II. RECLASSIFIED OR NEW SPERMATOPHYTES, CHIEFLY NORTH AMERICAN

CALOCHORTUS BARBATUS (HBK.) Painter, var. **chihuahuanus** (Painter), comb. nov. *C. barbatus* (HBK.) Painter, subsp. *chihuahuanus* Painter, Contrib. U. S. Nat. Herb. xiii. 349 (1911).

My attention has been called to this plant by the discovery of a duplicate type (*Pringle*, 328) among some unmounted Mexican specimens of the *Liliaceae*. I have discussed the distinctness of the catagories variety and species under *Inga vera* Willd., var., page 1 of this Contribution.

Cryptocarya Bowiei (Hook.), comb. nov. *Laurus Bowiei* Hook. Journ. Bot. iv. 419, t. 23 (1842). *Laurus australis* A. Cunn. Bot. Mag. under t. 3931 (1842). *C. australis* (A. Cunn.) Benth. Fl. Austr. V. 299 (1870).

There is a reference in the Botanical Magazine, l. c., to *L. Bowiei*, thus indicating that it is the earlier name.

Sanicula Peckiana, spec. nov., planta perennis usque ad 3 dm. alta radice crassa sublignosa; caulibus circa 4, a basi ad apicem alterne et remote ramosis, ramis erecto-patentibus, apice, 3–4-furcatis; foliis plerumque basilaribus 6–10 cm. longis 3–5 cm. latis oblongo-ovatis vel -lanceolatis pinnatifidis, vel subbipinnatifidis, pinnis ad rhachin decurrentibus ubique alam angustam subintegram vel parce setoso-dentatam formantibus, foliolis vel segmentis ovatis saepius profunde incisis, serrato-crenatis, dentibus ovatis solum mucronulatis, non setosis; umbellis paucifloris; floribus masculis flavis, pedicellis circa 3 mm. longis; fructibus 3–4.5 mm. longis basi nudis vel subnudis, apice parce aculeatis, aculeolis basi vix bulbosis, apice uncinatis. — OREGON: Siskiyou Mts., 14 miles west of Waldo, Josephine Co., July 4, 1918, *Morton E. Peck*, 8403 (TYPE, Gray Herb.).

This remarkable *Sanicula* is not closely related to any known species. In vegetative characters it approaches most nearly *S. bipinnatifida* from which it is at once distinct, however, by the partially naked fruit as well as by other characters of moment. Prof. Peck, of Willamette University, is enthusiastically helping to make known the interesting flora of Oregon and has generously shared his more recent collections from the southwestern part of the state with the Gray Herbarium. His work as a collector of *Myxomycetes* has been commemorated in the name *Stemonitis Mortonii* and he has been accorded the same recognition for

his endeavors in the study of British Honduras spermatophytes, but heretofore no Oregon plant, I believe, has been named for him.

Tauschia Kelloggii (Gray), comb. nov. *Deweya Kelloggii* Gray, Proc. Am. Acad. vii. 343 (1867). *Drudeophytum Kelloggii* (Gray) Coult. & Rose, Contrib. U. S. Nat. Herb. vii. 81 (1900).

Prof. Peck has secured this species in southwestern Oregon. For a discussion of the above genera compare Contrib. Gray Herb. lvi. 28–33 (1918).

VITICELLA Mitchell, Diss. Brevis Bot. & Zool. 42 (1769). *Nemophila* Nutt. in Barton, Fl. N. Am. ii. 71 (1822).

VITICELLA MICROCALYX (Nutt.) Nwd. Am. Mid. Nat. iii. 158 (1913).

