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and the cartilaginous veil within the tumid rim is the homologue of the inner one of the double margin of *Thyrocarpus*. The cartilaginous veil, well developed in *Bothriospermum*, is also present, but early evanescent, in numerous species of *Omphalodes* and *Paracaryum*.

58. **Thyrocarpus** Hance, Ann. Sci. Nat. ser. 4, xviii.  
225 (1862).

A chinese genus of 3 species.

59. **Actinocarya** Benth. in Benth. & Hook. Gen. Pl. ii.  
846 (1876).

An interesting monotype from Tibet. According to Brand, Pflanzenr. iv. Fam. 252, 15 (1921), this genus is to be excluded from the *Cynoglosseae* and associated with *Myosotis*, since its nutlets are said to be basifixed. My dissections of the type collection agree with the details in the plate given by Oliver, Hook. Icon. xxiii. t. 2257 (1893), and clearly point to a relationship in the *Cynoglosseae*. Not only do the nutlets bear glochidiate appendages and a coroniform dorsal crest suggestive of the *Cynoglosseae*, but the radicle end of the seed is next to the attachment-surface of the nutlet and, hence, the latter is unquestionably apical in attachment.

60. **Paracaryum** (A. DC.) Boiss. Diag. Pl. Orient. ser. 1,  
xi. 128 (1849).

*Mattiastrum* Brand in Fedde, Repert. xiv. 150 (1915).—With 40 to 45 species in the area between the eastern Mediterranean Basin and India. There seems to be no marked difference between *Paracaryum* and *Mattiastrum*.

## 2. NOTES ON MISCELLANEOUS AMERICAN BORAGINACEAE.

**Cryptantha latifolia**, sp. nov., annua laxe ramosa 7–30 cm. alta; ramis breviter graciliterque hispido-strigosis et sparse setosis; foliis subdistantibus firmis oblongo-linearibus vel oblongis obtusis integerimis 1–3.5 cm. longis 2.5–8(–10) mm. latis sessilibus concoloribus pustulato-setosis; spicis solitariis vel geminatis pauci- vel multi-bracteatis 3–12 cm. longis unilateralibus; floribus juventate congestis biseriatis maturitate remotis; calycibus maturitate ovoideis subsessilibus ascendentibus 2–4 mm. longis, lobis linearibus vel lineari-oblongis obtusis breviter hirsutis; corolla conspicua calycem multo superanti 2.5–5 mm. lata, lobis late obovatis 1.2–1.8 mm. longis albis; nuculis 4 triangulari-ovatis compressis fuscescentibus homomorphis

1.5–1.7 mm. longis apice acutis basi rotundo-truncatis dorso muricatis ventre verrucosis apice acutis, sulcis clausis vel infra medium anguste apertis basin versus divaricate furcatis; gynobasi quadrangulari-columnari ca. 1 mm. alta; stylo ca. 1 mm. longo nuculam ca. 0.5 mm. superanti.—PERU: loose stony upper slopes of sea-side hills, Chorrillos near Lima, about 150 m. alt., Sept. 15, 1923, *Macbride 5861* (TYPE, Field Mus. no. 536,865; ISOTYPE, Gray Herb.).—Differing from *C. limensis* (A. DC.) Johnston in its broad rotate corollas that much surpass the calyces, broad leaves, larger calyces, and acute ovate muricate nutlets that are about half the length of the calyx. From the briefly described *C. granulosa* (R. & P.) Johnston it differs in its broad leaves, loosely branched habit and muricate nutlets.

