. *ACONITUM NASTURUM*, Fisch.; white and blue, as in Parry's 86.

## BERBERIDACEÆ.

30. *BERBERIS* (*MANONIA*) *AQUIFOLIUM*, Parsh, var. *repens*.

## FUMARIACEÆ.†

31. *CORYDALES AERNA*, Willd., var. *erythroriza* (*C. carniflora*, Engelm.), the same as Wright's No. 1309. *montana montana*

## CRUCIFERÆ.

32. *NASTURTIUM OBTUSUM*, Nutt. 33. *CANDANINE HIRUTA*, L. 34. *C. CONDROPIA*, Gray.† 35. *STREPTANTHUS ANOCENTROPUS*, Nutt.; probably a form of *S. SACIATUS*, Nutt. 36. *TRICHRIS PATULA*, Graham. 37. *SYMBRIUM VINCIGRATUM*, Nutt., but from the siliques rather an *Erysimum*. 38. *ERTHIMUM CHRISANTHOIDES*, L. 39. *E. FUMILUM*, Nutt., (which I suppose is also *E. laurcolatum*, R. Br., of the Old World,) as to the fruiting alpine specimens, along with forms of *E. ASPERUM*, DC., with large flowers (*E. Arborescens*). The collectors think these are all forms of one species. 40. *SYMBRIUM SCORPA*, L. (including *S. coccineum*, Nutt.), both a smoothish form, with short pedicels and short pods, (*S. brachycarpum*, Richards.), and also with slender pods, and the whole herbage viscid with glandular pubescence.—one of the forms of *S. incisum*, Engelm. 41. *DRABA CRASSIFOLIA*, Graham; which, in Parry's former collection, No. 33, I named *Draba Johannis*, but it proves to have yellow flowers.‡ With it is mixed a very little *D. stellata*, var. *abscorpa*, as the species are

affert parva adnata; siliqua in capsulam ovale digressa lacinias tergitia, rostro longiusculo emarginato, strigose sericeo-albata! In the high alpine region, close to the snow. Dr. Parry's specimens of 1842, collected later in the season,—with some mature fruit, and with some of the stems becoming procumbent or runner-like, and producing a flowering shoot from the axils of the lower leaves,—enable me to characterize this remarkable species. In the early state it bears some resemblance to *Adonis vernalis*. The scarious wings of the style are sometimes decurrent on the siliqua, which, again, often has a delicate hyaline wing round the base. Notwithstanding the yellow flowers, the affinity of the species is probably with *E. glaberrima*, the corolla and style of which is said to be wing-margined. The petals are equally large and full.

\* This, from better specimens collected this year, confirms Mr. Black's opinion that it is a dwarf *E. nitensifolia*; but the uppermost leaf is often three-parted, and the siliqua have a small short beak, and are evidently the three-parted leaf; the pubescent siliqua and no large flower separate it from *E. Phoenicea* var. *repens*; and the woody entire and narrow leaves, the glabrous head of corolla and the dipantheric size (2 or 3 inches) from *E. affinis*, of which it has the siliqua. I have seen only a single specimen.

† *PASYPAS ALPESUM*, L. was again collected by Dr. Parry, No. 147.

‡ This species—which holds its characters well—when described, was compared with our *C. rhomboides* and *rotundifolia* on the one hand, and on the other, with the European *C. saxifolia*, which, so far as recorded, inhabits only central Europe. But I have just received from Kew a specimen collected by Dr. Lyall on the banks of the Achinty River, in the Cascade Mountains of N. W. America, at about lat. 48°, which, so far as my means of comparison extend, appears to belong to *C. saxifolia*. The interesting bearing upon questions of geographical distribution is obvious; viz.: as to the probable affiliation of *C. saxifolia*, *angulata*, *ovatifolia*, *rhomboides* and *rotundifolia*.

§ Specimens of this were sent by me to Dr. Hooker, to ask his opinion. He replies: "It is *Draba Johannis* of Europe, according to Mr. Bally; except that the flower is yellow. It is certainly also *D. crassifolia*, Graham, from Rocky Mountains, Drummond, and evidently the same as *D. Fendleriana*, Walp., and *D. lutea*, Adams, *D. pygmaea*, Turcz., and a host of others."

regarded by Regel, l. c., *D. muricella*, Vahl., with pubescent silicles, and a smooth form of *D. nemoralis*. 42. *D. nemoralis*, L., two pubescent forms. 44. *D. acuta*, Vahl. 45. *D. strimtocarpa*, Gray, *Enum. Pl. Parry*, p. 13, No. 96, with some reduced, high alpine forms, in which the silicle does not always twist. 43. *SMELOWSKIA CALYINA*, C. A. Meyer, (*Hutchinson, Desv.*) High alpine. 46. *THELIDIA COCHLEARIFORMIS*, DC. Common at all heights. 47. *PHYSALIA INDICARPA*, Gray, var. ? The same as Parry's 101, but more hoary, and with a longer slender style. Mature fruit and seeds being still wanting, it yet remains as doubtful as before whether this is a form of Hooker's species. 48. *VISCARIA LUDOVICIANA*, DC. 49. *VISCARIA MONTANA*, n. sp.,\* from the middle mountains; also collected last year at Baraka by Mr. Howard, but without fruit. 50. *STANLEYA ISTROFOLIA*, JAMES. 51. *THELIDION* (*PACHYDION*, Nutt.) *INTERIOLUM*, Torr. and Gray.

#### CAPPARIDACEÆ.

52. *CLORON INTERIFOLIA*, Torr. & Gray. 53. *CLORONELLA TENUIFOLIA*, Torr.

#### VIOLACEÆ.

54. *VIOLA BIFLORA*, L. 55. *V. NUTTALLII*, Pursh. 56. *V. MUEHLBERGII*, Taf. pubescens, same as 108 of Parry. 57. *IONIDIUM LINEARE*, Torr.

#### PARNASSIÆ.

575. *PARNASSIA PARTIFLORA*, DC., Hook. Two forms of the species, into which *P. Kotzebii*, Cham., probably passes. It is No. 427 of Dr. Parry. 578. *P. FIMBRIATA*, Banks; a small form of the species; the flowers only half the size of those of the ordinary state. It is No. 428 of Parry's separate collection.

#### HYPERICACEÆ.

58. *HYPERICUM SCOULEI*, Hook., which apparently is also *H. formosum*, HBK.

#### ELATINACEÆ.

59. *ELATINE AMERICANA*, Arn. On the Platte River. (60. See Primulaceæ.)

#### CARYOPHYLLACEÆ.

61. *SILENE SCOULEI*, Hook. 62. *S. DRUMMONDI*, Hook. 63. *LYCHNIS APETALA*, L. Vars., same as 132 and 135 of Parry. 64. *SILENE MEXICANA*, Hook. 65. *SILENE ACULIS*, L.

66. *PARNOTERA FULVIFATA*, n. sp., † the same as Parry's 227, of which he also has collected very fine specimens this year. 67. *P. JAMESII*, Torr. and Gray. 68. *SAGINA LINNÆI*, Presl. 69. *ARENARIA (ALPINA) ROSSI*, R. Br., the taller stems 3-5-flowered, pretty clearly a mere arctic-alpine form of *A.*

\* *VISCARIA MONTANA* (sp. nov.): argenteo-lanata; caulibus e radice perennali diffusis foliosis; foliis spatulatis, radicalibus subovatis petiolatis mucis 1-2-dentatis; racemis fructiferis elongatis; siliculis ovali seu ellipticis, immo-pubescenti stylo gracili longiore pedicello parvis curvatis curvato-patulis breviter. Habit. *V. Ledebouriana argyrea*, and argentea; well-marked by the oval or oblong silicle (which is, in some specimens, a line in length, but of scarcely half that breadth, while in others it is shorter and broader, barely oval in outline,) hoary, with a fine stellular pubescence, one-third longer than the style, commonly one-third or one-half longer than the pedicel, nearly terete; the valves of the same rather firm texture as those of *V. Ledebouriana*, more convex than those of *V. alpina*. Seeds four or six in each cell, wingless. Petals spatulate, light yellow. Filaments filiform.

† *PARNOTERA FULVIFATA* (sp. nov.): depressa, e radice lignoscente palmato-capitata, fere glabra; stipulis argenteis ovatis integris mucis lobis oblongis obtusis margine ciliolato-scabris sub-quantibus cum his ramis brevibus tagas ad forum terminalium scedulis dense vestitibus; calycis segmentis ovalibus late cordatis sub apice mucilloso aristulatis, aristulis mucillis via sequeantibus. In the high alpine region, quite common. Forming dense, cushion-like tufts, apparently like those of *Silene acaulis*, denser than those of *P. goodii* Torr., Nutt. Sepals 2 lines long, broadly ovate and obtuse, or the uppermost somewhat taper-pointed or acute, but mucilous. Leaves 2 or 3 lines long, about a line wide, bright green, flat, thick, very obtuse and mucilous, nerveless. Flower solitary and immersed among the leaves. Stamens 6, similar to the fertile filaments. Ovary globose, tapering into the rather short style.

uliginosa, Schleich. (*Alpine stricta*, Wahl.) 77. *A. arctica*, Stev., the same form as Parry's 141; and with it specimens of *A. bifida*, Wahl., var. *carneola*, Fenzl., with flaccid procumbent stems, and longer, lax, falcate leaves. If forms of the same, then *A. arctica* and *bifida* are properly united by Dr. Hooker. 78. *A. Fendlerii*, Gray.

79. *STREPTA UMBELLATA*, Turcz.? An ambiguous form, of the alpine region, with the capsules, seeds, and scarious bracts of *S. longifolia*, but with oblong, flaccid leaves, and petals wanting.\* 73. From middle elevations, is a form of the same, without fruit. *S. alpestris*, var. *paniculata*, Fries, Herb. Norm., is perhaps the same, or a form connecting it with *S. longifolia*, but his *S. alpestris* var. *alifera* is *S. borealis*. 71 and 72. *S. LONGIFOLIA*, Goldie. 72. *S. borealis*, Bigel., except the depauperate young specimens intermixed, which are the same as 70. 73. *S. JAMESII*, Torr. 74. *MORRISONIA LATIFLORA*, Fenzl. 75. *CERASTIUM ARVENSE*, L., mixed with *C. vulgatum*? var. *Bohringianum*, or *alpinum*, just as was Parry's No. 138 last year. (80. See under Scrophulariaceæ.)

## PORTULACACEÆ.

81. *TALINUM PARVIFLORUM*, Nutt., or perhaps *teretifolium*, as the specimens are only in fruit. 82. *CLAYTONIA VIRGINICA*, L., from the alpine region. 83. *C. arctica*? var. *wegneriana*, Gray, Enum. Pl. Parry (*C. wegneriana*, Parry); specimens smaller than last year. 84. *CLAYTONIA GRAMMISONIS*, Esch. (*C. equatica*, Nutt.); more luxuriant than the plant of Unalakotika, but otherwise similar: petals rose-color. (Dr. Parry again collected *TALINUM PRIMUM*, Gray, his No. 143.)

## MALVACEÆ.

85. *SIDAECRA CANDIDA*, Gray. Cold springs, &c., on Blue River.† 86. *MALVASTRUM COCCINEUM*, Gray.

## LINACEÆ.

87. *LINUM PERENNE*, L.

## GERANIACEÆ.

88. *GERANIUM RICHARDSONII*, F. & M., the same as 112 of Parry. 89. *G. FARMONTII*, Torr., var. *Parryi*, Engelm., the same as Parry's 113, the fruiting pedicels divaricate!

## RHAMNACEÆ.

90. *CERATOPHYS FREDERICKI*, Gray. 91. *C. OVATUS*, Desf.

## CELASTRACEÆ.

92. *PACHYSTIMA MYRSINITES*, Raf.

## SAPINDACEÆ (ACERACEÆ.)

93. *ACER GLABRUM*, Torr., the ordinary form of the species.

## LEGUMINOSÆ.

94. *LEPIDIUM PUBESCENS*, Pursh. 95. *L. ORNATUS*, Dougl.: "abundant at low and middle elevations." Very ornamental. 96. *L. CRYPTOSUM*, Nutt., probably a form of *L. aridus*, Dougl. The keel is slightly ciliate. It was found "on Blue River, west of the range." 97. *TRIFOLIUM DASTIFOLIUM*, Torr. and Gr. Still finer and larger specimens than last year. 98. *T. PARRYI*, Gray, Enum. Pl. Parry.‡ 99. *T. RASTUM*, Torr. 100. *DALEA LATIFLORA*, Pursh.

\* Dr. Parry also separately collected it, in few fruiting specimens, in subalpine woods, on Mad Creek, &c., No. 431.

† This rare species was separately collected in Middle Park, by Dr. Parry. It is his No. 423.

*SIDAECRA MALVIFLORA*, Gray, (*S. Neo-Neotoma*, Gray.) Parry's 420, was collected with the last.

‡ *TRIFOLIUM RICHARDSONI*, Nutt. Sparingly collected by Dr. Parry in Middle Park, and distributed as his No. 424.

