

our material by Coulter (presumably duplicates of the type) the full grown calyx is much longer than called for in the original description. An immature specimen from the Yosemite by Clara E. Cummings apparently belongs to this species.

23. *A. ECHINATA* Gray, Proc. Am. Acad. x. 54 (1875). — CALIFORNIA: Fort Mojave, Feb., 1860–61, *Cooper*; Maricopa, Kern Co., March, 1881, *Parry*, no. 207.

This is a remarkable species and apparently very local. Other specimens referred to it which I have seen belong to *A. Douglassiana* which may have nutlets with a serrated carination but are never truly echinate.

## II. FURTHER NOTES ON THE BORAGINACEAE

*Cordia Brittonii* (Millspaugh), comb. nov. *Varronia Brittonii* Millspaugh, Field Col. Mus. Bot. ser. ii. 311 (1909).

I am unable to see that any good purpose will be served by raising the section *Varronia* to generic rank. Consistency will then demand the recognition of other subgeneric groups as genera thus splitting the reasonable entity long known as *Cordia* into a number of parts that will challenge sharp definition. If the technical characters upon which *Varronia*, for instance, is based, coincided with distinctive traits of aspect its recognition as a genus would appear to be more reasonable. But in *Cordia* there is no agreement of this nature between aspect and diagnostic characters so that plants possessing great superficial resemblances, as for instance many species with capitate inflorescences, for reasons purely technical occur in different sections of the genus. But logically these plants are all *Cordias* and are recognizable as such by the amateur, so why exaggerate the importance of the more or less obscure technical characters by calling some members of the group *Varronias*, others *Sebestens*, etc. to the utter confusion of all but the professional? Surely the average traveler can learn to recognize a shrub of this alliance as a *Cordia* when he may be unable to assign it to a section which has been set up as a genus.

*Cordia imparilis*, spec. nov., fruticosa erecta aromatica; ramis teretibus glabris, ramulis rufo-hirsutis (pilis circa 2 mm. longis) et minute strigillosis; foliis (superioribus) ovato-lanceolatis circa 6 cm. longis 2.5 cm. latis basi et apice acutis subremote dentatis



supra scrabris subtus dense pubescentibus cum pilis albis brevissimis, petiolis hirsutis 7–10 mm. longis; spicis cylindraceis densis circa 5 cm. longis, pedunculis circa 3 cm. longis crispe puberulis et cum pilis nonnullis longioribus firmissculis subadpressis intermixtis; calycibus junioribus globosis dense brevissimis hirsutis; corolla alba 4 mm. longa calyce duplo longiore parce pilosa ad faucem lobis inequaliter denticulatis; staminibus exsertis. — MEXICO: near the boundary of Michoacan and Guerrero, Aug. 1, 1898, *Langlassé*, no. 265 (TYPE, Gray Herb.).

It is with no little hesitation that I propose a plant of this large genus as new. However, apparently no member of the subsection *Spiciformes* occurring in Mexico agrees (at least as described) with the plant here characterized. In some respects it suggests both *C. brevispicata* Mart. & Gal. and *C. ferruginea* R. & S. but differs from both greatly in pubescence and foliage.

HELITROPIUM PHYSOCALYCINUM Donn. Sm. Bot. Gaz. xlix. 457 (1910) has an exact synonym in *H. jaliscense* Macbr. Proc. Am. Acad. li. 542 (1916). The first line of Capt. Smith's description reads "Omnibus fere in partibus glanduliferum." This does not well apply to the type of *H. jaliscense* but neither does it to *Hyde & Lux* no. 3990, the latter cited by Capt. Smith as representing his species. *H. physocalycinum* is very distinctive by virtue of its unique calyx. Since the original diagnosis was accompanied by citations of specimens from Guatemala and Peru only, the following collections showing the distribution of the species in southwestern Mexico may be named. MEXICO: Sierra Madre, Michoacan, June 6, 1898, *Langlassé*, no. 577; San Sebastian, Jalisco, March 16, 1897, *E. W. Nelson*, no. 4083; Talea, Oaxaca, Feb., 1844, *Galeotti*.