Dr. J. A. Nieuwland, l. c., 156–158 has suggested the probable identity of Mitchell's genus and that of Nuttall. Gray referred *Viticella* to *Hydrophyllum appendiculatum* and in this has recently been followed by Brand in the latter's revision of the group, Pflanzenreich, iv. Fam. 251, 36 (1913). But a careful reading of Mitchell's rather full diagnosis must disclose characteristics that do not apply to *Hydrophyllum* but which at once suggest the plant now known as *Nemophila microcalyx* (Nutt.) F. & M. For instance the " short filaments," the " villous " ovary, the 2-seeded capsule, and the " large plano-convex ovate " seeds are features that are descriptive of Nuttall's plant but not at all of *Hydrophyllum*. *H. appendiculatum* is characterized by exserted filaments, a slightly hispid ovary and an always 1-seeded capsule with globose seeds. Indeed it seems clear that *Viticella* Mitchell is the same as *Nemophila* Nutt. and since it is the earlier name it is to be taken up for this genus. This necessary change in the name of a well-known genus is of course to be regretted. It may be mentioned that Mitchell is the author of *Pentstemon*, l. c. 36. The just recognition of another important genus from this early paper on the botany of Virginia, — a paper in which the descriptions are drawn with evident care and exactness — is not, however, a matter for regret.

Besides *V. microcalyx* the genus contains the following plants worthy, I believe, specific rank.

Viticella aurita (Lindl.), comb. nov. *Nemophila aurita* Lindl. Bot. Reg. xix. t. 1601 (1833).

Viticella racemosa (Nutt.), comb. nov. *Nemophila racemosa* Nutt. ex Gray, Proc. Am. Acad. x. 315 (1875).

Viticella phacelioides (Nutt.), comb. nov. *Nemophila phacelioides* Nutt. Journ. Acad. Phil. ii. 179 (1822).

Viticella maculata (Benth.), comb. nov. *Nemophila maculata* Benth. ex Lindl. Journ. Hort. Soc. iii. 319, 320 (1848).

Viticella Menziesii (H. & A.), comb. nov. *Nemophila Menziesii* H. & A. Bot. Beech. Voy. 152 (1833). *N. insignis* Dougl. ex Benth. Trans. Linn. Soc. xvii. 275 (1837). *N. Menziesii* H. & A., subsp. *insignis* (Dougl.) Brand, Univ. Cal. Publ. Bot. iv. 210 (1912).

There are four or five variations of this variable species which are constant enough in character to merit recognition in classification. Brand, Pflanzenreich, iv. Fam. 251. 47 (1913), has attempted to discriminate so many varieties, subvarieties and forms, mostly based upon characters entirely inconstant, that his treatment fails to serve a useful purpose. Chandler, Bot. Gaz. xxxiv. 201–205 (1902) and xliv. 381 (1907), has offered a much more practicable disposition of these variants which now are to be known as follows.

Viticella Menziesii (H. & A.) Macbr., var. **liniflora** (F. & M.), comb. nov. *Nemophila liniflora* F. & M. Sert. Petrop. i. t. 8 (1846). *N. Menziesii* H. & A., subsp. *liniflora* (F. & M.) Brand, Pflanzenreich, iv. Fam. 251. 48 (1913); var. *intermedia* (Bioletti) Brand, l. c. *N. intermedia* Bioletti, Eryth. iii. 141 (1895).

This variety is intermediate between the typical form and the next and was not recognized by Chandler. It is, however, fairly constant in character, so it seems desirable to give it a place in classification. It differs from the typical form of the species in the fact that the often somewhat lighter petals are more or less prominently veined and from the next variety in the partial or entire absence of dots and the prominence of the veins.

Viticella Menziesii (H. & A.) Macbr., var. **atomaria** (F. & M.), comb. nov. *Nemophila atomaria* F. & M. Ind. Sem. Hort. Petrop. ii. 42 (1835). *N. Menziesii* H. & A., subsp. *atomaria* (F. & M.) Brand, Pflanzenreich, iv. Fam. 251. 49 (1913). *N. Menziesii* H. & A., var. *atomaria* (F. & M.) Chandler, Bot. Gaz. xxxiv. 204 (1902).

Viticella Menziesii (H. & A.) Macbr., var. **integrifolia** (Parish), comb. nov. *N. Menziesii* H. & A., var. *integrifolia* Parish, Eryth. vi. 91 (1898). *N. Menziesii* H. & A., subsp. *australis*

Brand, Pflanzenreich, iv. Fam. 251. 50 (1913); var. *incana* Brand, l. c.

The var. *incana* Brand is merely a more pubescent state.