101. *Psoralea lanceolata*, Pursh. 102. *P. floribunda*, Nutt. 103. *P. argophylla*, Pursh. 104. *Dalea alopecuroides*, Willd. 105. *Phytolobos macrostachya*, Torr. 106. *Astragalus kentrophyta* (*Kentrophyta montana*, Nutt.) 107. *Thermopsis rhombifolia*, Nutt. (the smaller plant and the fruit), and apparently *T. parviflora*, var. *missouriensis*, Gray (*T. montana*, Nutt.); the latter should be known by its taller stems, larger leaflets, and narrow, linear, pubescent, erect legumes. 108. *Hosackia purshiana*, Benth. 109. *Lathyrus orcutus*, Nutt., and a pubescent variety. 110. *L. linearis*, Nutt. 111. *L. polymorphus*, Nutt. 112. *L. palustris*, var. *myricifolius*? a small portion, and mainly *Vicia americana*, Muhl. 113. *Astragalus racemosus*, Pursh. 114. *A. (Phaca, Hook.) hirsutus*, Gray; in fruit. 115. Same in flower. 116. *A. (Phaca, Hook.) glaberrimus*, var. *major*, liliolis anguste oblongis. Very likely, as Hooker conjectured, a form of *A. oblongus*. A narrow, membranous, rudimentary false septum is borne on the dorsal suture, in the manner of *A. Robbinsii* and *A. alpinus*, to which, indeed, the species is related. It was collected in the mountains, "at middle elevation; not common." 117. *A. concavus*, Hornem. (*Phaca elegans*, Hook.) "Along the bank of streams, at middle elevations, and subalpine." Very fine specimens, both in flower and in fruit; the former with linear leaflets, like the original *P. elegans*; the latter with broader and glabrate leaflets, just like Bourgeau's specimens from the Saskatchewan. 118. *A. flexuosus*, Dougl. (*Phaca flexuosus* and *P. elegans*, Hook.) Legumes straight or slightly curved. "Low mountains and plains; common." 119. *A. gracilis*, Nutt. With the last. 120. *A.* near *Phaca debilis*, Nutt., but larger in all its parts. To be determined hereafter in a general revision of the species.\* 121. *A. mollissima*, Torr., of which the stipules were wrongly described, a form with silvery instead of yellowish pubescence. Fine specimens, same as Parry's 184, doubtfully compared with *A. glaberrimus*, still without fruit. "On the plains; scarce." 122. *A. parva*, Gray; now collected with ripe legumes, which are so obcompressed and sulcate both sides that the sutures meet. "Common both on the low mountains and subalpine." 123. *A. Drummondii*, Hook. 124. *A. alpinus*, L. "From middle elevations to truly alpine." 125. *A. caryocarpus*, Gray, Fl. Fendl. Specimens more luxuriant than Fendler's; the leaflets oval, half to two-thirds of an inch long, and young pods nearly two inches long. This is likely to be *A. Shortiiensis*, Nutt., of which I have seen no specimens; but the flowers are deep blue. "Low mountains, and rarely subalpine; a fine species." 126. *A. Missouriensis*, Nutt. 127. *A. pauciflorus*, n. sp., to be elsewhere characterized in a revision of the North American species. "On low mountains; rare." 128. Perhaps a variety of the last, with more numerous flowers and larger legumes. 129. *A. (Phaca) pauciflorus*, Hook.? A glabrate, slender form, the same as *Phaca pauciflora*, Nutt. "South Park, common, apparently a good forage plant." (Fendler's, No. 144 is the same.) 130. *A. (Phaca) hirsutus*, Gray, in flower. 131. *A. (Phaca) latiflorus*, Hook., very fine specimens in flower and fruit. 132. (fruit) & 133. (fl.) *A. caryocarpus*, Kt. 134. *A. (Phaca, Hook.) prostratus*, Gray. 135. *A. striatus*, Nutt.! 136. *A. (Phaca, L.) prostratus*, with perfectly glabrous legumes, as in other American specimens. "Subalpine, in wet pine-woods." 137. *A. (Phaca) rugifolia*, Gray, in Pacif. R. R. Exped. *Phaca longipetala*, Nutt. 138. *A. hypoglottis*, L. 139. *A. (Onophraca) serotinctus*, Gray (*Phaca sericea*, Nutt.); charming specimens of an interesting plant. 140. *Hemaloeus depressus*, Nutt. Also 435 of Parry, very sparingly collected. Its name as an *Astragalus* can be settled only upon a revision of the species. 141. (and 433 of Parry,) *Oxytropis deflexa*, DC. 142. *O. arvensis*, Dougl.; worthy of the name. 143. *O. Lambertii*, Pursh, with purple or blue, and with white

\*The name *Astragalus debilis* could properly be retained for *Phaca debilis* of Nuttall. For there is no *A. debilis* of Douglas; that so given in Wulp. Report, l. p. 110, being an accidental error for *A. major*, Dougl.

flowers; "very ornamental and very variable." 143. *O. ARCTICA*, R. Br. "High alpine." 144. *O. MULTICA*, Nutt. in Torr. and Gray, Fl. (*Physocalyx multiceps*, Nutt. in herb. Acad.) "Subalpine and lower." This is Dr. Parry's No. 191, which I wrongly referred to *O. ROSA*, Nutt. The plant is more dwarf and the leaflets much smaller than in Nuttall's specimens, which are in fruit only, while ours, last year in blossom only, now show the young fruit in the bladder calyx. It is a very pretty plant. 146. *SAROPHA SERENA*, Pursh. 147. *GLYCYRRHIZA LEPIOTA*, Nutt.

## ROSACEÆ.

148. *PARNUS* (CERASUS) PENNSYLVANICA, L. 149. *SPIRÆA DUMOSA*, Nutt. 150. *S. SPERDIFOLIA*, L., var. *parvifolia*. 151. *SIBIRIADA PROCUMBENS*, L. 152. *CRUM* (SIBIRIADA) TRIFLOREM, Pursh. 153. *G.* (SIBIRIADA) ROSSI, Ser. 153. *DRYAS OCTOPETALA*, L. 154. *POWENTILLA FISSA*, Nutt. 155. *P. PRUTICOSA*, L. 157. *P. CINNAMA* R. Br. 158. *P. PENNSYLVANICA*, L., var. *Hippiana*, Torr. and Gray. 159. *P. PASTORATA*, Nutt. † which specimens of Parry's, in 1861, (with 217) ally to large states of *P. sibirica*. (A glabrate specimen intermixed, is the same as Parry's 218, *P. Drummondii*, DC., Lehm.) 160. *P. NIVEA*, L., a form with the leaflets more deeply incised than in 215 of Parry. 161. *P. FLATERRASA*, Nutt. † the leaves more dissected, so as to be almost bipinnately parted; the same as a plant of Bourgean's collection, from the Saskatchewan. "Common in wet ground; spreading." 162. *P. PENNSYLVANICA*, L., var. *strigosa*, Pursh, with some of the coarser No. 158, perhaps accidentally mixed. 163. *RUBUS DELICIOSUS*, James; the same as Parry's 210, with large white petals. This will be very ornamental in cultivation. 164. *RUBUS TRIFLOREM*, Richards., in fruit. 165. *CHEOCARPUS PARVIFLORUS*, Nutt.\* 462. *CHAMÆRHOEN ERRECTA*, Bunge.

## ONAGRACEÆ.

166. *EPHEDRUM PALMISTE*, L. 167. *E. ALPINUM*, L. 168. *E. PANICULATUM*, Nutt. 169. *E. LATIFOLIUM*, L. 170. *E. ANGUSTIFOLIUM*, L. 171. *GAYOPHYTUM RACEMOSUM*, Torr. and Gray, with a specimen of 168 intermixed in my set. 172. *G. RAMOSISSIMUM*, Torr. and Gray; the var. *degenum*, Hook., in Lond. Jour. Bot., 6, p. 224, where the names of the two varieties are transposed. 173. *GENOTHERA MARGINATA*, Nutt. 174. *GE. MISSOURIENSIS*, Sims. 175. *GE. TRILORA*, Nutt. 176. *GE. NUTTALLI*, Torr. and Gray, (*Toricaria longiflora* and *brevisflora*, Nutt., the specimens belonging to the latter form), South Park. 177. *GE. FINKATIFIDA*, Nutt. (see Parry, Esquim., p. 40 (333), the hirsute specimen, which is just Parry's 116, and a caespitose pubescent specimen, which, from its obovate petals, should also be of this species, but not in fruit. 178. *GE. CONCORDIFOLIA*, Torr. and Gray, exactly No. 222 of Fendler's collection. 179. *GE. SERIOLATA*, Nutt. 180 (and 436 of Parry). *GAURA PARVIFLORA*, Dougl. 181. *GAURA OCCIDENTALIS*, Nutt. 182. *HIPPURIS VULGARIS*, L.

## LOASACEÆ.

569. *MENTHESIA* (BARTONIA) NUDA, Torr. & Gray. 570. *M.* (BARTONIA) MULTIFLOREA, Nutt.; the form with cylindrical capsules. 571. *M. ALBUCAUIS*, Dougl., (Parry's 126,) and some *M. OLIGOSPERMA*, Nutt.

## CACTACEÆ.

183. *OPUNTIA MISSOURIENSIS*, DC., with a red flower also in my set, probably of *O. NUTTII*, Nutt.

## GROSSULARIACEÆ.

184. *R. LACINIOSA*, Poir. var. (*R. setosum*, Dougl.) 185. *R. LEPTANTHUM*, Gray, Fl. Fendl. 186. *R. CRÆNUM*, Dougl. 187. *R. NUTTALLI*, Michx. 188. *R. AUREUM*, Pursh.

\* *PARNUS TRIDENTATA*, DC. is No. 432 of Dr. Parry's separate collection, from Middle Park.

## CRASSULACEÆ.

189. *SEDUM RHOICANTHUM*, Gray, Enum. Fl. Parry. In fruit; the inflorescence a dense spike-like thyrsus, oblong. 190. *S. STROSCOTALUM*, Pursh. 191. *S. RHODIOLA*, L. (192. See *Borraginaceæ*.)

## SAXIFRAGACEÆ.

193. *SAXIFRAGA RIVALIS*, VIE? An undeveloped specimen of this, in Parry's collection of 1851, was referred to *S. discifolia*? But the well-developed specimens appear to pass into the large state of the next. The limits between *S. rivalis*, *Virginiana* and *integrifolia* are not obvious. 194. *S. RIVALIS*, L., one form the same as Parry's 189; the other has a scape three inches high, bearing several peduncled erect flower-clusters in a racemose manner, just as in 193, from which it differs in its shorter and smaller, more-toothed leaves. 195. *S. CRANSA*, L. 196. *S. CONTROVERSA*, Sternb., referred by several authors to *S. adcockiana*, L. Alpine region; before found in America only by Bourgeau, in the Rocky Mountains farther north; known in Northern Asia. 197. *S. BRONCHIALIS*, L. 198. *S. DAVILLA*, Engelm. n. sp.\* "Alpine." 199. *S. SPERULIFOLIA*, Pursh; but probably only a high alpine, very dwarf and tufted variety of *S. discifolia*, L., this being the view taken of it in the Enumeration of Parry's collection of 1851, No. 164. The characters hold out in the present collection. 200. *S. HERCULEA*, L., in the ordinary form, as different from 199 as possible. "South Park, in wet or swampy places." 201. *S. FLAGELLARIA*, Willd. (202. See under *Primulaceæ*.) 203. *S. JAMESII*, Torr., from the original stations. A most rare and peculiar species. 207. *S. PUBERTATA*, L. (*S. arctica*, Fisch.) 204. *HEUCHERA PARVIFOLIA*, Nutt., the large form,—viz.: Parry's 174,—with some specimens passing to Parry's 173, the small form. 205. *HEUCHERA BRACKETATA*, † Scripps (*Tiarella? bracteata*, Torr.), the same as Parry's 173, mixed with a large-flowered, apparently new species, H. HALLII † Rocks, on mountains of medium elevation. 206. *LITOPHRAGMA PARVIFOLIA*, Nutt. 208. *MITELLA PENTANDRA*, Hook.; in fruit. 576. *CRYPTOSPLENIUM ALTERNIFOLIUM*, L. 568. *JAMIESIA AMERICANA*, Torr. & Gray. (209. See *Euphorbiaceæ*.)

## UMBELLIFERÆ.

210. *CYTOPHYLLUS GLOMERATUS*, DC. A plant rarely collected, but said to be very common on the plains, along with the next. 211. *C. MONTANUS*, Nutt. 213. *C. ALPINUS*, Gray, Enum. Fl. Parry, p. 19 (408,) No. 158; with good fruit as well as flowers. 212. *PEucedanum medicinale*, Nutt.? at least the plant so named in Hayden's collection on the *Mauriceux Terras* of Nebraska; but the plant is minutely pruinose-pubescent, not glabrous, nor is the fruit truly that of a *Peucedanum*, the marginal wings being double, nor from the description can it be the original *Sagrinum nudicaule* of Pursh. It must re-

\* This was mixed with No. 165 (*S. CRANSA*, L.) of Dr. Parry's collection in 1851, but very sparingly distributed. It has a granulate root, as called, and the foliage much as in *S. Siberica*, but is perfectly glabrous throughout, and with the occasional tube of the calyx wholly adnate to the ovary. As it is manifestly related to *S. rivalis* (though quite distinct), I suppose it may be the "*S. cyclobotris*," vel. n. sp., or the species compared with *Siberica*, of Chamisso in *Linnaea*, 3, p. 553, which in the *Flores Rossicae* are doubtfully referred to *S. rivalis*. In which case I know of no name to take precedence of this proposed by Dr. Engelmann.

† *HEUCHERA BRACKETATA* (Scripps): glabella, minutissime pruinose-glandulosa; thyrsus densus sphaerical multiflorus; bracteae saepe forae fusco-roseo-ante submarginatibus; calyx oblongo-fuso ad medium 5-lobis, lobis sphaerulatis-oblongis; petals obtusatis acuta filamentis six lobatis; staminibus stylisque dehiscentibus. Thyrsus communiter more or less axillaris. Flores from a span to nearly a foot in height, often 5-lobed-bracteate. Thyrsus commonly more or less axillaris. Flowers barely two lines in length. Teeth of the leaves usually retrocurvally mucronate.

‡ *HEUCHERA HALLII* (sp. nov.): hirsutula; thyrsus racemiformi sublonge 16-20-lineis; bractea pedicello via supermarginata; bractea orbiculata (saepe raso circinata); calyx lato-oblongo-lobis 5-lobis, lobis lateralis; petals sphaerulatis obtusatis exsertis; staminibus stylisque inclusa. Scapee usually a span high. Flowers about three lines long, but the calyx twice the breadth of that of *H. bracteata*, and very different in shape. Petioles, when fully developed, sometimes nearly as long as the flower. Leaves as in the preceding species, considerably variable.



main uncertain until the order is revised. A solitary fruiting specimen in Dr. Parry's collection of 1861 was very carelessly named *Lepidotea dissecta*, which is quite a different plant. 214. *MORRISON TRACHYSPERMUM*, Nutt.; near *M. dissectum*, but the young fruit much shorter as well as more scabrous. 215. *TRIPSICUM TRACHYSPERMUM*, n. sp.,\* in fruit, the same as 159 of Parry in 1861, of which the fruit was too young. It proves to be quite different from that of *T. montanum*, var. *leucifolium*. The genus is uncertain; but it can hardly be well separated from *Thaspium*. 217. *T. MONTANUM*, Gray, Pl. Fendl., in flower and in fruit, the latter with the three dorsal wings sometimes barely salient, sometimes as much developed as the marginal ones. 218. *CONIOSELINUM FISCHERI*, Wimm.; "alpine and subalpine." 219. *C. CANADENSE*, Torr. and Gray, probably a larger and coarser form of 218; "on low mountains." 220. *ARCHANGELICA GIBBINSI*, DC. 220. *ARCHEMORA FENDLERI*, Gray, Pl. Fendl.; fine, large specimens with good fruit, "in sub-alpine woods." It is 185 of Parry's 1861 collection, which I carelessly named *Arcula angustifolia*. 221. An aculeatus Umbellifer, undeterminable for the want of fruit. 222. *CYNOPTERIS? ANSATTA*, n. sp., called "*C. torbidiolina*, var. *fasciculata*" in Parry's 1861 collection (No. 137); but it can hardly be either of Nuttall's species under those names, on account of the very long and subulate leaflets of the involucre as well as calyx-teeth, yet apparently related to them; the foliage, &c., very similar. Mature fruit not collected; some of the present collection pretty well formed has the wings abortive, while in younger fruits of 1861 these are obvious and somewhat undulate. This dubious plant inhabits "dry hills in the middle mountains, and is a very aromatic herb." The foliage of the dried specimens and the fruit have a pleasant sulcate flavor,—characters unknown in the polymorphous genus *Cynopteris*, and rendering the genus of this plant yet more doubtful.