OREOCARYA INTERRUPTA Greene, Pitt. iii. 111 (1896). This species, not placed in my recent revision of the genus, is represented at the Mo. Bot. Gard. by Heller's no. 9185 from Humboldt Wells, Elko Co., Nevada, July 27, 1908. It is apparent that the relationship of the plant is with *O. spiculifera* Piper but the tubercles on the much smaller nutlets are not at all confluent into rugae. Nevertheless the habit and vegetative characters simulate *O. spiculifera* rather than any muriculate-fruited species. *O. interrupta*, therefore, seems to be a connecting link between the rugose and non-rugose groups of the small-flowered section of the genus.



LAPPULA CALIFORNICA (Gray) Piper, Bull. Torr. Club. xxix. 546 (1902). Mr. A. A. Heller has distributed recently under his number 12426 a Lappula secured by him June 22, 1916 in Siskiyou County, California, the label of which bears this inscription: "*Lappula bella* Macbride, Cont. Gray Herb. ii. 48: 39. 1916." If Mr. Heller had wished to collect the species most distantly related to *L. bella* he should have selected *L. californica*, which, as a matter of fact is nicely represented by his number 12426! *L. californica* is very common in Siskiyou County.

✓ **Mertensia Eastwoodae**, nom. nov. *M. alaskana* Eastw. Bot. Gaz. xxxiii. 287 (1902), not *M. alaskana* Britton, Bull. N. Y. Bot. Gard. ii. 181 (1901).

In Contrib. Gray Herb. n. ser. xlviii. 7 (1916) the above species were listed as segregates of *M. paniculata*, with the statement, "if I may judge from character alone, these are not worthy specific rank." Since then, however, I have examined a specimen preserved at the Missouri Botanical Garden which purports to be a part of the type collection of *M. alaskana* Eastw. and shows that Miss Eastwood's species is not, in reality, very closely related to *M. paniculata*. Indeed the pubescence on the pedicels is closely appressed, a characteristic which suggests *M. pratensis* and its allies but from which it is at once recognizable by its narrow acuminate leaves and pectinately-rugose fruits. *M. alaskana* Britton on the other hand is a segregate of *M. paniculata* as is shown by Miss Eastwood's no. 94 from Dawson Slide which agrees exactly with the original diagnosis. It is to be distinguished from *M. paniculata* by the glabrous or only ciliate sepals and the somewhat narrower, glabrous (or very slightly pubescent beneath) leaves. Numerous collections from different localities are needed to prove the value of the presence or absence and position of pubescence as a character for distinguishing species in this group.

**MERTENSIA GRANDIS** Woot. & Standl. Contrib. U. S. Nat. Herb. xvi. 165 (1913). In Contrib. Gray Herb. n. ser. xlviii. 8 (1916) this species was referred to *M. franciscana* Heller. Recently, however I have examined co-type material (*Metcalfe*, no. 1319) of *M. grandis* as preserved at the Missouri Botanical Garden and I now doubt the wisdom of my reduction. The species is indeed very near *M. franciscana* but the corollas are rather of the type of *M. pratensis*, except that they are even larger. Since the species



agree as to calyx-lobes and grow in the same region *M. grandis* may represent only a large-flowered state of *M. franciscana*, but more material is needed to prove or disprove this possibility.

MYOSOTIS LUTEA (Cav.) Pers., var. **versicolor** (Pers.), comb. nov. *M. arvensis* (L.) Hill, var. ? *versicolor* Pers. Syn. i. 156 (1805). *M. versicolor* (Pers.) Sm. in Sowerby's Engl. Bot. xxxvi. sub t. 2558 (1814).

*Anchusa lutea* Cav. Icones i. 50, t. 69, fig. 1 (1791) is the earliest designation for this rather variable but unique species. That Cavenilles' plant is merely the form of the species with corollas remaining yellow (the common state has corollas yellow in anthesis but soon changing to bright- and then to rose-blue, i. e. the var. *versicolor*) is shown by the adoption of the name *M. lutea* for this species in the authoritative work, Flora der Schweiz by Schinz und Keller, 3 Auflage, I Teil 440 (1909). Hermann, in his carefully prepared Flora von Deutschland und Fennoskandinavien 384 (1912) also takes up Cavenilles' name. It seems to me however that this noticeable phenomenon of the color-change that takes place in the corolla after anthesis is important enough to justify varietal designation of these plants in which it occurs, especially since they are of more frequent occurrence than those with corollas yellow even in age.