**Cryptantha Macbridei**, sp. nov., annua basaliter ramosa 5–15 cm. alta; ramis paucis ascendentibus adpresse hispidis; foliis oblanceolatis firmis integerrimis sessilibus saepe acutis 1–2 cm. longis 2–3 mm. latis saepe pustulato-setosis, superioribus reductis, inferioribus oppositis majoribus; spicis solitariis vel geminatis 3–12 cm. longis unilateralibus; floribus obscure biseriatis omnibus angusto-bracteatis maturitate 2–5 mm. separatis; calycibus fructiferis oblongis subsessilibus ascendentibus vel divaricatis 4–5.5 mm. longis basi conicis; lobis calycis oblanceolatis vel linearibus saepe acutis in costa infra medium cum setis flavescens horridis in marginibus adpresse hispidis, supra medium herbaceis paullo hispidis saepe recurvatis vel ascendentibus; corolla tubulosa calyce vix longiori ca. 2 mm. longa, lobis orbicularibus erectis ca. 0.5 mm. longis; nuculis 4 ovato-lanceolatis ca. 1.5 mm. longis fuscescentibus subnitidis verrucosis heteromorphis margine obtusis apice anguste acutis basi rotundatis ventre  $\frac{3}{5}$  longitudinis ad gynobasem quadrangulari-columnarem 1–1.2 mm. longam adfixis, sulcis clausis vel anguste apertis basi in areolam deltoideam semper dilatatis; nucula axillari persistenti dorso basin versus laeve quam nuculae consimiles sublongiori.—PERU: loose stony upper slopes of seaside hills, Chorrillos near Lima, about 150 m. alt., Sept. 15, 1923, *Macbride 5869* (TYPE, Field Mus. no. 536,873; ISOTYPE, Gray Herb.).—Collected with and somewhat resembling *C. latifolia*, but differing in its small tubular corollas, coarsely hirsute calyxlobes with spreading herbaceous tips, and narrower verrucose heteromorphous nutlets. From the description of *C. limensis*, of which it appears to be a very close relative, it differs in its much larger (4–5 not 3 mm. long) calyces, spreading calyxlobes, and verrucose nutlets.

**Cryptantha peruviana**, sp. nov., annua grisea subsimplex vel laxe ramosa 10–20 cm. alta adpresse villosa-hispida inconspicue pustulata; ramis gracilibus ascendentibus; foliis lanceolato-linearibus vel lineari-

bus ascendentibus integerrimis sessilibus acutis 1-3 cm. longis 1-2.5 mm. latis adpresse villosis-hispidis costa et marginibus hispido-ciliatis supra viridioribus, superioribus paullo reductis; spicis saepe evidenter geminatis rare ternatis vel solitariis ebracteatis 1-5 cm. longis unilateralibus; floribus uniseriatis maturitate 2-5 mm. separatis; calycibus fructiferis ovoideis sessilibus ascendentibus 2-4 mm. longis, lobis erectis linearibus vel lanceolato-linearibus in costa cum setis flavescens crassis pungentibus ornatis et in marginibus hispido-villosis; corolla tubulosa quam calyx sublongiori ca. 2 mm. longa, lobis orbicularibus ca. 0.3 mm. longis; nuculis 4 (rare 1-2 abortis) ca. 1.5 mm. longis lanceolato-ovatis compressis acutis pallidis rugoso-verrucosis dense minuteque granulatis quam lobi calycis  $\frac{3}{5}$  brevioribus homomorphis margine acutis basi truncatis ventre  $\frac{1}{2}$  longitudinis ad gynobasem quadrangularem-columnarem ca. 1 mm. longam affixa, sulcis apertis vel clausis; stylo ca. 0.6 mm. longo nuculas subsuperanti.—PERU: in loose rocks on dry slopes above Rio Blanco, about 3600 m. alt., May 8-19, 1922, *Macbride & Featherstone 674* (TYPE, Field Mus. no. 517,202; ISOTYPE, Gray Herb.); ravines and hillsides on southern slopes of El Chachani, north of Arequipa, alt. 3355 m. March 1920, *Mr. & Mrs. F. E. Hinkley 77* (G).—A very distinct species with an erect habit of growth, short ebracteate spikes, and pale tuberculate rugose nutlets. The five species of *Cryptantha* which are at present known from Peru may be distinguished by aid of the following

## KEY TO THE PERUVIAN SPECIES OF CRYPTANTHA.

Corolla at anthesis twice length of calyx, limb broad.

Leaves oblong-linear or oblong; nutlets muricate or verrucose... *C. latifolia*.

Leaves linear; nutlets granulose..... *C. granulosa*.

Corolla tubular, always shorter than or barely exceeding calyx.

Spikes naked, usually geminate; nutlets pale; leaves linear or lance-linear, very obscurely pustulate..... *C. peruviana*.

Spikes bracteate, usually solitary; nutlets dark; leaves oblong or oblanceolate, conspicuously pustulate.

Calyx 4-5 mm. long, lobes spreading or recurving above middle; nutlets verrucose..... *C. Macbridei*.

Calyx 3 mm. long, lobes erect; nutlets granulate..... *C. limensis*.