## ARALIACEÆ.

223. *ADONIA MICHXALIANA*, L. "Subalpine; common."

## CORNACEÆ.

*CORNUS CANADENSIS*, L. In the mountains Dr. Parry gathered one or two specimens of the ordinary form of this species; and in the alpine region also a depauperate form of it, some specimens of which, having a pair of leaves lower down on the stem, and those from the upper axils small, might readily be mistaken for *C. Saccia*. They are distributed as No. 437 of Parry.

## CAPRIFOLIACEÆ.

224. *LINNAEA BOREALIS*, GROSSOV. 225. *SYMPHORICARBUS MONTANUS*, HBK. 226. *S. OCCIDENTALIS*, R. Br. 228. *LOXICERA INVOLUCRATA*, BANKS. 228. *VIBURNUM PAUCIFLORUM*, PYLEA.

## RUBIACEÆ.

229. *GALIUM BOREALE*, L. 230. *G. TRINIDIS*, L., the reduced, northern form, near *G. palustre*.

## VALERIANACEÆ.

231. *VALERIANA DIOICA*, L., var. *V. sylvatica*, Richards.

\* *TRIPSICUM TRACHYSPERMUM* (sp. nov.): glabrum; caulis (petalis) striato 1-3-foliate orbiculis 2-3 longiusculis pedunculatis parvis; foliis bipinnato-decompositis, segmentis diffusiformibus membranaceis, petiolis basi distalis parte scarioso-margatis; involucro et involucello a distalis 1-2 subulæ parvis; corollæ lobis; fructu dilato ovato lateraliter compresso, mericarpiis scissis transversis breviter orbiculatis, jugis alveis 5 confusissimis costis tuberosis obtusissimis scabris cum uno commensurali a carpophoro decussato libero, valliculis orbibus grosse unilobatis. On the mountains, at middle and lower elevations. Leaves more decomposed than in the *T. montanum* var. *leucifolium*, with which I had confounded it, the segments shorter and more rigid; the fruit shorter, 1½ to 2 lines long, the mericarps not at all flattened dorsally, in shape and scent like those of *Thaspium*, and the short wings remarkably thick and corky, scabrous-roughened. A similar corky mass at the commissure in the section simulates another wing or rib, except that it is partly divided by a groove, which provides the carpophore.

## COMPOSITÆ.

932. *ERIGERON ACER*, L. 933. *DIPLOPAPPUS INICOIDES*, Torr. and Gray. 934. *ERIGERON COMPOSITUM*, Pursh. 935. *E.*, a species wholly doubtful to me, with deep purple or blue rays,—except in this respect the same as the white-rayed specimens of Parry's No. 3, which I had confounded with those of *E. saxiflorum*, with which it was mixed. I dare not now venture to describe it as a new species. 936. *E. GLABELLUM*, var. *pubescens*, Hook. Bourgeau collected the same form in the Rocky Mountains. 937. *E. DIVERSIFLORA*, Torr. and Gr. 938. *E. GRANDIFLORA*, Hook., var. *stricta*, Gray, Enum. Pl. Parry, No. 1: a still more luxuriant plant; stems more than a foot high, leafy to the summit, bearing two to four heads, with the same very woolly involucre. 939. *E. VERTICILLATUM*, L., both the same as Parry's No. 8, and large and tall forms, 6 to 9 inches high, with light-colored long wool to the involucre, as in the foregoing. "Common in the high alpine region." 940. *E. GLABELLUM*, Nutt.? var. *molle*. This is recorded as a common species at all heights. But I have never before seen such a form, except one of Bourgeau's, the largest specimens distributed under "*E. concors*," and that has white rays. From the shape of the leaves, and their size and abundance up to the summit of the stem, this should rather be referred to *E. macrodonum*; but the pubescence is strange for that species. 941. *E. GLABELLUM*, Nutt. Parry's No. 4 (collected again) is a dwarfer form of the same, and belongs rather to *glabellum* than to *E. macrodonum*. (241, 242. See below, under Aster. 243. See above.) 942. *E. CASPIROSEUM*, Nutt.; a strict form, near the var. *grandiflorum*,—of which *E. COMMA*, Gray, Pl. Fendl., is evidently a form. "Common on low mountains." 943. *E. PUBERUM*, Nutt. 944. *E. BEALDIANUM*, Nutt.

247. *SOLIDAGO LANCEOLATA*, L. 248. *S. SEMORALIS*, L.; a dwarf, subalpine form, passing to *S. NUNGA*, Nutt. 249. *S. MISSOURIENSIS*, Nutt.; a dwarf form. 250. *S. VIRGA-AUREA*, L.; two forms. 251. *S. VIRGA-ÆREA*, var. *multiradiata*, Torr. and Gray. Dr. Parry collected one specimen of *S. humilis* on Clear Creek.

241. *ASTER SALEXICOSTA*, Richards. "Subalpine." This is also 403 of Dr. Parry's separate collection. 242. *A. GLACIALIS*, Nutt. "In the high alpine region." 252. *A. ASCENDENS*, Lindl., var. *ellipticifolius*, Torr. and Gray, (which is also 419 of Parry,\*) and the var. *Fremontii*, Torr. & Gray, Pl. Suppl. 253. Various forms of the last, "alpine and subalpine, in low grounds," the larger ones (same as Parry's 417) passing towards *A. integrifolius*, Nutt., but the involucre not manifestly glandular. All the peculiar Asters of the Rocky Mountains and westward require complete re-elaboration. 254. (also 418 of Parry,) *A.*, near the smooth form of *serotinus*, L., and probably a variety of it, but with laxer and narrower scales to the involucre. The rays are pinkish, as they sometimes are in the eastern plant. "In the mountains, at middle elevations."

255. *APLOPAPPUS INICOIDES*, Torr. and Gray. Subalpine, in the South Park. 256. *A.* (*serotinus*) *pygmaeus*, Gray, Enum., Pl. Parry, mixed with specimens of an equally dwarf new species, which Dr. Lyall collected, in 1860, on the summits of the eastern side of the Cascade Mountains, at 7500 hundred feet above the sea. It should therefore be named *A. LYALLI*.† Both high alpine.

\* *ASTER* (*TRYPHOSEUM*) *GLACIOS*, Torr. and Gray, not in the general collection, is again in Parry's separate collection (No. 13) in the least state.

† *A. PYGMAEUS*, Gray, Pl. Fendl. (perhaps a hybrid form of *A. Nuttallii*) was sparingly collected on sand hills, on the plains, but not distributed.

† *APLOPAPPUS LYALLI* (sp. nov.) ramis nudique pubescentibus; caulis 2-3-pollicibus liliaceo-macropholis; foliis integerrimis subserotinis; capitulis macrodonis, pedicellatis in-ferioribus oblongo-spathulatis seu oblongo-lanceolatis basi attenuatis, cuneatis lateralis; involucri squamis laxe imbricatis subtriangularibus lanceolatis subquadrilobis glanduloso-puberulis; squamis 14-20 linearibus longioribus; a. brevis linearibus laxe glaberrimis; pappi albi setis stipulatis corollam dist. exsertibus. Parnu c. (Lyall); involucri squamis cuneatis lanceolatis cuneis acuminatis,

257. *A. (PYRROCOMA) CROCEUS*, n. sp.\* Subalpine, in the Middle Park, &c., west of the Rocky Mountain range. 258. *A. (PYRROCOMA) FREMONTII*. *Pyrracomia foliosa*, Gray in Jour. Bot. Nat. Hist. Soc., 5, 1843. Low mountains, lat. 39°. There is a Chilean *A. foliosa*; therefore, in suppressing *Pyrracomia* as a genus, the name of this most rare and well-marked species may very properly commemorate the discoverer. 259. *A. (PYRROCOMA) PARRYI*, Gray, Enum. Pl. Parry. 260. *CHRYSOMIS VILLOSA*, Nutt., with the dwarf variety, *C. hispida*.
261. *IVA AXILLARIS*, Pursh; a broad-leaved form. 262. *I. CILIATA*, Willd. 263. *EUPHROSYNE (CYCLACHENA) XANTHIFOLIA*, Gray. 264. *FRASSERIA TOMENTOSA*, Gray, Pl. Fendl. 265. *F. HOOKERIANA*, Nutt.
266. *LEPACHYS COLOMBARIS*, Torr. & Gr. 267. *GAILLARDIA ARISTATA*, Pursh. 268. *HELIANTHELLA UNIFLORA*, Torr. and Gr. Fine specimens. The achenia are ciliate with very long hairs; the awns are long, slender and persistent. † 269. *HELIANTHUS FUMIDUS*, Nutt. ‡ Parry's No. 59. 270. *H. RETICULATUS*, Nutt. 271. (& 420 of Parry.) *HELIOMERIS MULTIFLORA*, Nutt.; the broader-leaved form. 272. *HELIUM HOOKERI*, n. sp., a most striking species, seeds of which were collected near Pike's Peak in the autumn of 1850, by Mr. Thomas Hoopes, from which plants were raised by Mr. Halliday Jackson, of Westchester, Pa. † 273. *ACTINELLA GRANDIFLORA*, Torr. and Gr.; equally fine specimens as those of last year. 274. *ACTINELLA RICHARDSONI*, Torr. and Gr. 275. *A. SCARFOSA*, Nutt. var. (*A. glabra*, Nutt.). 276, 277. *A. ACANTHUS*, Nutt., in different forms. 278. *BANIA OPOSITIFOLIA*, Torr. and Gr. 279. *TRILEPERMA (COSMIDUM) GRACILE*, Gray. 280. *T. FILIPOLIUM*, Gray. 281. *VILLANOVA CHRYSANTHEMOIDES*, Gray. 282. *HYPNOPSIS TENUIFOLIA*, Pursh. 283. *CHRYSACTIS ACHILLEIFOLIA*, Hook. Arn.; a low form from the alpine region. 284. *C. ACHILLEIFOLIA*, var.

exterioribus paulo brevioribus; foliis parvis, caulis superioribus gradatim minoribus (6-8 lin. longis) subtortosis. 3. HAIR: involucrum squamis perlongis lateribus, externis oblongo-linearibus disco, subaequantibus; foliis etiam caulis majori spatulatis, externis pollicaribus capitulum obsequantibus, radiatibus bipollicaribus. Head half an inch long and wide. Ligulae erectae, 3 or 4 lines long. Appendages of the style in the disk-flowers oblong-linear. Ovaries in Hall and Hooker's plant sparsely bearded with a few slender hairs; in Dr. Parry's glabrous.

\* *Asteraceae (PYRROCOMA) CROCEUS* (sp. nov.): caulis subpedali parce hirsuto monophloemum primario lanoso; foliis coriaceis glabris integerrimis basi cuneis reticulatis, radicalibus oblongo-linearibus (non petalis pedalis), caulibus lanceolatis oblongo-linearibus semi-complexionibus; capitulis medio convexis; involucris hemisphaericis squamis ovalibus obtusiusculis mucosis, lateribus marginatis suba-aequantibus; ligulis 50 et ultra longe exsertis supra convexis; ovario breviteris glaberrimis; pappi albis corollam dist. adaequantibus. Allied to *Pyrracomia rubra*, Nutt. which, however, is probably not distinct from *Aplopappus (Pyrracomia) arctostaphylos*. But the leaves are less coriaceous and reticulated; the head naked, peduncled, and I believe nodding; involucrum an inch in diameter; the long exserted rays nearly an inch in length; the ovaries far shorter, and the pappus white. But I have this only in flower, and *P. rubra* in fruit.

† The following, apparently quite distinct, new species of this genus, was sparingly collected by Dr. Parry in Middle Park, near the foot of Pike's Peak. I have also received a specimen from Mr. Hall. It is distinguished by its small leaves and heads, thin and scarious chaff and the awnless achenia crowned with hyaline squamellae, which are resolved into a villous fringe that equals the proper tube of the corolla in length.

*HELIANTHELLA PARRYI* (sp. nov.): pedalis, hirsuta; foliis tripliciteris lanceolatis vel radiatibus spatulatis, caulis superioribus sublinearibus 1-2-pollicaribus; capitulis 2-3 parvis breviteris pedunculatis; receptaculo paleis tenui-carinatis apice truncato barbatis; ovario oblongo (exterioribus magis) proceis, interioribus superius parce villosis-ciliatis) exsertatis; paleis pappi dist. 4 latis tenuiteris hyalinis in stilum tubum proprium corollae obsequantem ciliatis. Involucrum only half an inch long; disk half an inch in breadth; ligulae 7 to 9 lines long.

‡ *HELIOMERIS HOOKERI* (sp. nov.): caulis valido comestulosus sesqui-bipedali oblongo-petalo; foliis planis ellipticis ovato-obovatis punctatis basi glaberrimis subteretibus integerrimis, radicalibus lanceolato-obovatis in petiolum brevem alarum angustatis, caulis oblongo-linearibus vel spatulatis caulis; pedunculis nervis incrassatis; cartilagine proceis; involucris squamis lanceolatis seu linearibus; receptaculo subgloboso; ligulis 20-25 linearibus (pollicaribus) cum disco squamellatis; pappi paleis lanceolato-barbatis ovario cordato dist. paleis breviteris achenium mucoso-ciliatum aequantibus. "South Park and west of Pike's Peak." Radical leaves 8 to 11 inches long, tapering into a petiole-like base or flat and winged petiole; the entire ones successively shorter and more distal at the base, the uppermost 1) to 2 inches long. Disk in the wild specimens an inch in diameter, and the numerous orange-yellow rays an inch long. Paleae of the pappus tapering to a sharp point, but not awned. This species is one of those which go to fill the interval between *Helianthus* and *Actinella*, but is clearly of the former genus.