ONOSMODIUM. Mr. Mackenzie, in his discriminating revision of this group as it occurs north of Mexico, endeavored to define the genus so as to exclude from it the large-flowered section *Macromerioides* Gray (Syn. Fl. ii. pt. I. 205), and proposed for *O. Thurberi* Gray the new combination *Macromeria Thurberi* (Gray) Mackenzie, Bull. Torr. Club xxxii. 496 (1905). In regard to this transfer of *O. Thurberi* he wrote: "It seems certainly congeneric with *M. viridiflora* DC., *M. cinerascens* DC. and *M. discolor* Benth. Whether these species are congeneric with the original species of Don [*M. exserta*] I cannot determine at present, the material I have seen being too scanty." Examination of a number of good collections of *M. exserta* has disclosed the fact that the nutlets are always keeled ventrally. In all other species the nutlets are not at all keeled. Accordingly *M. exserta*, since it possesses this distinctive character of fruit in addition to the great development of corolla with flaring lobes and long-exserted stamens, can scarcely be considered congeneric with *O. Thurberi* and its rela-



tives, a group characterized by not at all carinate nutlets, included or slightly exserted stamens and erect or suberect corolla-lobes. This group, section *Macromerioides* Gray, is possible of two interpretations. It may be regarded either as a subgenus of *Onosmodium* or as a genus intermediate to *Onosmodium* and *Macromeria*. Mackenzie, in writing of *O. Thurberi* stated, l. c., "It differs from *Onosmodium* in the greatly elongated corolla, exserted stamens, long filaments and versatile anthers, in usually ripening more nutlets, and in the persistence of the enlarged base of the style." However, upon examination of all the species of both sections, *Onosmodium* proper and *Macromerioides*, it seems to me clear that none of these characters are appropriate for the definition of genera because they exist in variable and inconstant degrees of development, even for example, the apparently distinctive character, "anthers versatile." As a matter of fact the anthers are quite as versatile in *O. occidentalis* as in *O. Thurberi*; in neither are they truly versatile or truly innate being attached above the base toward, but not at, the middle. Gray, l. c., indicated that the anthers of *O. Thurberi* were not truly versatile as in the related Mexican species but this fact did not deter Mackenzie from transferring *O. Thurberi* to the genus containing these species. That it would be unwise to try to maintain this section as a genus distinct from *Onosmodium* proper becomes even more evident when the species *O. strigosum* G. Don is taken into consideration. This plant "looks" like a narrow-leaved *O. Thurberi* with corollas only about half as long. But the stamens are included and moreover the anthers are woolly dorsally. Altogether it seems advisable to regard these large-flowered species as congeneric with the smaller-flowered group *Onosmodium* proper, allowing *Macromeria* to stand as a monotypic genus, distinguished principally by the keeled nutlets. It becomes necessary, in accordance with this viewpoint of the generic limitation of *Macromeria* to transfer a few species described under that genus to *Onosmodium*. Since three of these are represented in this herbarium I am making this number of the required new combinations.

***Onosmodium discolor*** (Benth.), comb. nov. *Macromeria discolor* Benth. Pl. Hartw. 49 (1840).

***Onosmodium Pringlei*** (Greenm.), comb. nov. *Macromeria Pringlei* Greenm. Proc. Am. Acad. xxxiv. 570 (1899).



**Onosmodium longiflorum** (D. Don), comb. nov. *Macromeria longiflora* D. Don, Edinb. N. Phil. Journ. xiii. 239 (1832).

**ONOSMODIUM LONGIFLORUM** (D. Don) Macbr., var. **hispidum** (Mart. & Gal.), comb. nov. *Macromeria hispida* Mart. & Gal. Bull. Acad. Brux. xi. pt. 2, 339 (1844). *M. longiflora* D. Don, var. *hispida* (Mart. & Gal.) A. DC. Prod. x. 68 (1846).