**Amsinckia hispida** (R. & P.), comb. nov. *Lithospermum hispidum* R. & P. Fl. Peruv. ii. 5 (1799).—Ruiz & Pavon's specific name is the oldest in the genus, and hence should replace *A. angustifolia* Lehm., cf. Contr. Gray Herb. n. s. lxx. 44 (1924). The type of *A. hispida* was collected in the arid belt to the north of Lima, Peru.

**Harpagonella Palmeri**, var. **arizonica**, n. var., cornibus calycis quam ea formae typicae gracilioribus longioribus ca. 4 mm. longi-

tudine; nuculis paullo grandioribus.—ARIZONA: plains, Lowell, May 3, 1884, *W. F. Parish 162* (TYPE, Gray Herb.); near Tucson, April 1881, *Pringle 363*; Tucson, *Lemmon*; Tucson, 1877, *Greene 1110*.—The plant of Arizona currently referred to *H. Palmeri* Gray differs from that of California and Lower California in having more elongate cornute processes on the fruiting calyx and noticeably larger nutlets. The type of *H. Palmeri*, collected on Guadelupe Island by Palmer in 1875, is quite indistinguishable from the plant of coastal Southern California and adjacent Lower California.

*Harpagonella* was placed in a special tribe by Gürke, E. & P. Nat. Pflanzenf. iv. Abt. 3a, 130 (1895), and was so treated in a paper of my own, Contr. Gray Herb. n. s. lxx. 5 (1924). A recent detailed study of *Harpagonella*, however, has convinced me that it has been treated with too much dignity, and that it clearly falls into the *Cynoglosseae* next to *Pectocarya* as first indicated by Gray, Proc. Am. Acad. xi. 88 (1876).

*Harpagonella* has only two ovules. The nutlets which develop from these are somewhat different in shape, attachment, and pubescence. The axial nutlet (that next the distinct calyx-lobes) is pubescent on all faces, and is slightly shorter and more loosely affixed to the gynobase than is the abaxial nutlet. The abaxial nutlet is enclosed by the peculiarly modified abaxial calyx-lobes, and is pubescent only on the face proximate to the axial nutlet. In both nutlets the radicle-end of the seed is next the attachment-end of the nutlet, and hence, morphologically at least, the nutlets are apically attached. It is quite evident, therefore, that the nutlets must stand inverted with their backs juxtaposed. A close examination reveals a margin surrounding the pubescent inwardly facing side of the abaxial nutlet which further suggests that this is, indeed, morphologically the back of the nutlet. The style, gynobase, and corolla, the indurated recurved pedicels, and all the vegetative characters of *Harpagonella* are those of *Pectocarya*, a genus which also has very elongate nutlets apically attached, and hence there seems to be every reason for returning to the treatment of Gray, l. c., and Bentham & Hooker, Gen. Pl. ii. 846 (1876), placing the genus next to *Pectocarya* and considering it no more than a highly specialized and anomalous member of the *Cynoglosseae*.

PECTOCARYA LATERIFLORA (Lam.) DC. Prodr. x. 120 (1846). *P. gracilis*, var. *boliviana* Johnston, Contr. Gray Herb. n. s. lxx. 37 (1924).—The study of the material of *Pectocarya*, recently collected by Mr. J. F. Macbride in Peru, has convinced me that *P. gracilis*, var. *boliviana* is synonymous with *P. lateriflora*, since the habit-

difference, by which *P. gracilis* and *P. lateriflora* were distinguished, has proved illusory. The three species constituting the § *Eupectocarya* appear to be remarkably similar in habit, differing only in the shape and arming of the nutlets. *Pectocarya lateriflora* is characterized by its obovate, rather than parallel-sided oblong-linear nutlets, and appears to represent its section in Peru and Bolivia. Weberbauer, Engler & Drude, Veg. Erde xii. 136, fig. 5 (1911), has given a suggestive, but not accurately detailed illustration of *P. lateriflora*.

CYNOGLOSSUM LIMENSE Willd. Sp. Pl. i. 762 (1798).—This species is based entirely upon a plate and description given by Feuillée, Jour. Obs. Phys. ii. 765, t. 49 (1714), who found the plant in the "vallée d'Ylo." As clearly shown by Feuillée's maps and discussion, the locality known to him as "Ylo" is the same as the port near the southern boundary of Peru now known under that name. The type of *C. limense*, hence, was not collected near Lima as Willdenow's inappropriate specific name, and Brand's statement, Pflanzenr. iv. Fam. 252, 142 (1921), would suggest. As the plant has not been reported from within 500 miles of Ylo it is possible that its reputed occurrence there is the result of some confusion of data.