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*Douglasii*, (*C. Douglasii*, Hook. and Arn.) 353. PALAFOXIA HOOKERIANA, Torr. and Gray, with smaller heads.

285. MACROKRANTHERA TANACETIFOLIA, Nees. (*Dieteria coronopifolia*, Nutt.) 286. GRINDELIA SQUARROSA, Dunal, with larger and with smaller heads. 287. (and 425 of Parry.) AFLOPAPPUS RUBIGINOSUS, Torr. and Gr. 288. A. SPINULOSUS, DC. 289. TOWNSENDIA GRANDIFLORA, Nutt. 290. T. SERRENA, Hook.

291. ASTER (ORXETIFOLIUM) ANOSTRIS, Torr. and Gr. (*Tripelium angustum* and *T. frondosum*, Nutt.) 292. LINOSEIN (CHRYSOTHAMNUS) GRATIOLENS, Torr. and Gr.; the form with small heads, and acute and viscid scales of the involucre. It occurs, much better developed, in Parry's separate collection, No. 413.\* 293 (and 413 of Parry.) L. (CHRYSOTHAMNUS) PARRYI, n. sp.† A very distinct species, which is said to abound in the Middle Park, South Park, and all that district; the wonder is that it has not been detected before. The spiciform or racemose and leafy inflorescence, and the large heads with lax and taper-pointed scales, are characteristic. 295. L. (CHRYSOTHAMNUS) VISCIDIFLORA, Torr. and Gr.; the variety with broadish and hispidulous-ciliate leaves (*L. serrulata*, Torr.); again collected also by Dr. Parry, under his number 49. 294 (and 426 of Parry.) GOTTIERIA EXTRAMILA, Torr. & Gr. 296. MACROSEMA FUSCOSA, Nutt. "Blue River, west of the Rocky Mountain range." An interesting rediscovery of a very rare plant.

297. PECTIS (PECTIDOPSIS, DC.) ANOSTRIFOLIA, Torr. Gravelly banks of streams.

298. ANTENNARIA ARCTICA, Less. (*A. Norvegica*, Fries); a more hairy form, —the same as Parry's 42, which I wrongly considered as a variety of *A. Richardsoniana*. "Strictly alpine." 299. A. SCORULONUM, n. sp.,‡ a "strictly alpine" species, allied to *A. leucota*, and to be compared with *A. heterophylla*, Bess., which, however, is placed in the section *Abrotanum*, while this plant has the woolly hairs of the receptacle as long as the flowers themselves, in which respect it also differs from the very similar *A. Richardsoniana*. 300. A. CANADENSIS, Michx. 301. A glabrous form of the last, with small heads, too near *A. canadensis* and some forms of the next. 302. A. BRACNUOLOIDES, Pursh, var. *brevipolia*, and specimens with trifid leaves passing into 301. 303, 305. (also 411 and 412 of Parry.) A. LUDOVICIANA, a form with small leaves, and also the var. *gaspensis*. 304. A. FRIGIDA, Willd. 306. A. TRIDENTATA, Nutt.§ "On the Blue River, west of the Rocky Mountain range." 307. A. FILIFOLIA, Torr. (308. See Chenopodiaceae.)

\* No. 414 of Parry's separate collection is a glabrate form of the same common species, of which only traces of the dense and white down remain, and the leaves and heads are larger.

† *LINOSEIN* (CHRYSOTHAMNUS) PARRYI (sp. nov.): fruticosa; ramis virgatis lanoso-tuberculatis; foliis linearibus fere glabris subtus, serratis, serrulis confertis capitis in thyrsum angustum congesto longe superantibus; involucrio 10-15-floro cylindrico paucicostato, squamis sublimbriatis albidis lanceolatis, confertis; exterioribus cupis 2-floris laterifloris scissis; interioribus unguiculatis; corollis tubo brevitate; achenis linearibus raro-pubescentibus. Leaves 2 to 3 inches long, 3-nerved, acute, plane, the larger ones 2 lines wide and tapering to the base. Thyrsus narrow, often almost singly racemose or spiciform, sometimes more compound and branched. Heads about two-thirds of an inch long, 6-flowered-bracteate; the bracts passing into the exterior and leafy-tipped scales of the involucre. Receptacle, styles, stamens, &c., as in *Chrysothamnus* generally.

‡ Also No. 41 of Dr. Parry's separate collection of 1862 (not of 1861, which is *A. borealis*, a very different species.)

§ *ANTENNARIA* (Antennarium) SCORULONUM (sp. nov.): caespitosa; rhizomate repente; caulis simpliciter apicatus; foliis albidis-velutis plerumque pinna 3-5-sectis, segmentis praesertim radicalium tripartitis, lobis cum foliis caulis linearibus angustis; capsulis planiusculis vel parvis simpliciter racemose-spicatis breviter pedicellatis caecis (lin. 2-3 latis), involucro hemisphaerico, squamis ovalibus et latis dorso-velutis marginis longae sericeae atro-fuscae cinctis; laxis receptaculi copiosis corollis superne longe pilosis adscissis. Var. MONOCHROMA; caulis 2-5-pinnatis capitulis achenis majori terminatis; foliis etiam radicalibus simpliciter tripartitis vel parvis 5-partitis parvis simpliciter linearibus. Stems sericeous-pubescent, sometimes glabrate below. Floral leaves or bracts filiform, linear, entire, the lower exceeding the head. Pedicels a line or a line and a half long, strictly erect. Flowers 30 or more, tipped with purple.

¶ This is 410 of Parry's separate collection, from Middle Park; and No. 408, associated with the above, is *A. can.*, Pursh; these two being the Wild Sage of Lewis and Clarke.

309. *ANTEPRARIA CARYOPHYLLA*, var. *palcherrima*, Hook. A remarkable and leafy-stemmed form.\* 310. *A. DISCA*, Gurtin, and *A. ALPINA* (female, 1-3-cephalous), mixed. Good specimens of *A. alpina* were separately collected on Mount Flora by Dr. Parry, No. 422. 311. *GNAPHALIUM STRICTUM*, Gray in Bot. Whipple, Exped. Pacif. R. R. Surv. 4, p. (54) 110; a less strict and many-stemmed form. "Wet places in the mountains." 312. *G. SECURARIA*, Ives. "Subalpine; rare."

313 (and 423 of Parry). *BRICKELLIA GRANDIFLORA*, Nutt., var. *minor*: foliis profundius cordatis capitulisque infraorbibus; involucri squamis acutioribus. 314. *NARDOMIA SAGITTATA*, Hook., var. with very obtuse leaves, connecting with *N. frigida*. "Near Pike's Peak." 315. *LEPTIS PUNCTATA*, Hook.

316. *SERENO LOBENS*, Richards, a typical form, and others belonging to *S. fastigiatum* and *S. exaltatum*, Nutt., but dwarf. "A common and variable species, at all heights and in all situations, flowering from June to September." 326. A dwarf form of the same, nearly Parry's 21, and just Fendler's 477. 325. *S. LUCIDA*, the downy state, same as Parry's 23, one of the forms of *S. exaltatum*, Nutt. 317. *S. AMPLECTENS*, Gray, Enum. Pl. Parry, p. 11, No. 56, a species which, considering the various forms under which it now occurs, was not very well named. A new specific character is appended.† It is a sub-alpine and alpine species.

318. *S. INTEGERRIMUS*, Nutt. A low form; "alpine." 319. *S. SOLDANELLA*, n. sp.‡ "High alpine, among rocks; heads generally single." They are solitary in all the specimens I have seen.§ 320. *S. CERUOUS*, Gray, Enum. Pl. Parry, No. 52. "A common species at middle and subalpine elevations." 321. *S. BOWLETON*, var. *Hollii*.¶ "Subalpine; heads very drooping, rayless." 322. *S. FRENCH*, Torr. and Gr. "Alpine;" a well-marked species. Recently collected by Dr. Lyall on the summit of the Rocky Mountains, in lat. 49°. 323. *S. TRIANGULARIS*, Hook., with shorter and finer teeth to the leaves, the

\* *ANTEPRARIA MARGARETATA*, E. Br., var. *subalpina*: caulis effusissimus ad subpedem simplicidatus, nervis congestis fere capitato. A singular, nearly alpine form, collected only by Dr. Parry, No. 421.

† *SERENO AMPLECTENS* (Gray, l. c.): laxis floccis max. deciduis glaberrimis; caulis semi-aequipedali e radice perenni apice nudo 1-3-cephalo; foliis membranaceis oblongis linguatisve aut repando aut serratisve dentatis vix subulatis, basi basi angustatis vel in petiolum alatum attenuatis, superioribus sessilibus basi (sine lato) semi-amplexicaulis; capitulis in pedunculo gracili subulatis; involucri calyculato lato; ligulis linearibus oblongis (1-2-pollicibus) auris; achaeni glaberrimis.

Var. *variegatissima* (E. Brownii, var. f. Gray, Pl. Parry, p. 9, No. 26): vix alpina, 4-5-pollicibus, monocephala; capitula minori vix subulata (ligulis semi-aequipollicibus); foliis crassis basi attenuatis pl. in linguatis. In the high and bare alpine region. This, judging from intermediate forms in Bell and Harboer's collection, must be regarded as a dependent, alpine variety of *A. amplectens*. Dr. Parry gathered only two or three specimens, like those of the former year.

‡ *SERENO SOLDANELLA* (sp. nov.): subulata, vix, glaberrima, subulata, vix semper monocephala; radice fasciculato-florea; foliis crassis vix parvis hinc, radicalibus hincque orbiculatis vix subulatis; basi basi angustatis in petiolum longum vix longiternum planum contractis apice dentulatis (dentibus pollinibus diametris), superioribus 1-2 minoribus oblongis spatulatisve petiolo brevi dilatato; capitulis magis (3-9 lin. longis et lato); involucri squamis lanceolatis acutiusculis 10-20 cum exterioribus 7-8 angustioribus immixtis linearibus vel peltatis dimidio brevioribus; ligulis oblongis 14-18 (basi circiter 4 lin. longis) discum vix superantibus; achaeni glaberrima. "On Gray's Peak," Dr. Parry,—who complimented the describer by naming this handsome and most distinct species, *S. Grayi*; but the *S. Grayi*, Hook., f. of New Zealand belongs to this.

§ In Middle Park, Dr. Parry gathered one or two specimens of what appears to be *S. hypolepis*, Nutt.

¶ *SERENO BOWLETON*, (Gray in Bot. Whipple, Exped. Pacif. R. R. Surv. 4, p. (55) 111), var. *Hollii*: foliis fere omnibus lanceolatis cum caulis plus articulis pubescentibus (demum glaberrimis), caulis omnibus sessilibus immixtis in petiolum alatum contractis. *S. magnopetala*, Nutt., thus far found only by Nuttall, has a similar pubescence, but more of it, and also on the involucres; the stipes of the latter are narrower, the heads are radiate and erect, and the plant is dwarf.

‡ *SERENO FRENCH*, (Torr. & Gray, Pl. 3, p. 448): foliis glabris; caulis simpliciter vel corymbosissimus magis ad apicem foliosus (8-12-pollicibus); foliis oblongis vel obovato-petiolatis carnosulis plerisque laciniato-dentatis omnibus sessilibus, superioribus pollinaribus vel semi-pollinaribus, inferioribus decussatis, capitulis solitariis parvis brevissimis pedunculatis erectis; involucri campanulato (semi-pollicibus) parvis bracteato; ligulis 10-16 linearibus; achaeni puberulis.

1863.]

325 *Sereno*  
326 *S.* —

var. *β*, Torr. and Gr. Fl., verging towards the next. 334. *S. ANDREWS*, Nutt. † from the locality (but the heads resemble those of the last, and are of equal size), or an undescribed species, if Nuttall's *S. andrews* is Hooker's *S. serotina* intermediate between the latter and *S. triangularis*. Fremont collected a single specimen of it in his second expedition. 327. *S. WYOMINGENSIS*, Richards. 328. *S. LONGICORNIS*, Benth., from the plains, with pinnately-parted leaves (Parry's No. 407); with a mountain form, having the leaves all entire and the heads narrow. The latter is the same as Parry's No. 406. The variations of *S. Allifolius*, *longilobus*, *spartioides* and *Rickellii*, are now wholly inextricable. 330. *S. CANTO*, Hook., a form with large heads and the leaves all entire, the same as Parry's No. 20; "alpine and subalpine." 329. *S. AUREUS* var. *alpina*, Gray, Enum. Pl. Parry, No. 63. This holds its character; but the heads are sometimes as many as three in a corymb. Different from *S. aureus* as it appears, it is inseparably connected with it through the var. *berocalis*. 343. <sup>347</sup> *S. AUREUS*, var. *alpina*, *serotinaefolius*,\*—very peculiar, truly alpine form, which would almost anywhere be regarded as a very distinct new species; but I think it runs into the last and into Wright's 403, &c. These forms all touch that *S. subulatus*, DC., and *S. rooseiifolius*, Less., will also pass into *S. aureus*. Indeed, I know not where the species will stop. 332. *S. AUREUS*, L. † var. *croceus*. Middle Park, &c. Both Dr. Parry (who has it as No. 405) and Mr. Hall note this as a form of the common *S. aureus* with copper-colored or saffron-colored flowers, and I cannot gainsay it, after reviewing a suite of specimens. Some of Hall and Harbour's specimens, except in the anomalous color of the flowers, very much resemble *S. oppositifolius* of the Old World. One form is discoid. 333. *S. AUREUS*, var. *berocalis* and var. *Balsamite*, Torr. and Gr.; glabrate or woolly, in various forms. "A common and very variable species, at all localities and heights, except strictly alpine. Some of the specimens are passing to *S. Fendleri*, Gray.