**Onosmodium unicum**, spec. nov., ut videtur 4–5 dm. altum; caule ad apicem ramoso pilis adpresse crispeque et cum nonnullis pilis longioribus firmissculis intermixtis; foliis radicalibus ignotis caulinis oblongo-lanceolatis basi et apice acutis circa 5 cm. longis 1.5–1.8 cm. latis supra viridibus parce papilloso-hispidis et minute strigillosis subtus pallidioribus 3–5 nerviis strigillosis et imprimis veniis adpresse hispidis, foliis superioribus gradatim reductis; racemis subviscoso-strigosis et -hispidis; corolla circa 12 mm. longa, tubo (ut videtur flavo) extus parce villosa, intus glabra; lobis (ut videtur viridibus) corollae anguste ovato-acuminatis ad apicem plus minusve recurvatis extus adpresse strigosis fere 4 mm. longis; antheris 2.5 mm. longis apiculatis; stylo exserto; calycis lobis inaequalibus fere linearibus circa 8 mm. longis; nuculis acute fere rotundis circa 4 mm. longis nitidis laevissimis. — MEXICO: Alvarez, San Luis Potosi, July 13–23, 1904, *Palmer*, no. 185 (TYPE, Gray Herb.).

This very unique species is related to the Texan *O. bejariense* DC. which has extremely hispid stems and calyces, the long hairs widely spreading, and is not at all viscid.

**Onosmodium revolutum** (Robinson), comb. nov. *Lithospermum revolutum* Robinson, Proc. Am. Acad. xxvii. 182 (1892).

This very distinctive plant is a better *Onosmodium* it seems to me than a *Lithospermum*. Since the discovery of the Mexican species *L. Palmeri* and *L. oblongifolium*, both with the aspect of *Onosmodium* and with nearly the corolla of that genus, the difficulty of defining in good contrast these genera has been greatly increased. The above species, which may be said to be on the border-line between the genera possess, however, very rounded corolla-lobes which are somewhat spreading. This character is peculiar to *Lithospermum*. But the corolla of *L. revolutum* has erect lobes that are acute or at least acutish and moreover the limb is entirely without appendages of any sort; they are usually present in some degree in *Lithospermum*. *L. strictum* Lehm. (under which name *L. revolutum* was first distributed) is aberrant in *Lithospermum* because it has the tubular corolla of *Onosmodium*



with suberect lobes. The lobes, however, are rounded; the throat of the corolla is appendaged and the aspect of the plant is more suggestive of *Lithospermum* than of *Onosmodium*. But *L. revolutum* has the aspect of *Onosmodium*, which fact, taken together with its corolla-characters seems to justify its classification as a member of that genus rather than of *Lithospermum*.

MACROMERIA EXSERTA D. Don, var **imparata**, var. nov., caulibus adpresse strigillosis; pilis haud patentibus; aliter formae typicae simillima. — MEXICO: Oaxaca, 1842, *Ghiesbreght* (TYPE, Gray Herb.).

This variety is not furnished with the rigid widely spreading hairs which are so abundant on the stems of the typical form of the species with which it otherwise agrees.

**Lithospermum chersinum**, spec. nov., ut videtur herbaceum 7.5 dm. altum (Langlassé in schedulis); caulibus superne 2-3-chotomis adpresse strigillosis et hispidis; foliis caulinis superioribus ovato-lanceolatis acuminatis basi abrupte acutis 4-6 cm. longis 1-1.5 cm. latis mediocriter conspicue pinnativeniis subadpresse papilloso-hispidis subtus inter nervos subvillosis canescentibus et parce hispidis imprimis in nervos; racemis elongatis; pedicellis fructiferis incurvatis circa 5 mm. longis et calycis laciniis 10 mm. longis linearibus hispidis et strigosis; corolla alba circa 15 mm. longa, tubo circa 12 mm. longo extus et intus adpresse piloso et faucibus glandulari-granulosis; limbi lobis rotundatis minute crenulatis; nuculis laevissimis haud punctatis. — MEXICO: Cerro Verde, near the boundary between Michoacan and Guerrero, Nov. 6, 1898, *Langlassé*, no. 581 (TYPE, Gray Herb.); hills, Uruapan, Michoacan, Nov. 15, 1905, *Pringle*, no. 13761.

This species is apparently related to *L. Nelsonii* Greenm. but the resemblance is mostly one of aspect rather than of agreement in technical characters. The presence of pubescence within the corolla tube, the absence of appendages in the throat and the crenulate corolla lobes are a few of the distinctive features of *L. chersinum*.





Macbride, J. Francis. 1917. "Further notes on the Boraginaceae." *Contributions from the Gray Herbarium of Harvard University* (49), 16–22.

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