CYNOGLOSSUM TRIANAENUM Wedd. Chlor. And. ii. 90 (1859).—A fine plate of this was published by Oliver, Hook. Icon. xxv. t. 2458 (1896). Brand, Pflanzenr. iv. Fam. 252, 136 (1921), apparently intended to cite this illustration, but part of his citation has been omitted and the remainder, the plate-number, was added to the citation to Weddell's Chloris Andina.

CORDIA GERASCANTHUS L. Syst. ed. 10, 936 (1759); not of Griseb. Fl. Brit. W. Ind. 478 (1861), nor Chodat, Bull. Soc. Bot. Genève ser. 2, xii. 209 (1920). *Gerascanthus* P. Browne, Hist. Jamaica 170, t. 29, fig. 3 (1756). *C. gerascanthoides* HBK. Nov. Gen. et Sp. iii. 69 (1818).—In 1910 Urban, Symb. Antil. iv. 516, indicated that, as then used, the binomial, *Cordia gerascanthus* L., was incorrectly applied to the widely distributed tree with canescent, densely stellate calyces, and that the name is properly applicable to the relatively localized species of the West Indies and southern Mexico which has glabrous or sparingly hirsute calyces and larger flowers, and which was described and current as *C. gerascanthoides* HBK. Ten years later, in his paper on *Cordia* § *Gerascanthus*, Chodat, l. c., declared Urban's interpretation of *C. gerascanthus* L. to be incorrect and used the name in the traditional sense, applying it to the widely distributed plant with stellate calyces. Further examination of this matter has recently been made to determine the correct specific name for use by

Dr. W. M. Wheeler in his publications on myrmecophytes. For the convenience of others the results of this study are here put on record.

*Cordia gerascanthus* L. is based upon the Jamaican plant which Patrick Browne, l. c., described and figured under the name "*Gerascanthus*." Browne's illustration, showing only the floral structures, portrays a corolla of large size which has broad short obtuse lobes with conspicuous pinnate veining, a broad saucer-shaped throat, a stocky weakly ribbed calyx, and deltoid calyx-lobes. These characters definitely associate Browne's plant with *C. gerascanthoides* HBK. and prohibit the use of the Linnean name for the plant with stellate calyces. It is to be also noted that not only does Grisebach, l. c., cite Browne's figure under "*C. gerascanthoides* HBK.," but he gives *C. gerascanthoides* HBK. as "common in the lowlands and mountains" of Jamaica, and gives the plant with stellate calyces (under *C. gerascanthus* Jacq.) as "rare" on that island. Browne's plant was not rare, for he speaks of it as follows, "This tree grows in many parts of Jamaica, and is generally esteemed as one of the best timber woods in the island; it rises to considerable height, . . . , especially in the low-lands, where it is most common, . . . ." It is significant that concerning the Jamaican occurrence of the plant with stellate calyces, Urban, l. c. (under *C. alliodora* Cham.), comments parenthetically as follows, "fortasse a cl. Wilson introducta ex cl. Stapf. in lit." Since the identity of *C. gerascanthoides* HBK. and *Gerascanthus* Browne is certain from a study of Browne's plate and description, and from distributional considerations, it is evident that *Cordia gerascanthus* L. is, indeed, improperly applied to the widely distributed plant with stellate calyces. Among its close relatives in the West Indies and Central America, *C. gerascanthus* L. is readily recognized by its large flowers, saucer-shaped throat hirsute or glabrescent stout weakly ribbed calyx-tube, and deltoid calyx-lobes. It is known only from Cuba!, Isle of Pines!, Jamaica!, southern Mexico!, and northern Central America. As Urban, Symb. Antil. iv. 516 (1910) and viii. 574 (1921), has pointed out, *Cordia alliodora* (R. & P.) Cham. is the correct name for the widely distributed plant with stellate calyces, or, in other words, for the one incorrectly current as "*C. gerascanthus*." *Cordia alliodora* ranges from Mexico and the West Indies southward along the Andes to Bolivia. A number of critical species, doubtfully distinct from it, have been described from southern Brazil, adjacent Paraguay, and Argentina.