Viticella Menziesii (H. & A.) Macbr., var. **rotata** (Eastw.), comb. nov. *N. rotata* Eastw. Bull. Torr. Club, xxviii. 159 (1901). *N. Menziesii* H. & A., var. *rotata* (Eastw.) Chandler, Bot. Gaz. xliv. 381 (1907).

This variety connects the large- and small-flowered groups of the genus through *N. pulchella* Eastw. Brand's variety *minima*, Pflanzenreich, iv. Fam. 251. 50 (1913), probably belongs here. He considers it an intermediate state between *N. Menziesii* and *N. rotata* which he retains, but Chandler's disposition of Miss Eastwood's plant seems better because *N. rotata* is connected with *N. Menziesii* through the variety *integrifolia* and should not be accorded equal rank with the distinct *N. pulchella*.

Viticella Kirtleyi (Henderson), comb. nov. *Nemophila Kirtleyi* Henderson, Bull. Torr. Club, xxvii. 350 (1900).

Charles Kirtley (for whom this plant is named) is now a physician of Challis, Idaho. I recall pleasantly my unexpected meeting of him when collecting in the vicinity of Challis in 1916.

Viticella pulchella (Eastw.), comb. nov. *Nemophila pulchella* Eastw. Bull. Torr. Club, xxviii. 157 (1901).

Viticella heterophylla (F. & M.), comb. nov. *Nemophila heterophylla* F. & M. Sert. Petrop. i. under pl. 8 (1846). *N. nemorensis* Eastw. Bull. Torr. Club, xxviii. 155 (1901).

Viticella heterophylla (F. & M.) Macbr., var. **flaccida** (Eastw.), comb. nov. *Nemophila flaccida* Eastw. Bull. Torr. Club, xxviii. 149 (1901). *N. heterophylla* F. & M., var. *flaccida* (Eastw.) Brand, Univ. Cal. Publ. Bot. iv. 212 (1912).

Viticella heterophylla (F. & M.) Macbr., var. **tenera** (Eastw.) Nels. & Macbr. in herb. *Nemophila tenera* Eastw. Bull. Torr. Club, xxviii. 153 (1901). *N. heterophylla* F. & M., subvar. *tenera* (Eastw.) Brand, Univ. Cal. Publ. Bot. iv. 212 (1912); var. *tenera* (Eastw.) Nels. & Macbr. Bot. Gaz. lxv. 66 (1918). *N. nemorensis* Eastw., var. *glauca* (Eastw.) Brand, l. c.

For a discussion of this species and the variety *tenera* see Bot. Gaz. lxv. 66–67 (1918).

Viticella exilis (Eastw.), comb. nov. *Nemophila exilis* Eastw. Bull. Torr. Club, xxviii. 148 (1901).

A beautiful species seemingly confined to the region of the Yosemite.

Viticella parviflora (Dougl.), comb. nov. *Nemophila parviflora* Dougl. ex Benth. Trans. Linn. Soc. xvii. 275 (1837).

VITICELLA PARVIFLORA (Dougl.) Macbr., var. **Austinae** (Eastw.) Nels. & Macbr. in herb. *Nemophila Austinae* Eastw. Bull. Torr. Club, xxviii. 143 (1901). *N. parviflora* Dougl., var. *Austinae* (Eastw.) Brand, Pflanzenreich, iv. Fam. 251. 55 (1913); var. *quercifolia* (Eastw.) Chandler, Bot. Gaz. xxxiv. 210 (1902). *N. quercifolia* Eastw. Bull. Torr. Club, xxviii. 142 (1901). *N. explicata* Nels. & Macbr. Bot. Gaz. lv. 377 (1913).

VITICELLA PARVIFLORA (Dougl.) Macbr., var. **Plaskettii** (Eastw.), comb. nov. *Nemophila Plaskettii* Eastw. Bull. Torr. Club, xxviii. 147 (1901). *N. parviflora* Dougl., var. *Plaskettii* (Eastw.)Brand, Pflanzenreich, iv. Fam. 251. 55 (1913).

These two varieties are wholly formal yet in their pronounced development well-marked. The rounded rather than acute leaf-lobes is the conspicuous feature of the variety *Austinae* in which I should include the plant which has been called *N. quercifolia* and which seems to differ in no respect except that the corolla-appendages are more or less obvious. Chandler, Bot. Gaz. xxxiv. 213 (1902) and Nelson & Macbride, Bot. Gaz. lxv. 66–67 (1918) have indicated that the relative development of these organs is of no importance taxonomically.