334. *ARNICA ANGSTIFOLIA*, Vahl; broad-leaved forms of *A. alpina*, L. †. "A variable species, from the low middle to the alpine region, flowering early and late." 335. *A. ROSA*, Hook.; "alpine and subalpine." 336. *A. CONDENSATA*, Hook., mixed with some *A. latifolia*, Bongard, (which Dr. Parry abundantly gathered in Berthoud's Pass; No. 408 of his collection); the latter known by the sessile cauline leaves, the narrower heads, and the almost glabrous achenia. 337. *A. CALIFORNICA*, Less. South Park, &c. Passes into leafy forms of *A. angustifolia*. 338. *A. ANGSTIFOLIA* ? var. *radiata*, or perhaps a distinct species. This is Parry's No. 10, resembling some rough-hirsute forms of *A. angustifolia*, approaching *A. mollis*, but the cauline leaves decreasing upwards; and the rayless character holds in the numerous specimens gathered in 1862: the achenia are glabrate, although the ovaries are pubescent. It can hardly be a form of the Californian *A. discoides*; but it needs farther comparison with that species. †

(339) *CHRISOM ACADIA*, All., var. *Americana*. "Subalpine; common in wet

\* *SENECO AUREUS*, L., var. (ALPINE) *WYOMINGENSIS*: multiplet-crepitans, pinnatis acutifolius; foliis radicalibus confertis spatulato-oblongatis seu spatulato-linearibus basi attenuatis cretulis coccineis rigidis acutis interpetiolaribus marginalibus apiculatis revolutis max glaberrimis (cum petiolo 2-4-poll, longis 2-3 lin. latis); scape apytha, (2-3-polliaris) bracteis parvis subulato-retatis latis obvelatis instructis corymboso-2-2-cephalis; capitulis, etc., & natis. The leaves may be traced to those of *Himera* or of *Calcium longifolium* or *arabae*.

The showing might be thought to be a form of this, or of Wright's 403; but, besides the small leaves, the achenia are papillose-hirsute, instead of perfectly glabrous.

*SENECO TETRASTACHY* (sp. nov.): multiplex, cuneo-ovato-obovatis max glaberrimis; foliis plerisque radicalibus confertis angustioribus linearibus basi cuspidatis attenuatis (cum petiolo drachm. pollivum longis) rigidulis interpetiolaribus vel chalcid. 2-3-lobatis marginibus quadrato-revolutis; scape apythamos 2-3-cephalis; foliis perianthiis subulatis bracteolatis instructis; capitulis fore & natis, and acheniis cretulis papillose-hirsutis! *S. aureus*, var. *pygmaeus*, Gray, in Bot. Mex. Bound. p. 202. Santa Rita del Cabos, New Mexico, Prof Thurston, Dr. J. M. Engelm.

† *TETRASTACHY CALIFORNICA*, DC., the form with rather smaller heads and shorter leaves (*T. americana*, Nutt.), was collected in the Middle Park by Dr. Parry, No. 416.

grounds." Stemless and polycephalous; at least my specimen has four heads nearly sessile on the crown, of equal size with those of the European plant, with which the specimens very well agree, except that the exterior scales of the involucre are all tipped with a manifest spine. Some of the leaves are barely sinuate, as in the common Siberian variety; others are nearly as deeply pinnatifid as in the European plant. 340 *C. sericea*, Nutt.† so named in Parry's former collection; but very probably not that species. In the lack of certain original materials, and of a complete re-examination, I could not pretend to name the Thistles of the Rocky Mountains, Oregon, &c., and am not disposed to add to the existing confusion: 341 *C.* "a white-flowered species," between the last and *C. foliosum*, (Hook.) DC., if Bourgeau's plant from the Saskatchewan is rightly named.\*

342 *C. Duchonsoni*, Torr. and Gr. Caulescent and leafy-stemmed, the exterior flowers having a sparingly plumose pappus; certainly very near *C. pumilum*. 343 *BOHAIAX CARLINIODES*, Cass., var. *notum*, DC. "Mountains, at middle elevations, and subalpine; and in fertile, open valleys of Middle Park, where it is very common, and certainly indigenous." I have a specimen of this collected by Mr. Sannels in California, which I had thought probably an introduced plant. But it would appear to be truly American as well as Asiatic. The specimens accord with Schrank's and with DeCandolle's figures of the Caucasian and Himalayan plant, although, perhaps, the appendages of the involucre scales are a little more dilated.

344 *MUGONDIUM PURSHELLII*, Nutt. 345 *LYGODESMIA JUNCEA*, Don. 346 *STEPHANOMERIA HUNGARICA*, Nutt. 347 *LYGODESMIA JUNCEA*, var. † *rostrata*.† "On the plains; Sept.; rare." 348 *CREPIS HUNGARICA*, Torr. and Gr. 349 *HIERACIUM TRISTE*, Willd. 350 *H. ALPISIMUM*, Hook. "Subalpine, west of the range; rare." † 351 *NADALEX RACHIMOSUS*, Hook. "South Park; rare;" a low form. 352 See above, p. 66. 353 *CREPIS OCCIDENTALIS*, Nutt. The same as Parry's 70, omitted accidentally. 354 *TROXIMUM GLABRUM*, Nutt., var. *Stille dilatatis laciniato-pinnatifidis, segmentis lanceolato-attenuatis*. Evidently a form of Parry's 65. Mr. Hall notes that it "flowers in May and the early part of June, on low mountains," and must be different from the next, which flowers two months later in the same localities. 355 *MACROSTACHYON TROXIMOIDES*, Torr. and Gr. (*Troxium curvicaulem*, Hook.); in a great variety of forms, large and small, from a foot and a half to as many inches in height, with entire, toothed, or lacinate-pinnatifid leaves; the size of the heads equally variable, and with yellow, orange, chocolate-colored or purple corollas. "Very variable at all heights, even alpine; flowers in July and August." The full suit of specimens show that to this clearly belongs *Troxium puriflorum* and *T. roseum*, Nutt., and *Macrostachys purpureum*, Gray, Fl. Fendl. The fruit, when well developed, is rostrate, with a beak of about equal length with the body of the the achenium. 356 *TROXIMUM GLABRUM*, Nutt., var. *discephalum*, Torr. and Gr. (*T. macrocephalum*, Nutt.) "High alpine; seemingly different from any of the above." It is also 424 of Parry's separate collection, from Berthoud's Pass. 357 *TARAXACUM MONTANUM*,

\* *Cirsium stricklandii*, sp. nov., will be the most appropriate name for the high alpine Thistle which I mentioned in the announcement of Parry's collection, 1852, p. 9, as *C. foliosum*, Hook. † It was again collected in 1852, nearly in single specimens, both by Mr. Hall and Dr. Parry. It is remarkable for the heads of yellow flowers being crowded into a capitulate tuft, as large as a man's hat, 20-30-involucre with very spinose bracts, and clothed with long and very soft, implexed, perhaps lanuginous wool; the stems but of two in height, very leafy; the leaves linear, caulescent beneath, pinnatifid, the lobes very short and crowded, armed with slender spines.

† *LYGODESMIA JUNCEA*, Don., var. *rostrata*; achenia apice rostrato-attenuata; capitula einge- kocht; folia angustissime linearibus elongatis (in hinc specie, 3-4-pinnatifida). Heads rather larger than is usual in *L. juncea*; achenia half as long, the tapering apex directly contradicting the generic character "not contracted at the apex," as here they may be said to be beak'd. Dr. Hayden collected the same form on the Laramie Mountains. The species all need to be described anew.

‡ To this belongs Parry's No. 71 of the 1852 collection.

Nutt., a form of *T. palustre*, DC. "In the mountains, at middle elevations, in wet ground; different from *T. Deuss leonii*, which was also met with, truly indigenous." (In the high alpine region were collected a few specimens of another form,—*via.*: of a very depauperate *T. lanigatum*, DC.)

#### CAMPANULACEÆ.

358. *CAMPANULA ROTUNDIFOLIA*, L., an ordinary form. 359. *C. LANGSOEKPIANA*, Fischer; excellent specimens of Parry's 286, exhibiting the same characters. It is said to be "very common in the subalpine region and lower, in wet ground." 360. *C. TRIFLORA*, L. "Pike's Peak; high alpine." 361. *C. APARINOIDES*, Pursh, a depauperate form.

#### ERICACEÆ.

362. *VACCINIUM MYSTILEUM*, L. "Alpine and subalpine;" in flower and fruit, connecting the small-leaved form with the ordinary European plant. 363. *V. CUSCUTOSUM*, Michx. 364. *ARCTOSTAPHYLOS UVA-URSI*, Spreng. 365. *GAULTHERIA MITSCHINII*, Hook. 366. *PYROLA SECUNDA*, L. 367. *P. ROTUNDIFOLIA*, L., var. *slipinosa*, Gray. 368. *P. CHLORANTHA*, Swartz; a small form. 369. *P. (MONESSEI) UNIFLORA*, L. 370. *KALAMIA OLAUCA*, L., the very dwarf form from the "high alpine" region. 371. *PTEROPORA ANDROMEDA*, Nutt.

#### PLANTAGINACEÆ.

372. *PLANTAGO ERIOPODA*, Torr. (For the synonymy, see Proceed. Amer. Acad., 6, p. 55, note.) 373. Apparently the same species, with hardly any wool at the crown,—which happens in other species. "High alpine, near perpetual snow." 374. *P. PATAGONICA*, Lam., var. *grapholicoidea*, Gray.

#### PRIMULACEÆ.

375. *ANDROSACE FILIFORMIS*, Retz. "Subalpine; not rare."\* 376. *A. SERTENDONALIS*, L. "Below the subalpine region and also alpine."† 377. *A. OCCIDENTALIS*, Nutt. "On the plains." 378. *A. CHAMMARUM*, L. (*A. curvata*, Torr.) High alpine on Pike's Peak, where Dr. James collected it. 379. *PRIMULA FARINOSA*, L., var. *foliis scabellibus*; umbella capitata; calyce cylindraceo tubum corollæ subsequente. *P. densiflora*, Engelm. in litt. But it exactly accords with the left-hand figure of *P. farinosa*, var. *Magellanica* of Hooker's Flora Antarctica (*P. decipiens*, Duby), and with my Antarctic specimens, except that the calyx is perhaps a little longer, and the corolla bluish-purple. Mr. Burke collected the same form on the Rocky Mountains farther north, but with the tube of the corolla a little exerted. Bourgeau collected specimens in the Saskatchewan district, having this elongated calyx-tube along with pedicels of ordinary length. It is interesting thus to connect the Antarctic with the northern forms, by specimens from the Rocky Mountains in about lat. 40°. 379. *P. PARRYI*, Gray, Knom. Pl. Parry, No. 311. "Alpine and subalpine; common." This holds its characters, except that the specimens of 1862 are generally less luxuriant, and the divisions of the corolla less bifid; indeed, in some of those of Dr. Parry's later collection they are barely emarginate; and in a few of them the calyx is very little glandular, and its lobes are orbiculate. The longer pedicels of the umbel are 1½ to 2 inches, or in fruit even 3½ inches, in length. Capsule short-ovoid, half an inch long, slightly shorter than the calyx-lobes. The thick root is said by Dr. Parry to be very

\* *Androsace filiformis*, Retz., a Siberian species, of which beautiful specimens are in the collection, is now first recorded as at the American Born. It has, however, long since been collected in the Rocky Mountains by Fremont, in his first expedition (in whose report it was wrongly named *A. occidentalis*, Nutt.); by Burke (ex. Herb. Hook.); and more recently by H. Engelman, in whose collection it was mistaken for *A. spectabilis*. From the latter, beyond the characters assigned by authors, it is well distinguished by its almost hemispherical calyx, scarcely if at all sagged, and with short and flat, not filiform teeth.

† Dr. Parry's 332a of 1862, is the high alpine form of this.



fragrant. Seeds of this handsome Primrose were copiously collected, from which we may hope to have the plant in cultivation. 380. *P. angustifolia*, Torr. 381. *Dodecatheon Meadia*, L., the same form as Parry's 312. 382. *Lychnis ciliata*, L. "Mountains at medium height." 69 and 577. *Glaux martina*, L., in flower and in fruit.

## LENTIBULARIACEÆ.

580. *Utricularia vulgaris*, L.? Without flowers. In a subalpine lake.

## ORORANCHACEÆ.

383. *Aphyllon fasciculatum*, Torr. and Gray.

## SCROPHULARIACEÆ.

384. *Pentstemon glaber*, Pursh; same as Parry's 260. 385. *P. acuminatus*, Dougl., agreeing with Bentham's character "filamento sterili glabro," which is very rarely the case, but a very narrow-leaved variety, just *P. secundiflorus*, Benth., excepting the glabrous sterile filament. "Mountains at low and middle elevations." 386. *P. acuminatus*, Dougl., the ordinary form of the region (*P. nitidus*, Dougl., *P. Fendleri*, Gray), Parry's 258. 390. *P. acuminatus*, Dougl., in some sets the common broad-leaved form, in others a variety with still narrower leaves than Parry's 264, i. e., a form almost exactly passing into *P. caruleus*, Nutt., the name which may probably have to be adopted for the combined species. "Plains; May." 387. *P. humilis*, Nutt., taller than Parry's 257, much larger than Nuttall's specimen. "Low mountains, an early and pretty species." Dr. Lyall has recently collected it in lat. 49°, at the elevation of 7000 feet. 388. *P. Hallii*, n. sp., described in "Revision of Genus Pentstemon," in Proceed. Amgr. Acad. 6, p. 79,—which memoir see for remarks on most of these Pentstemons. This is a most beautiful dwarf species, "not uncommon in the alpine region, descending into the subalpine," the rich blue purple flowers large for the size of the plant. Dr. Parry must have overlooked it in 1841 by confounding it with his 259 (*P. glaber*, var. *alpinus*), which, externally, it much resembles, but its affinities are with a different group. 389. *P. albus*, Nutt. "Plains; flowers white." 391. *P. cooperii*, Dougl., var. *purpureo-caruleus*, Gray, Rev. Penst. (*P. procerus*, Dougl.) A taller form of this, with large radical leaves, was sparingly gathered by Dr. Parry in the Middle Park. 392. *P. glaber*, Graham? var. *stenocephalus*, Gray, Rev. Penst. p. 70; the No. 262 of Parry. "South Park and Pike's Peak; alpine and subalpine." 393. *P. cooperii*, Nutt., Gray, Rev. l. c., p. 66. "South Park, at middle elevations." "Near the Upper Platte, first found by Mr. J. Harbour." Parry. A neat and very dwarf species, named by Nuttall, but unpublished, having been confounded with *P. pusillus*. 394. *P. pubescens*, Soland., var. *gracilis*, Gray, l. c. *P. gracilis*, Nutt. 395. *P. barbata*, Nutt., var. *Torreyi*, Gray. 396. *P. Harbouri*, n. sp., Gray, Rev. Penst. p. 71. "Mount Breckenridge on Blue River, west of the main range, in the high alpine region near perpetual snow." A very distinct and dwarf species, named after its discoverer. 397. *Cnicocorymba Jamesii*, Benth. High alpine, Pike's Peak, &c. Ripe seed having been collected, we may hope that this most rare and interesting plant may become known in cultivation.