Viticella pedunculata (Dougl.), comb. nov. *Nemophila pedunculata* Dougl. ex Benth. Trans. Linn. Soc. xvii. 275 (1837).

VITICELLA PEDUNCULATA (Dougl.) Macbr., var. **sepulta** (Parish) Nels. & Macbr. in herb. *Nemophila sepulta* Parish, Eryth. vii. 93 (1899). *N. pedunculata* Dougl., var. *sepulta* (Parish) Nels. & Macbr. Bot. Gaz. lxv. 65 (1918).

VITICELLA PEDUNCULATA (Dougl.) Macbr., var. **densa** (Howell) Nels. & Macbr. in herb. *Nemophila densa* Howell, Fl. N. W. Am. 466 (1901). *N. pedunculata* Dougl., var. *densa* (Howell) Nels. & Macbr. Bot. Gaz. lxv. 66 (1918).

For a discussion of this species and its varieties see Bot. Gaz. lxv. 65–66 (1918).

Viticella breviflora (Gray), comb. nov. *Nemophila breviflora* Gray, Proc. Am. Acad. x. 315 (1875).

Viticella spatulata (Coville), comb. nov. *Nemophila spatulata* Coville, Contrib. U. S. Nat. Herb. iv. 156 (1893).

Viticella humilis (Eastw.), comb. nov. *Nemophila humilis* Eastw. Bull. Torr. Club, xxviii. 150 (1901).

PHACELIA DASYPHYLLA Greene, var. **ophitidis**, var. nov., planta 1–1.5 dm. alta; foliis adpresse hispidis; caulibus strigillosis et

parce hispidis et superne plus minusve viscidis; corolla albida circa 5 mm. longa. — OREGON: on serpentine slope, Siskiyou Mts., 10 miles southwest of Waldo, Josephine Co., July 4, 1918, *Morton E. Peck*, 8415 (TYPE, Gray Herb.).

This plant does not appear to differ from the typical form of *P. dasyphylla* except by the appressed rather than spreading hispid pubescence and the pale corolla. Accordingly, notwithstanding the fact that heretofore the species has been known only from the Sierra Nevada of southern California I am disposed to treat this plant as only a variety of the typical and more southern form, especially in view of the analogous sort of variation which the closely related *P. heterophylla* and *P. magellanica* both exhibit. The discovery in North America of this additional form with glabrous filaments (a salient character of the South American *P. magellanica*) substantiates it seems to me the treatment of this group in Contrib. Gray Herb. xlix. 31–38 (1917) in which *P. magellanica* is excluded from North America for although it is true that the South American plant is characterized by glabrous filaments this character is generally (and *always* in the case of those variants corresponding in vegetative character to *P. dasyphylla*) correlated with very small corollas and scarcely exserted stamens. The very rare *P. dasyphylla* and its variety may be regarded indeed as intermediate between the South and the North American species but its existence can scarcely be used as an argument for the merging of these species so widely separated geographically since each on the whole is definitely distinct. *P. magellanica* and allies are characterized by constantly glabrous nearly included filaments and usually small flowers (or when these are larger the plants are very different in aspect from *P. dasyphylla*) and *P. heterophylla* and allies by very pubescent well-exserted filaments and relatively large flowers.

ALLOCARYA STIPITATA Greene. Pitt. i. 19 (1887).

Mr. G. Claridge Druce, Bot. Exch. Club. v. 38 (1918) has reduced the genus *Allocarya* to *Lappula*. It is to be regretted that he has not given the reasons which induced him to make this, to say the least, striking reduction, for the genera *Allocarya* and *Lappula* are even more distinct than *Eritrichium* and *Lappula*, genera universally accepted. It seems almost inconceivable that Mr. Druce had a specimen of *Allocarya* before him at the time

he referred it to *Lappula* (*L. stipitata* (Greene) Druce, l. c.). Rather does it seem probable that the plant collected as a waif in England was, in fact, one of the annual species of *Lappula* although the fact that the determination was made by Dr. Thellung decidedly weakens this theory. It may be remarked that *Lappula* is strongly characterized by the position of the prickly-margined nutlets. These are erect on an elevated receptacle. They are sometimes armed on the back as well as on the margins but the prickles are always hooked. The nutlets of *Allocarya* on the other hand are obliquely attached to a low-conical receptacle and are never armed with hooked prickles. *Allocarya* is most closely related to *Plagiobothrys* and if Mr. Druce had referred his plant to the latter genus some well-taken arguments for his action could be presented. These genera also, however, are nicely distinct although in nutlet-character they approach each other closely. The attachment of the nutlets of *Plagiobothrys* is nearly or quite medial rather than basal or supra-basal and the leaves are never opposite as are the lower ones of *Allocarya*. The fact that both genera contain numerous species none of which fail in any degree to conform to the generic character in each case is the best argument to my mind as to the validity of these genera.

Allocarya mexicana, spec. nov., ut videtur perennis; caulibus mediocriter crassis subdecumbentibus usque ad 1.5 dm. longis glabris vel parce pubescentibus cum nonnullis pilis longioribus firmiusculis plus minusve patentibus; foliis linearibus obtusis plerumque circa 2.5 cm. longis (superioribus non reductis) vix 2 mm. latis fere glabris vel parce ciliato-hispidis; floribus 3 mm. latis; calycis subadpresse villoso-hirsuti fructiferi laciniis circa 3 mm. longis plus minusve inaequalibus; pedicellis fructiferis 2–4 mm. longis; nuculis ovatis circa 1.5 mm. longis 1 mm. latis dorso minute sed mediocriter dense reticulato-rugosis, faciebus ventralibus fere laevibus, areola parva ovata suprabasilari. — MEXICO: muddy hollows of prairies, Flor de Maria, Mexico, Sept. 9, 1892, *Pringle*, 4241 (TYPE, Gray Herb.).

This species is closely related to *A. linifolia* (Lehm.) Macbr. of South America from which it is nicely distinct, however, by nutlet characters. The nutlets of the South American plant are broadly ovate, almost deltoid, only about 1 mm. long and irregularly rugose dorsally rather than finely reticulate-rugose as they are in *A. mexicana*. *A. linifolia* is also more pubescent and in habit appears to be more tufted with the stems not greatly elongate.

CORDYLANTHUS Nutt. A discriminating revision by Roxana Stinchfield Ferris of this small but difficult group has recently been published in the Bull. Torr. Club, xlv. 399–423 (1918), under the name *Adenostegia*, however, since the work was evidently done under the direction of Prof. Abrams and consequently the nomenclature accords with the "American" Code. Nevertheless it is a little surprising that apparently Mrs. Ferris has ignored the existence of the International Rules of Botanical Nomenclature; at least such would seem to be the case if one may judge from the following statement (l. c. 399). "The proper generic name, according to present-day rules of nomenclature" is *Adenostegia* Benth. This name is carefully shown to have been published ten years before Bentham substituted Nuttall's manuscript name, *Cordylanthus*. But the name *Cordylanthus* is included among the *nomina conservanda* of the International Rules and it therefore, rather than *Adenostegia*, is the proper generic term according to present-day international rules of nomenclature. The proper generic name may indeed be *Adenostegia* according to a provincial code which, however, is not synonymous with "present-day rules of nomenclature."

In ordering up the material of this genus in the Gray Herbarium it has been necessary, therefore, to make the following changes in the nomenclature of the group but comparatively few changes have been made in the classification itself since on the whole excellent judgment has been shown by Mrs. Ferris in the drawing of specific lines. But one regrets that the care which she has used in determining the taxonomical status of these plants has not been applied to what may be referred to as the mechanics of her work. The presence of numerous errors of the sort that are generally detected in proof-reading cause one to question whether indeed proof was seen by the author. An outstanding error of this kind is found in the third and fourth lines of the description of *C. Orcuttianus*, l. c. 418. These lines consist of statements that are partly repetition and partly contradiction. Also the spelling of one collector's name in no fewer than three ways on two pages is scarcely indicative of the degree of care and exactness one has a right to expect in a scientific paper.