398. *Mimulus lewisii*, L.\* 399. *M. Jamesii*, Torr., var. *Fremontii*, Benth.; apparently a form of *M. glabratus*, HBK. 400. *M. pubescens*, Dougl. 401. *M. aureolus*, Gray in Bot. Mex. Bound. p. 116; but the limb of the corolla apparently yellow. "Subalpine; scarce." The same plant occurs in Dr. Lyall's collection on our northwestern boundary, from the Cascade

\* *M. lewisii*, L. var. *lewisii*; caulis 3-polliaribus a basi decumbente vel repens 1-3-flores; folia plerumque sessilibus subobovatis. Alpine region, 12200 feet. Parry, 1842. Very glabrous. Further north, Dr. Lyall collected a similar, but pubescent and smaller-leaved variety.

Mountains. 402. *COLLENSIA PARVIFLORA*, Nutt. 80. *LIMOSYLLA AQUATICA*, L. Apparently just the European plant. "Low mountains." (403, 404. See Polemoniaceæ.)

403. *SYMPHYRIS PRANTAGINÆA*, Benth. Parry's 234, with a little *P. ALPINA*, Gray, Parry's 255.\* 406. *VERONICA SERPYLLIFOLIA*, L., an elongated form. 407. *V. ALPINA*, L. 408. *V. AMERICANA*, Schweinitz.

409. *CASTILLEJA DISSEMPLETA*, Gray, Enum. Fl. Parry, No. 243, and p. (336) 45. *ERIGONIA*, Nutt. "High alpine." 410. *C. INTEGRÆ*, Gray. 411. *C. PALIDA*, var. *minuta*, Kunth, Gray, l. c., (often with lacinate leaves) with a dwarf form of *C. pallida* having purple bracts, Parry's 239 † 412. *C. PALIDA*, the *C. septentrionalis*, Lindl. 413. *ORTHOCARPUS LYONSII*, Nutt. 414. *PEDICULARIS RACEMOSA*, Benth. "Subalpine; common in pine woods." 415. *P. CRENULATA*, Benth., in DC. Prodr. "Subalpine and alpine, South Park." This species was known only from very poor specimens collected by Fremont. These are good ones, but of a more dwarf and alpine form; stems only 5 to 9 inches high, glabrate, except some decurrent lines of pubescence; the leaves smaller and narrower. Corolla in the dried specimens of a deep violet-purple. 416. *P. CANADENSIS*, L. "In the mountains of middle elevation;" not before known in this region. 417. *P. BRACKETTA*, Benth. 418. *P. PROCERA*, Gray, Enum. Fl. Parry, No. 232. 419. *P. GRENLANDICA*, Kütz. *P. SUBVECO*, Benth., varying from 4 to 16 inches high, and also in the length of the beak. 420. *P. PARRYI*, Gray, Fl. Parry, No. 251. 421. *P. SUBETICA*, Willd. var. Like the specimens of the preceding year; and Dr. Parry also collected a more dwarf state. "Flowers red." 422. *REINASTRUM CRISTA-GALLI*, L., var. *minor*.

#### LABIATÆ.

423. *HEDEOMA HISPIDA*, Pursh. 424. *H. DUNSMORHII*, Benth. 425. *MENTHA CANADENSIS*, L., var. *glaberrima*. 426. *SALVIA TRICHOSTEMOIDES*, Pursh. Probably a form of *S. lanceolata*, for which Benthams takes it. 427. *S. PICHENII*, Torr. 428. *MONARDA ANSATATA*, Nutt. 429. *LOPHANTHUS TINIAUS*, Benth. 430. *DRACOPHYLUM PARVIFLORUM*, Nutt. 431. *SCUTELLARIA RESINOSA*, Torr.; pubescent and glabrate forms. 432. *S. CALIBRELLATA*, L.

#### BORRAGINACÆ.

433. *ERIGONOPHYLUM REDOWSKII*, Lehm., and a depauperate, diffuse or procumbent form of *ERIGONOPHYLUM CALIFORNICUM*, DC. 434. *ERIGONOPHYLUM CRASSIFLORUM*, Torr. and Gr.; the specimens hispid with rough, spreading hairs, and the selenia granulate, and also a more upright and narrower-leaved species, with pointed and smooth achenia, the same as Fendler's 635, named by Torrey *E. microanthum*, sp. nov., and afterwards in my herbarium referred to *E. angustifolium*, Torr., which it hardly is. I think it is also *Cryptantha bipida*, Nutt., ined. 435. *E. JAMESII*, Torr. Very well marked by the smooth and acute-angled achenia, the section of each just a quadrant of a circle. 436. *HEMISTYLIS* (*EPILOCHA*, Nutt.) *CONVOLVULACEUM*, Gray. 437. *H. CERRATIFOLIUM*, L. Doubtless indigenous. 437. *ERIGONOPHYLUM FLOERBYI*, Lehm. 438. *ERIGONOPHYLUM GLOMERATUM*, DC.; a fine virgate form, like Parry's 258, and a form with shorter and more branched inflorescence. (439, see Hydrophyllaceæ.) 440. *E. ARCTIODES*, DC. Beautiful specimens, like those of Parry's 278 in 1841; some of them Arctic-like, and only an inch high; others with elongated flowering stems two inches high. White

\* The latter, again copiously collected by Dr. Parry, in the high alpine region, holds its characters. (The leaves are sometimes retuse-ovate and manifestly cordate.) But a series of specimens supplied by Mr. Hall shows gradations between the two.

† Parry's 240, again sparingly collected in the alpine region, is a stiffer form of *C. pallida*, with a stout stalk, and bright red bracts, occasionally purple-colored with white; his 242 a dwarf, pale, alpine form, *C. septentrionalis*, Torr.

the scanty remains of the fruit of the former collection were analogous to that of *E. rotundum* var. *Tropaeiforme*, DC., well-formed fruit of the present collection is nearly as *E. villosum* is described and figured, having an inflexed margin with ciliate-spinulose teeth, thus lending confirmation to Dr. Hooker's view. And the back is almost as concave as in an *Omphalodes*. It will thus apparently take the name of *E. villosum* var. *arcticoides*. 441. *LIMNOCARPUS VILLOSUM*, Nutt.; same as 295 of Parry. 442. *MERTENSIA SIBIRICA*, Don., non DC. Small form, exactly the *Palmaria ciliata*, Torr. Dr. Parry, as before (285), collected large forms, and now some with the leaves more glaucous beneath. 443. *MERTENSIA ALPINA*, Don. *Palmaria alpina*, Torr. Barely a span high. 444. A very dwarf and hirsute form of the last, the sepals strikingly ciliate with long hirsute hairs, from South Park. These two numbers, and additional still dwarfer specimens of Parry's No. 285, induce me now to refer the latter (along with *M. Drummondii*) to *M. alpina*. 445. *M. ALPINA*, Don., var.; the loosely paniculate, small-flowered form, Dr. Parry's 284, mixed in my set with *M. FRANCESI*, Gray, Rev. Mertens, in Suppl. Enum. Pl. Parry, p. 46 (339); the latter, perhaps, runs into the former, but it is readily known by the barely 5-lobed calyx; the lobes only equalling or shorter than the tube.

## HYDROPHYLLACEÆ.

439. *PHACELIA CINERATA*, Jacq. 446. *P. PORRI*, Torr. and Gray. "Flowers white." 447. *P. (EUPHORA) SIBIRICA*, Gray.

## POLEMONIACEÆ.

448. *POLEMONIUM CARTELEUM*, L. A very viscid-pubescent and glandular variety; same as Parry's 275, and, (except that the stem is very leafy to the top,) Geop. 330, and Fendler's 645. "Low and middle elevations." 449. *P. CARISTUM*, L., answering to the plant of the Old World, except that the seeds are more or less wing-margined at each end; so it is the var. ? *pterosperma*, Benth. in DC. "Subalpine, in swampy places." 450, 451. *P. CONFERTUM*, n. sp.\* *P. pulcherrimum* in Enum. Pl. Parry, No. 274, but not of Hook. "High alpine, and at lower elevations." 452. *P. POLCHELLOM*, Bunge; just the Altal plant; and also accords with some of Hooker's speci-

\* *POLEMONIUM CONFERTUM* (sp. nov.): herbario (3-3-pollinar) pl. m. viscoso-glandulosum, coloris moscharum rotundum; foliis membranaceis parvis (1-3 lin. longis) ovatis seu linearibus-oblance plicatis irregulariter serratis seu fimbriatis-coarctatis (excepta cuspide 2-3-lobis); floribus ad apicem caulis simplicibus capitato-coarctatis natis; calycis segmentis lanceolatis acutis tubo elongato breviteribus; corollæ infundibuliformi (cuspide pallidiori) calycem bis fere superante, lobis rotundatis tubo 2-3-plo breviteribus. Var. a. (*P. pulcherrimum*, Gray, Enum. Pl. Parry, non Hook.): capsulae foras densa, fructifero acuto apice; corollæ lobis circularibus angulis. Hall and Harbour, coll. 450, strictly alpine. Var. b. *montana*: floribus in apicem caulium simplicibus natis subsimplicibus coloris mollisaphranthis; corollæ aut circularibus aut angulis-rotundatis, lobis membranaceis tubo productis 2-4-plo breviteribus. In crevices of rocks, wholly below the alpine region. Leaves exalting the mossy odor of var. a; the flowers with a delicious honey-like fragrance. Hall and Harbour, coll. 451. In the present condition of the species of *Polemonium*, I could not venture to add another to the list, if the present were not shown, by the fine suite of specimens now collected, to be a most distinct one. It is probably (at least in the var. a) the very handsomest of the genus; and, as ripe seeds were collected, it may be brought into cultivation. I cannot decide that the two varieties are of one species. The angular limb of the corolla of var. a (when fully expanded sometimes ten or eleven lines in diameter,) often renders the funnel-form tube less conspicuous; but this form passes by gradation into those of var. b, in which the narrow tube of the corolla (2 or 14 lines long) three or four times exceeds the smaller lobes. Indeed, this connects *Polemonium* so closely with *Sporopis* as the latter is connected with true *Galium*. A high alpine form of var. a was collected by Dr. Lyall in the Rocky Mountains farther north, lat. 49°, at the height of 8000 feet, having the verticillate lobes of the species, but a long exerted corda. It was taken for *P. villosum*, Nutt.; but the minute bristles of the latter are not verticillate or hooked, although much crowded, and its calyx and corolla are quite different, affixing it to *P. pulchellum*. I make small account of the corolla, finding them to vary widely in number in different flowers of the same inflorescence; but in var. a, I have counted a dozen in each cell, in var. b, usually only 4 to 6. The anthers are more oblong than in *P. carolinense*, because of the change of shape which the anthers undergo; when dry, they are short-oval, when soaked they become elongated-oblong, as *P. Richardsonii* is figured in Bot. Mag. In like manner those of *P. carolinense* change from round to short-oblong.

mens of *P. pulcherrimum*; both of which, with *P. capitatum*, etc., do seem to pass into Arctic forms of *P. coruleum*. 452. *PHLOX DOUGLASSII*, Hook. 454. *P. HUMILIS*, Dougl.† 455. *P. HOOGII*, Richardson. 403. *COLLOWIA GRACILIS*, Dougl. 404. *C. LINEARIS*, Nutt. 422. *GILIA PINNATIFIDA*, Nutt. ined. 457. *G. INCOGNITA*, Dougl. 458. *G. LONGIFLORA*, Benth. (*Cantua longiflora*, Torr.) 459. *G. AGGREGATA*, Spreng. (*G. pulchella*, Dougl.) With white as well as red flowers. 460. *G. SPICATA*, Nutt., in Pl. Gamb. The same as 271 of Parry's collection. 461. *G. CONGESTA*, Hook, var.† with the leaves mostly entire. "Alpine." 462. *Chamaejasme arctica*. See Rosaceae.) 463. *GILIA* (*LARTO-DACTYLON*) *PURPUREA*, Benth., from which *G. Hookeri* scarcely if at all differs.

#### CONVOLVULACEÆ.

464. *CUCUTA ARVENSIS*, Bayrich, var. *pentagona*, Engelm., a form with a small calyx. 579. *EVOLVULUS ARGENTÆUS*, Pursh.

#### SOLANACEÆ.

465. *SOLANUM BOSTRATUM*, Dur. 466. *PHYSA LIS LOBATA*, Torr., a form with the leaves little lobed; the corolla purple or blue. 467. *SOLANUM TRIFLORUM*, Nutt.

#### GENTIANACEÆ.

468, 469. *GENTIANA AFFINIS*, Griseb.;\* the former a more condensed form; the latter in 439 of Parry's separate collection. "Common in the subalpine region." 470. *G. PARRYI*, Engelm.†, a form with narrower leaves than *Dr. Parry's* specimens of the preceding year. "Subalpine." 471. *G. DETONSA*, Griseb., which *Dr. Engelmann*, with reason, reduces to a variety of *G. crinita*.‡ 472. *G. FRIGIDA*, Benth., var. *algida*, Griseb.: most beautiful specimens of Parry's 305, so new to this country. 473. *G. ACUTA*, Michx.; in various forms; perhaps in some sets with a little of the too nearly related *G. tenuis*.§ 474. *G. HUMILIS*, Steud. 475. *G. PROSTRATA*, var. *AMERICANA*, Engelm. 476. *SWEETIA FERRENSIS*, L. 477. *PLANCHONIA ROTATA*, Griseb.¶ "South Park, subalpine." 553. *FRASSERA SPECIOSA*, Dougl.

#### ASCLEPIADEÆ.

478. *ASCLEPIAS BRACHTYSTRANA*, Vahl; a dwarf form of this rare species, collected on the plains. 479. *A. SPECIOSA*, Torr. (*A. Douglasii*, Hook.)

\* *GENTIANA AFFINIS*, *Gris.* *gracilis*; caulis villoso-tomentosa; bracteolæ calycum brevæ squamulæ; calycis lobis inæqualibus tubum longiorum integrum seu variis spathaceo-ligam subequalibus; corollæ sagittate clavata pallide caruleo-rosea.

† *GENTIANA AFFINIS*, var. *brachycalyx*; caulis purpurascens; bracteolæ foram superiorum brevissimæ; calycis tubo abbreviato truncato seu brevissime dentato lobato; corollæ majore subrotunda cæcæ.

‡ This form has the appearance of a distinct species, but the characters taken from the calyx are variable; besides, *Dr. Parry* has sent specimens of it with a more distinctly lobed calyx. Other specimens collected by *Dr. H. Engelmann*, on Sweet Water Elster, have either an entire or a semipathaceous calyx, with lobes of different proportions; his specimens show many ascending stems growing from a large root, with numerous yellowish fleshy fibres.—*G. Engelmanni*.

§ *GENTIANA PARRYI*, Eng., a narrow-leaved form. *Dr. Parry* informs me that the narrow-leaved varieties are often condensed, and their stems single, while the broader-leaved form (*coll. Parry*, 1861, No. 304) usually occurs in bunches; the best-shaped bracts, the small calyx lobes, and the bifid folds of the corolla, are never wanting, and distinguish it readily from the allied *G. calycosa*.—*G. E.*

¶ *Gentiana saxatilis*, Engelm. in Trans. Acad. St. Louis, 2, p. 11 (*Michx.*); in *Dr. Parry's* 449, a truly alpine, dwarf and very beautiful species, closely related to *G. crinita*, *ciliata*, &c.

‡ On examination of a series of specimens, *Dr. Engelmann* is inclined to view *G. tenuis*, Griseb. as an extreme form of *G. acuta*, and also to adopt the conclusions of those who regard the latter as specifically identical with *G. Anserifolia* of the Old World. He adds the following note.

*GENTIANA ACUTA*, Michx. Undoubtedly an American subspecies of *G. Anserifolia*. *Mexico*, Hall and Harbour have sent a large suite of specimens, which, together with *Dr. Parry's* (1861, Nos. 301 and 309), show an extreme variability in size, manner of branching and arrangement of flowers, shape and size of leaves, proportion of calyx, size and color of corolla and size of seeds.—*G. Engelmanni*.

† *Dr. Engelmann* remarks upon this, *ibid.* That the corolla cover the whole surface of the ovarian cavity; 2d. That the structure of the corolla is that of *Scorria*, the nectarian glands at the base of the segments of the corolla being surrounded by a petaloid flange with fringed edges; so that the various lateral stigma principally separates the genus from *Scorria*.

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"On low mountains." 480. *A. OVALIFOLIA*, Decalene, Gray, Man., 1862, var. 481. *A. VERTICILLATA*, L., a common dwarf variety of the region, only three or four inches high.

## NYCTAGINACEÆ.

492. *NYCTAGINUS ARGENTIFOLIUS*, Sweet; the same as Fendler's 745. 483. *O. NYCTAGINUS*, Sweet, with the upper leaves nearly sessile; both glabrous and hirsute forms. 572. *AMBROSIA FRAGRANS*, Nutt. 573. *A. CYCLOPTERA*, Gray.

## CHENOPODIACEÆ.

484. *CHENOPODIUM ARGENTEA*, Moq. The same as 574 of Wright, and 708 of Fendler. 485. *CHENOPODIUM HYBRIDUM*, L. "Low mountains; rare." 486. *MORONELLA NUTTALLIANA*, Moq. (487. See *Amarantaceæ*.) 488. *CHENOPODIUM DEPRESSUM*, perhaps also *C. prostratum*, Moq. "South Park, and on the plains." The root is annual. 489. *C. MARTINA*, var. *erecta*, Moq. 308. *CHENOPODIUM CANADENSE*, Moq.

## AMARANTACEÆ.

487. *PROLISIA (OPLOTEUA, Nutt.) FLORIDANA*, Moq. "Sand hills, on the plains."<sup>18</sup>

## POLYGONACEÆ.

490. *POLYGONUM BISTORTA*, L., var. *oblongifolium*, Meisn. 491. *P. VIVIPARUM*, L. 492. *P. TENUE*, Michx., in several varieties, one of them (Parry's No. 322a of 1862) from the alpine region, only two or three inches high, with oblong or oblong-lanceolate leaves, appears to be *P. tenue* what *P. aciculare*, var. *noveboracense*, Boiss., is to the ordinary *P. aciculare*.† 493. *P. COARCTATUM*, Dougl., var. *minus*, Meisn.; a depauperate form? "Blue River, on the western slope of the Rocky Mountains." 494. *OXTRIA DICTYNA*, R. Br. 495. *RUMEX VEROSUS*, Pursh. 496. 498. *R. SALICIFOLIUS*, Weinm. 497. *R. MARTINUS*, L. "Subalpine, and on the plains of Nebraska." 499. *R. LONGIFOLIUS*, DC. (*R. Hippolapothum* and *R. domesticus*, Fries. Extends into the mountains; very common. 500. *EREGAGOSUM ALATUM*, Torr. 501. *E. ANNUM*, Nutt. 502. *E. EFFUSUM*, Nutt., with rose-colored flowers. 503. *E. CERISEUM*, Nutt. 504. *E. UMBELLATUM*, Torr., both with straw-colored (Parry's 318,) and with deep yellow flowers (Parry's 315). 505. *E. PLAVUM*, Nutt., a low form from the alpine region, and a large variety (var. *crassifolium*, Benth.) from a less elevated region.

## ELÆAGNACEÆ.

506. *SHEPHERDIA CANADENSIS*, Nutt. "Subalpine pine woods."

## SANTALACEÆ.

507. *COMANTRA PALLIDA*, var. *angustifolia*, A. DC. *C. angustifolia*, Nutt., ined.

## LORANTHACEÆ.

574. *ARCHONTOPHILUM CAMPTILOPODUM*, Engelm. Probably only *A. Americanum*, Nutt.

## EUPHORBIACEÆ.

508. *EUPHORBIA MARGINATA*, Pursh. 509. (also 438 of Parry) *E. MONTANA*, Engelm. 510. *E. DICTYOSPERMA*, Fisch. and May. 511. *E. HEXAGONA*, Nutt.

\* On the plains, in similar situations, Mr. Hall collected *Amblygona (Serratis) Torreyi*, Gray, in Proceed. Amer. Acad., 3, p. 189, the narrow form, noted in H. Engelman's collection. Parry's No. 322, referred ambiguously to *Minella*, is probably the male of this.

† Dr. Engelman, in a letter, referring all the forms of No. 492 to *P. tenue*, arranges them as follows:—var. *a. cuneata*; major; racemes majoribus (=quadrifloris longis). *P. MICROSPERMUM*: minor; gracilior; racemes vix longioribus longis. *P. LATIFOLIUM*: hirsute; foliis oblongis; spicis cæcatis; bracteis superficialibus (aristis destitutis) multis. Moreover, in the Prodr. it is wrong in saying that the nuts are subopaque or rough on the edge; they are perfectly smooth and shining with concave sides and an umbilication.

512. *E. PETALOIDES*, Engelm., with the small-flowered form named *E. polyclada* by Boissier. 513. *E. PENDLARI*, Torr. and Gray; the inappendiculate form. 514. *CROTCH* (*HENDRICKSIA*) *MURICATUM*, Nutt. 509. *TRAGULA RANOSA*, Torr.

## CUPULIFERÆ.

515. *QUERCUS DOUGLASHI*, var. *Nova-Mexicana*, A. DC. 516. *CORYLUS BOSTRATA*, Ait.

## BETULACEÆ.

517. *BETULA GRANDIFLORA*, Michx. "Subalpine." 518. *B. PAPPTRACIA*, Michx.; var., called *B. alba*, var. *glabrescens* in Parry's Enumeration. 519. *ALNUS VIRIDIS*, Ait.

## SALICACEÆ.

520. *SALIX ARCTICA*, R. Br. 521. *S. RETICULATA*, L. This and the last are high alpine species. 522. *S. BOSTRATA*, Richards. (*S. repens*, Anders.) 523. *S. OLACCA*, L. "Subalpine." 524. *S. CORDATA*, Muhl., or *VITELLINA*, L. 525. *POPULUS ANGUSTIFOLIA*, Torr. "Foot of the mountains." 526. *P. SALICIFERA*, L., var. *condensata*. "Subalpine; rather rare." 527. *P. TREMULOIDES*, Michx.

## CONIFERÆ.

528. *PINUS FORTISSIMA*, Dougl.; Engelm. in Enum. Pl. Parry, Suppl., p. (89) 332. 529. *P. FLEXILIS*, James; Engelm., l. c. 530. *P. ARISTATA*, Engelm. l. c. 531. *P. CONTORTA*, Dougl.; Engelm., l. c. 532. *P. ARBUS*, Engelm. 533. *ABIES MENZIESII*, Lindl. 534. *A. DOUGLASHI*, Lindl.

## ORCHIDACEÆ.

535. *PLATANTHERA HYPERBORÆA*, Lindl. 536. *P. OBTUSATA*, Lindl. 537. *CALYPTO BOREALE*, Salisb. 538. *CYPRIPEDIUM PARVIFLOREM*, Salisb. 539. *SPHARANTHES GEMMIFERA*, Lindl., from South Park, in the Rocky Mountains, (and one or two specimens were collected by Dr. Parry on South Clear Creek, July, No. 441);—quite resembling the Irish plant in aspect and in the labellum, etc., but the sepals rather narrower and less blunt,—mixed (in my set) with taller specimens, from the plains, of a narrow-leaved form of *S. cerasua*, having very large nipple-shaped calli on the base of the labellum. The labellum of the former, when flattened out, is in outline ovate or ovate-oblong, with a narrowed subapical portion below the cordate-rotund cross-crested summit. The forms of *S. cerasua*, or the species allied to it, are thus far quite inextricable. The present Rocky Mountain specimens are exceedingly interesting, whether absolutely identical or not with the much-veined and isolated *S. gemmifera*. They have not the long-acuminate bracts of *S. Romanzoffiana*, of which my specimens are too young to allow a comparison of the flowers.

## ALISMACEÆ.

540. *TRIGLOCHIN PALUSTRE*, L. 541. *T. MARITIMUM*, L. Both from the mountains.

## IRIDACEÆ.

542. *IRIS TENAX*, Dougl. ? "Subalpine, and at lower elevations; common." This, now collected in flower, we had in fruit, collected on the Laramie Mountains by Dr. Hayden, and at Bridger's Pass by Mr. H. Engelmann. The spathe is more scarious and the capsules larger than in *I. TENAX*.

## LILIACEÆ, incl. SMILLICEÆ, MELANTHACEÆ, etc.

543. *STREPTOPUS AMPLIFOLIUS*, DC. 544. *SMILLICINA STELLATA*, Desf. 545. *ALLIUM STELLATUM*, FRASC. 546. *A. SCHROEPFENSEM*, L. 547. *A. CERCUCUM*, Roth. 548. *LEUCOCORISTIS MONTANUM*, Nutt. 549. *CALOCORISTIS VESUS*.

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THE Benth. ex Torr. 550. *ZYGADENUS GLAUCUS*, Nutt. 551. *AMLIANTHUM NUTTALLII*, Gray. 552. *LLOYDIA SEROTINA*, Reich. "Pike's Peak, in the alpine region." (553. See *Gentianaceae*.)

## JUNCACEÆ.

554. *LUZULA SPICATA*, DC., var. near *L. Peruviana*; the same as 392 of Dr. Parry. 555. *L. PARVIFLORA*, DC. 556. *L. COMOSA*, E. Meyer (with a little *L. compositis*). 557. *JUNCUS TRICLOMIS*, L. 558. *J. ARTICULATUS*, L., var. *polycarpus*, Gray, Man. 559. *J. HUSONICUS*, L. "Subalpine." 560. *J. CASTANEUS*, Sm., an alpine form, the same as Parry's 358. 561, 562. *J. ARCTICUS*, Willd., var. *gracilis*, Hook. ? Alpine and subalpine. The stems as Parry's 360. It appears like a depauperate and attenuated form of *J. arcticus*; but as most of the cauline sheaths are leaf-bearing, it is probably of a distinct species, so far as I know, yet undescribed. Dr. Lyall collected it, as well as the true *J. arcticus*, in the Cascade Mountains, farther north. 563. *J. ARCTICUS*, Willd., proper, with leafless sheaths and more less attenuated stems. 564. *J. XIPHOIDES*, E. Meyer. Well marked by its fattened stems as well as leaves. It was also collected in this region by Fendler (838), H. Engelmann, and in the Rocky Mountains, farther north, by Bourgeau. 565. *J. RESICULATUS*, Wikstr. This has "terete lacoid culms." 566. *J. MAXIMUS*, E. Br.; the same as Parry's 361 so named, Fendler's 857, Wright's 1924, and Coulter's 808, the var. *Californicus*, Hook. and Arn. Probably an unpublished species. 567. *J. BALTICUS*, Willd.

568—580. Various Dicotyledonous plants, enumerated above under their respective orders.

## CYPERACEÆ.

581. *PIRCHESTYLIS LAYA*, Vahl. 582. *SCIRPUS RADICIFLORA*, Lightf. which Drummond had formerly collected in the Rocky Mountains, and which has been detected at several points along the northern frontier of the United States. 583. *S. CASPIOTUS*, L. Also subalpine. 584. *CYPERUS SCHWENITZII*, Torr. "Low mountains, lat. 39°."

585—620. *Cyperus* here given from the determination and notes of Dr. Boott:—

585. *CAREX ATRATA*, L. (OVATA) : spicis 3 oblongis (inferioribus pedunculatis parce masculis) atro-purpureis; perigyniis floriferis glauco-viridibus. 586. *C. ATRATA* : spicis contiguis ovatis crassis, inferiori subsessili; perigyniis floriferis margine viridibus squamis atropurpureis demum ferrugineis subsequalibus. Vide Parry, 369. 577. *C. ATRATA* (SERRA) : spicis subrotundis congestis vel infima discreta sessilibus; perigyniis ovalibus vel ellipticis cylindrico-rostratis superne precipue ad margines rostri dentatis; stig. 2-3. Gracilior, altior quam pl. Helvetica rostroque longiore, perigyniis pallidis. Eadem ac Parry, 368. 588. *C. ATRATA*, L. and *C. MONTA*, Good., mixed. 589. *CAREX FESTIVA*, Dewey. 590. *C. FESTIVA*, Dewey; young.

591. *CAREX BOSTLANDII*, Kunth. ? var. *minor*; perigyniis rarissime ad margines scabris. See Conthouy's specimens from the Andes of Quito.

592. *CAREX MURICATA*, L. ? with smaller perigynia, like Fendler's No. 884, in part. 593. *C. MUCATA*, Dewey. 594. *C. BOSTICHA*, Huds. (*C. Sartorii*, Dewey.) 595. *C. GAYANA*, Dewey., Boott, Ill., t. 411. 596. *C. DAWSONIANA* Schw. 597. *C. STENOCHLEA*, Wahl.