CORDYLANTHUS TENUIS Gray, var. **viscidus** (Howell), comb. nov. *Adenostegia viscida* Howell, Fl. N. W. Am. 537 (1901).

Mrs. Ferris, l. c. 407, wrote "*A. viscida* in Shasta and Plumas counties is inconspicuously glandular-pilose as compared with the typical form and approaches *A. tenuis*, to which this species is very closely related." The chief distinction, however, between these species has been found in the character of the bracts, those of *A. viscida* being three-parted. Unfortunately plants exhibiting both entire and divided bracts have been found, for instance Heller's number 11,586 from Butte County. Howell's plant is best treated therefore as a geographical variety of *C. tenuis* generally distinguishable by the parted bracts and mostly of more northern range although it meets the range of *C. tenuis* in Butte and Lassen Counties.

Cordylanthus Hanseni (Ferris), comb. nov. *Adenostegia Hanseni* Ferris, Bull. Torr. Club, xlv. 408 (1918). *C. pilosus* Gray, var. *trifidus* Robinson & Greenm. Bot. Gaz. xxii. 168 (1896).

This species differs from *C. pilosus* and *C. tenuis*, var. *viscidus* in the dense pubescence which is very long and harsher than in either of the other species. From the former, which it resembles most in aspect because of the relatively broad leaves, it also differs constantly in the tripartite bracts. In this respect it resembles *C. tenuis*, var. *viscidus* but the divisions of the bracts are more nearly equal and the leaves are relatively broad. *C. Hanseni*, furthermore, is restricted to the foothills of the Sierra Nevada from Shasta to Tuolumne Counties and where it meets the range of *C. tenuis* or its variety it shows no sign of intergradation. *C. pilosus*, var. *trifidus* is omitted by Mrs. Ferris.

Adenostegia parviflora Ferris, Bull. Torr. Club, xlv. 409 (1918).

This seemingly distinct species is not represented in the Gray Herbarium.

Cordylanthus rigidus (Benth.) Jepson, var. filifolius (Nutt.) Macbr. Contrib. Gray Herb. xlix. 58 (1917).

Mrs. Ferris regards this variety as specifically distinct from the typical form of the species. Those specimens which I regarded as intermediate in character she refers to *C. rigidus* (Benth.) Jepson, var. *brevibracteatus* (Gray) Macbr., l. c., distinguishing this variety by the more distinctly caloused tips of the bracts. I am unable to interpret this character as of even varietal significance for material from Monterey County, the type locality of *C. rigidus*,

exhibits it to greater or less degree. The variety *brevibracteatus* was originally based on a plant with fewer flowers in the heads and greatly abbreviated bracts and in typical form is known only from Kern County. Specimens from this region show great variation, however, and confirm the opinion I expressed in 1917 (Contrib. Gray Herb. xlix. 59) that the variety *brevibracteatus* is intermediate between the typical form and the variety *filifolius*, and is evidence, therefore, that but a single specific unit is here concerned.

Cordylanthus littoralis (Ferris), comb. nov. *Adenostegia littoralis* Ferris, Bull. Torr. Club, xlv. 413 (1918).

CORDYLANTHUS RAMOSUS Nutt., var. **puberulus,** var. nov., ubique solum puberulus, bracteis haud ciliatis. — Northern Colorado to Wyoming, Oregon and Nevada. — NEVADA: sagebrush lands, Mountain City, Elko Co., Aug. 13, 1912, *Nelson & Macbride*, 2197 (TYPE, Gray Herb.).

Rydberg based his *Adenostegia ciliosa* Rydb. Bull. Torr. Club, xxxiv. 35 (1907), on a Tweedy specimen from western Wyoming which I have not seen but I feel confident I am correct in referring it to typical *C. ramosus* which was described originally, DC. Prod. x. 597 (1846), as having "ciliate bracts" and furthermore the bracts of a scrap in the Gray Herbarium, marked "*C. ramosus*" and purporting to be part of the type are, indeed, distinctly ciliate. The bracts of the variety are merely puberulent and it is the extreme development of ciliation in the typical form of the species as represented by the type, by Leiberg's number 848 and by Macbride & Payson's number 3840 that induces me to give the more common and merely puberulent form even varietal recognition for there appears to be no other character, such as a longer calyx as Rydberg's description implies, that is correlated with the absence of cilia.

Mrs. Ferris accepted Rydberg's assertion, Bull. Torr. Club, xl. 484 (1913), that *C. bicolor* A. Nels. "is evidently the same as *Adenostegia ciliosa* Rydb." and since *C. bicolor* is exactly *C. capitatus* (which has two stamens and 1-celled anthers) she has very naturally referred *C. ciliosus* to the same species, notwithstanding the fact that it has, of course, the four stamens and 2-celled anthers that characterize *C. ramosus*! Rydberg's superficial reduction of *C. bicolor* A. Nels. has thus caused considerable misappli-

cation of names and he now accepts Nelson's species as *Adenostegia bicolor* (A. Nels.) Rydb. Fl. Rocky Mts. & Adj. Plains, 797 (1917)!

CORDYLANTHUS KINGII Wats. This species, credited only to Utah and adjacent Nevada by Mrs. Ferris, l. c. 417, was collected in southwestern Colorado in 1875 by Brandegee. Payson's number 160 from Naturita, distributed as *C. ramosus*, rather belongs here.

Cordylanthus Helleri (Ferris), comb. nov. *Adenostegia Helleri* Ferris, Bull. Torr. Club, xlv. 417 (1918).

This coarse, very glandular-villous plant with shortly lobed bracts is certainly very distinct from *C. Kingii* which is also of different range.

Cordylanthus palmatus (Ferris), comb. nov. *Adenostegia palmata* Ferris, Bull. Torr. Club, xlv. 420 (1918).

A specimen of this species in the Gray Herbarium collected by Parry in 1881 at Stockton, San Joaquin County, gives a new locality for the plant heretofore known only from the type collection secured at Tule, Colusa County.

ERIOPHYLLUM CONFERTIFLORUM (DC.) GRAY AND ITS ALLIES. There is a striking contrast between the treatment by Hall, Univ. Cal. Publ. Bot. iii. 184–186 (1907), of this group of Californian plants and that by Rydberg, N. A. Fl. xxxiv. 94–96 (1915). The former author, who evidently knows the plants in the field, recognizes three species and four varieties. This is no increase over the number of species admitted by Gray in the Synoptical Flora. Rydberg, on the other hand, defines no fewer than twelve species. It is my impression that this author has never collected in California; and the key-characters which he has worked out from herbarium material and by means of which he attempts to distinguish the plants to which he has assigned names are the sort of characters that are highly variable and may be found in greater or less degree on a single specimen, a fact which should be evident, it seems to me, even from study restricted to the herbarium. The only segregate species recognized by Rydberg which I should at all hesitate to refer to one or the other of the long-established species or to one of their varieties are *E. tanacetifolium* Greene and *E. latilobum* Rydb. These plants are as yet known from comparatively few collections but the large frequently long-peduncled

heads and the broad leaves appear to be constant characteristics that serve rather definitely to distinguish the species from all the forms of the variable *E. confertiflorum*. The relationship of these two forms to each other, however, is not so clear; probably *E. latilobum* will prove to be merely a broad-leaved variety of *E. tanacetifolium* which, though, has denser pubescence and is mostly more southern in its range. *E. biternatum* Rydb., *E. tridactylum* Rydb. and *E. crucigerum* Rydb., l. c. 96, are merely states of *E. confertiflorum* (DC.) Gray, var. *trifidum* (Nutt.) Gray (*E. trifidum* (Nutt.) Rydb.), and *E. tenuifolium* (DC.) Rydb., l. c. 96 and *E. cheiranthoides* Rydb., l. c. 95, are both to be referred to *E. confertiflorum* (DC.) Gray, var. *laxiflorum* Gray. *E. artemisiaefolium* (Less.) Kuntze, Rev. Gen. i. 336 (1891), may be treated as a variety of *E. staechadifolium* Lag. Gen. & Sp. Nov. 28 (1816). The typical form of the latter has mostly entire leaves but it passes into the variety **artemisiaefolium** (Less.), comb. nov. (*Bahia artemisiaefolia* Less. Linnaea, v. 160 (1830)), characterized by more or less pinnatifid leaves.