598, 599. *KOBERLINIA SCIRPINA*, Willd., or perhaps with some *K. CAREXINA*, Willd.

600. *CAREX DOUGLASSII*, Boott. Here, as in all other collections, in flower only. 601. *C. TRIFIDA*, Schk. 602. *C. CANESCENS*, L. 603. *C. POLYTRICHOIDES*, Muhl.

604. *CAREX PILIFOLIA*, Nutt., var. *culmo validiori*; perigyniis plano-triquetris glabris margine serrulatis; squamis minus late scariosis; rhacheola ut in 1868.]

forma typica. 605. *C. FUSCICOLA*, Nutt.; the ordinary form. [Parry's 442 is a high alpine form of the same species.]

606. *CAREX CRISTATA*, L. 607. *C. FASCICULARIS*, Lightf. 608. *C. PIRENÆICA*, WERT. 609. *C. NIGRICANS*, C. A. Meyer. 610. *C. SCIRPOIDES*, Michx. 611. *C. GEYERI*, Boott. 612. *C. BACULI*, Boott. 613. *C. CAPILLARIS*, L.

614. *CAREX LOSCHOSTEMIS*, Torr., var. *minor*; culmo brevi; spicis abbreviatis; rostro brevioribus. 615. *C. AMPULLACEA*, L. (utriculata, Boott.) 616. *C. JAMESII*, Torr. and *C. ANOSTATA*, Boott. mixed. 617. *C. PARRYANA*, Dewey. Some specimens have two spikes, the terminal masculina; others have either one or two spikes, both wholly feminine. 618. *C. ALPINA*, Sm. (Falkii, Schk.) 619. *C. BURBANKII*, Wahl. 620. *C. ROSSII*, Boott.

#### GRAMINEÆ.\*

621. An ambiguous and undetermined Grass, between *Festuca* and *Melica*. 622. *DANTHONIA SERICEA*, Nutt. [*D. unispicata*, Munro, ined., is a reduced form of this, to which belongs Geyer's No. 189.] 623. *AVENA STRIATA*, Michx. 624. *CALAMAGROSTIS SELTATICA*, DC. 625. *TRISTEMUM STRIPICATUM*, Beauv., with a remarkable open-panicled form. 626. *STIPA VIRIDULA*, Trin., the *S. parryana*, Nutt. 627. *AIRA CÆSPITOSA*, L., two forms; the smaller and more alpine of which is the var. *arctica* (*Dacthopsis brevisfolia*, R. Br.); the larger is intermediate between that and the ordinary form of the species. Parry's 367 of 1862 connects the two.

628. *HIEROCHLOA BOREALIS*, R. and S. 629. *GLYNERIA AQUATICA*, Smith. 630. *G. (HIEROCHLOA) AIROIDES*, Thurb., the *Poa airoides*, Nutt.

631. *VILFA TRICHOLEPIS*, Torr.; a remarkable species, which it may be necessary upon further study to remove from the genus. 632. *MULLENBERGIA PURGENS*, n. sp.† 633. *ERIOGONIA CUSPIDATA*, Nutt. 634. *ORTYSPES MICRANTHA*; *Ortydes micrantha*, Trin. A very distinct species, differing from *O. Canadensis*, Torr., in its elongated panicle, smaller spikelets, glabrous palea, and much longer awn. 635. *GRAMINISFORMIS? FLEXUOSUM*, n. sp.‡ 636. *BOUTELOUA ELONGATICHTA* Torr. 637. *BUCHELE DACTYLOIDES*, Engelm. (Rye, Nutt.); the staminate plant only. 638. *MUNROA SQUARROSA*, Torr. 639. *SPARTINA GRACILIS*, Trin.; the name wrongly attributed to Hooker by Steudel; it is *S. JUNCIFORMIS*, Engelm. and Gray, PL. Lindl. 1, No. 207.

640. *BESCHRYBUM SPICATUM*, Hook, var. *strictum*.

641. *SPOROBOLUS ASPENIFOLIUS*, Nees and Meyen. 642. *MULLENBERGIA GRACILLIMA*, Torr. 643. *SPOROBOLUS SAMOLOIDES*, HBK. 644. *LEPTOCHLOA FASCICULARIS*, Gray; a remarkable and large form; which has been by seve-

\* By Prof. George Thurber. On account of illness, Prof. Thurber has been prevented from studying these Grasses as thoroughly as would be wished. A more critical account of some of them may be expected hereafter.

† *MULLENBERGIA PURGENS* (Thurber, sp. nov.): culmo e rhizomate repente 1-1½-pedali foliisque rigidis corvulatis pungentibus patentibus (1-1½ poll. longis laevibus latis) minutis pubescentibus, ligula brevi ciliata; panicula 3-4-pedunculata radice solitaria flexilis basi nodis fasciculatum ramosis; pedicellis capitillaribus scabris spiculis (cum arista 2½ lin. longis) pilosis longioribus; glumis fere equilongis acuminatis vel seta apiculatis fere dimidio brevioribus; callogoto rudimento-minimo praedito; palea inferiori scabra acuta in ariston apicatum et sublineam longam producta, superiori subquadriloba, nervis excurvatis distinctis, striatulis 3.—A striking species, with very pale green foliage, and a purplish panicle. Collected also by Mr. H. Engelmann in Nebraska, and by Dr. J. S. Newberry in West Colorado Expedition.

‡ *GRAMINISFORMIS? FLEXUOSUM* (Thurber, sp. nov.): culmo tripedali laevi; vaginis internodiis superstitibus anulo pilorum pro ligula instructis; foliis sesquipedalibus 2 lin. latis setaceo-acuminatis; panicula laxiflora, radice sparsa (infirma distantibus circ. 4 poll. longis) infirma nodis in ramulis paucis capillaribus setatis; pedicellis spiculis crassis compressis 3-4-gertis 2½-3 lin. longis) duplo vel quadruplo longioribus; glumis membranaceis unciniformi acuta spicula dimidio brevioribus; palea inferiori scabrata triseriata (nervis lateralibus prominentibus) scabra-pubescente spicis cross-denticulata cum mucrone basi villosa, superiori subquadriloba crassa biscostata bifidatata. Stam. 3. Ovarium stipitatum. Squamula 2, oblique truncata. Caryopsid libera. Dr. J. M. Bigelow collected this Grass several years ago on the Canadian River. It is doubtfully referred to *Graminisformis*, as that genus is defined by Dr. Gray in the Proceedings of the Botanical Society of Canada. But the joints of the rhizome are very short, and the tuft of hair seems rather to belong to the palea.



ral western collectors, but I am unable to distinguish it specifically from the plant of the Atlantic States. 645. *TRICUSPIS PURPUREA*, Gray. 646. *STIPA MONGOLICA*, Turcz. (*Phylagrostis Mongolica*, Griseb. in Ledeb., Fl. Ross.) I have no specimen by which to confirm this determination, but it accords so well with the description, except as to size, as to leave little doubt.\* This makes the third species with a plumose awn found in our territory.

647. *SPOROBOLUS AERIOIDES*, Torr. 648. *S. CRYPTANDRUS*, Gray, same as 945 of Fendler. 649. *CALAMAGROSTIS STRICTA*, Trin., with some *C. SYLVATICA* intermixed. 650. *KOeleria CRISTATA*, Poir., a very attenuated form. 651. *ANDROPOGON ARGENTENS*, DC. (*A. Javanis* and *A. glauca*, Torr.) 652. *ARISTIDA PURPUREA*, Nutt.; the form called *A. Fendleriana* by Steudel. 653. *PASPALUM SETACEUM*, Michx.

654. *ELYMUS NEAR CONDENSATUS*, Presl. and apparently *E. TRITICOIDES*, Nutt., mixed. 655. *TRITICUM REPENS*, L., var. [656. *T. CANINUM*, L., var., the same as Parry's 381, named *T. spicoides* in the coll. of 1861, but wrongly; along with attenuated *T. REPENS*, L. 657. *T. AMILOIDES*, Turcz., *A. procyrum divergens*, Nees.]

658. *BECKMANNIA BRUCIFORMIS*, Host. 659. *SPOROBOLUS AERIOIDES*, Torr. 660. *VILFA DEPAUPERATA*, Torr. This was described from an extremely reduced form of a very variable species, of which *V. arida*, Torr., is an attenuated state. 661. *V. CUSPIDATA*, Torr. Like others of the genus, this presents great differences in the relative length of the glumes and palea.

662. *GRYCHERIA PAUCIFLORA*, Presl. 663. *CATABROSA AQUATICA*, Beauv. 664. *MURLENSBERGIA GRACILIS*, Trin. 665. *FESTUCA OVINA*, L., var. *durandiana*, Gray. 666. *F. RUBRA*, L.; very young. 667. *F. SCABRELLA*, Torr.? Perhaps a very narrow-leaved form of this species, of which specimens collected by Dr. Hagelew in New Mexico are the opposite extreme.

668. *Poa* near *P. NEMORALIS*, L. It is 375 of Parry. 669. *P. ANDINA*, Nutt. in herb. Acad. The *Poa*s of this collection, including some undistributed specimens, present several puzzling forms, which can be accurately determined only by a much more thorough study than can be given them at present. 670. *P. ARCTICA*, R. Br., (Parry's 376,) mixed with some of *P. alpina*.

671. *AGROSTIS VARIANS*, Trin. Agrees well with Hooker's No. 317, quoted by Trinius, but some specimens have a strong awn. 672. *Poa SEROTINA*, Ehrh. 673. *AGROSTIS NEAR SUPERSTIS*. 674. *Poa ALPINA*, L., mixed with one which may be a variety of it. [675. *Poa*, near 669 and 671.] 676. *P. ARCTICA*, R. Br.? 677. *P. ANDINA*, Nutt. 678. *Poa*, undetermined species.

679. *SITANION ELYMOIDES*, Raf. Two forms of this variable grass, which will probably be reduced to *Elymus*. 680. *TRITICUM CANINUM*, L., var. same as 381 of Parry. 681. *HORDEUM JURATUM*, L. 682. *ALOPECURUS PRATENSIS*, var. *ALPENSIS*, Wahl. (*A. glauca*, Less.) ex Gray. 683. *A. GERICULATUS*, var. *ARISTULATUS*, Michx. 684. *LEPTANS PANICULATUS*, Nutt. 685. *VASEYA COMATA*, n. gen. and sp. This remarkable grass, which really appears to form a new genus, intermediate between the Arundinaceae and the Agrostideae, is dedicated (by the collectors' desire, seconded by Dr. Gray) to Dr. George Vasey, of Ringwood, Illinois, one of the most zealous of our Western botanists. The following are its principal characters:

#### VASEYA, nov. gen.

Panicula concretata. Spicula uniflora, herbaceo-membranacea. Glume uninerves florem adequantes. Callus obliquus, comam pilorum paleis aequali longam gerens. Palea inferior trinervis in aristam gracilem attenuata; superior aequali longam, acuminata. Stamina 3. Ovarium stipitatum. Stylis ultra medium pilis stigmaticis longis simplicissimis instructis. Squamula . . . Caryopsis . . . *V. COMATA*, a native of the plains of Nebraska; is a

\* A comparison with an authentic but imperfect Mongolian specimen confirms Prof. Thurber's determination.—A. G.

perennial grass, with the aspect of a *Muhlenbergia* or of a *Polypogon*, but with a coma of silky hairs around the flower, as in a *Calamagrostis*. Culm a foot and a half high, from a creeping rhizoma, retroversely pubescent at the nodes. Sheaths scabrous, equalling the internodes; ligule short, fringed; leaves 3 or 4 inches long, dull green, rough on both sides. Panicle lead-colored, about 3 inches long; the branches solitary, appressed, densely many-flowered. Spikelets very short-pedicelled, compressed, pubescent, a line and a-half long. Glumes narrow, very acute, serrulate on the keel, the lower a little the longer. Awn rough and flexuose, purplish, three or four lines long.—*G. Thurber*.

#### FILICES.

687. *ASPIDIUM FILIX-MAS*, Swartz.; apparently identical with the European plant. 688. *CYPTOGRAMME ACROSTICHOIDES*, R. Br., by Sir Wm. Hooker regarded as a variety of *Allosorus crispus*. 689. *ASPLENIUM SEPTENTRIONALE*, L. This was collected by C. Wright farther south; and these two stations are the only known American ones. 690. *CYSTOPTERIS FRAGILIS*, Benth., mixed with a *Woodsia*, the same as Parry's 394, formerly named *W. cötina*; but it is of a different species. 691. *CHEILANTHES FENDLERI*, Hook. 692. *ASPLENIUM TRICHOMANES*, L. 693. *NOTOCHLENA FENDLERI*, Kunze, Filices, 2, p. 87, t. 136; the same as Parry's 396. A species recently distinguished from *N. Seebornii*. 694. *POLYPODIUM VULGARE*, L. 695. *P. DRYOPTERIS*, L.

Catalogue of the FISHES of Lower California, in the Smithsonian Institution,  
Collected by Mr. J. Xantus.

BY THEODORE GILL.

#### PART IV.

##### Subfamily SERRANINÆ (Swainson.)

Nine genera of this subfamily are now known to be represented by species along the western coast of America and the Gallapagos Islands. They may be thus distinguished:—

- I. Caudal with the lobes acuminate.  
Lateral line before superior, deflected behind..... *Pronotoگرامmus*.  
Lateral line normal..... *Brachyrhinus*.
- II. Caudal not forked.  
A. Canine teeth developed.  
B. Dorsal spines XI.  
C. Nostrils in a vertical row..... *Mycteroperca*.  
CC. Nostrils in a longitudinal row.  
Body oblong; smooth above lateral line..... *Labroperca*.  
Body oval, with cteneoid scales..... *Epinaphelma*.  
BB. Dorsal emarginated; spines X.  
C. Head with profile decurved, scaly above..... *Paralabrax*.  
CC. Head conic; naked between eyes.  
Spinous dorsal rounded..... *Atractoperca*.  
Spinous dorsal, incurved behind the third elongated spine..... *Gonioperca*.  
AA. Canine teeth entirely obsolete..... *Dermatolepis*.

The preceding table gives only the more striking characters; these are accompanied by others, which appear to amply authorize their generic distinction. In the table, the genera do not follow each other in a strictly natural order.

##### Genus PRNOTOGRAMMUS GILL.

This genus has the form of *Brachyrhinus*. The body is covered by moderate,

[Mar.