

NEW PHANEROGAMS FROM MEXICO, III*

IVAN M. JOHNSTON

Aristolochia Wrightii Seemann, Bot. Voy. Herald 331, tab. 72 (1856).

A. brevipes var. *Wrightii* (Seem.) Duchartre in DC. Prodr. 15¹: 441 (1864).

DURANGO: Mapimi, side of arroyo, Oct. 1898, *Palmer* 540 (G).
COAHUILA: Torreon, Feb. 1905, *Purpus* 1057 (G); 6 mi. west of Viesca, steep open canyon on limestone cliffs, Sept. 1938, *Johnston* 7746 (G).

During the cruise of the "Herald," Seemann visited the city of Durango and in the vicinity collected an *Aristolochia*. In his report on the plants collected, he treated his plant as a new species, describing and beautifully illustrating it as *Aristolochia Wrightii*. In addition to his own collection (*Seemann* 2175) he referred to his new species, material from "Zacatecas" collected by Hartweg, and four collections near the Mexican boundary made by Wright (nos. 567, 568, 1700 and 1701).

I have not seen Seemann's plants but the excellent illustration shows that it is conspecific with the Mexican plants that I have cited above. The collection by Hartweg, cited by Seemann, is probably *Hartweg* 85 and hence really from Aguas Calientes. It is the type of *A. brevipes* Benth., Pl. Hartweg. 15 (1839). Hartweg is not known to have visited Zacatecas. Bentham, in his account of the Hartweg collections, lists no other *Aristolochia* from central Mexico. Charles Wright's collections, as represented at the Gray Herbarium, consist of the following material,—567 *A. Coryi* Johnston, an assemblage of two collections from Val Verde Co., Texas; 568 *A. Wrightii* var. *texana* Johnston from the Davis Mountains, Jeff Davis Co., Texas; 1700 *A. Coryi* from near the present town of Brackettville, Kinney Co., Texas, plus a spray of *A. Wrightii* var. *texana* of unknown provenance; and 1701, *A. Watsonii* Woot. & Standl. from between Wilcox Playa and Benson, Cochise Co., Arizona.

It is evident that, as he accepted it, Seemann's species is an aggregate. Though it was "named in honor of the zealous and indefatigable traveller, Mr. Charles Wright," I am accepting Seemann's material from Durango as the type of his species. This was obviously his best material and

*New Phanerogams from Mexico, II. See Jour. Arnold Arb. 21: 67-75 (1940).

certainly his chief concern when the species was proposed, and, furthermore, it was the material selected for illustration.

Botanists subsequent to Seemann have treated his *A. Wrightii*, at best, as only a variety of *A. brevipes* Benth. Typical *A. brevipes*, however, is not known north of San Luis Potosi and southern Durango. Seemann's species is a much coarser plant with an evident, usually tawny, velutinous indument. Its leaves are distinctly larger and auriculate-lobed. The perianth is 2–3 times as large, glabrous within and very hairy outside, more irregular and firmer in texture. It ranges along the eastern base of the Sierra Madre Occidental, in Durango and southwestern Coahuila, north of the range of *A. brevipes*. In a form, distinguished only by its consistently smaller perianth, the species extend north into Chihuahua and western Texas. This northern smaller plant may be characterized as follows,—

***Aristolochia Wrightii*, var. *texana*, var. nov.**

A forma typica differt perianthiis minoribus 3.5–4 cm. (non 6–7 cm.) longis.

CHIHUAHUA: rocky hills near Chihuahua, Apr. 1885, *Pringle 9* (G); 8 miles northwest of Cruces, base of sandstone cliff, Sept. 1938, *Johnston 7986* (TYPE, Gray Herb.). TEXAS (Jeff Davis Co.): valley of the Limpia, Aug. 22, 1849, *Wright 868* (G); mountainside on the Limpia, June 26, 1852, *Wright sine no.* (G); Davis Mts., Apr. 1902, *Tracy & Earle 171* (G); Ft. Davis, dry rocky ravines along Limpia Cr., June 1928, *E. J. Palmer 34485* (G).

The usually tawny velutinous indument of the herbage and the velvety elongate perianth permits this Texan and Chihuahuan plant to be instantly distinguished from either *A. Coryi* Johnston, of the margin of the Edwards Plateau, Texas, or from *A. Watsonii* W. & S. of southeastern Arizona, adjacent New Mexico, and Sonora, the two other species of the Mexican boundary which have been improperly treated as phases of the truly Mexican, *A. brevipes*.

***Aristolochia Whitei*, sp. nov.**

Herba perennis prostrata e radice ut videtur profundo et crasso oriens; caulibus numerosis subsimplicibus basim versus longe ramosis ad 2 dm. longis ca. 1 mm. crassis, internodiis 1–1.5 cm. longis; foliis supra puberulentis sublaevibus basim versus purpureo-maculatis, subtus praesertim secus costam et nervos pilos rigidulos e basi incrassata orientes gerentibus 5-costatis; lamina foliorum infimorum triangulari-cordata 5–12 mm. longa et lata; laminis foliorum medialium et superiorum elongatis majori-

bus basi late divergenteque auriculatis (ergo trilobis) ad 2.5 cm. longis et 1.5 cm. latis, lobo centrali basim versus 6–9 mm. lato ad 2 cm. longo sursum contracto, foliis basi excisis, sinu 2–4 mm. profunde et 4–6 mm. late inter auriculas amplas rotundas aperto; petiolo ad 5 mm. longo; floribus in axillis solitariis; pedunculo 1–1.5 cm. longo conspicuo apice bracteam 5–10 mm. longam gerente; ovario ca. 5 mm. longo clavato vel subcylindrico breviter velutino in stipitem 5–8 mm. longum gradatim attenuato; perianthio ca. 2 cm. longo extus praesertim secus nervos villosus; utriculo 4–5 mm. longo intus glabro; tubo 7–10 mm. longo subcylindrico subrecto vel saepe leviter falcato-curvato intus praesertim infra medium sparse piloso; limbo parvo 6–9 mm. longo triangulari acuminato viridi haud conspicuo unilaterali erecto intus pilis purpureis obsito; gynostemio ca. 1.8 mm. longo ca. 1.5 mm. crasso 5-mero ca. 0.5 mm. longe stipitato; fructu immaturo depresso ca. 9 mm. crasso et 5 mm. alto in basim conicam ca. 4 mm. longam (apicem versus 2.5 mm. crasso) abruptissime contracto deinde in stipitem fere ad 16 mm. longum transmutato.

CHIHUAHUA: 20 mi. west of Chihuahua on road to Santa Isabel, ca. 5700 ft., prostrate, fl. greenish, Aug. 20, 1939, *Stephen S. White* 2469 (TYPE, Gray Herb.).

This is a relative of *A. brevipes* Benth., of central Mexico. It differs in its slightly curved perianth-tube, poorly developed triangular perianth-limb, very elongate peduncles, relatively well developed cordate bracts, long-stiped ovary and purple-spotted leaves. The species is well marked. It is, however, much more closely related to true *A. brevipes* than are the other plants of Coahuila, Chihuahua and Sonora, and adjacent United States, which have been improperly, though very generally, identified with that southern plant. Its range lies between that of *A. Wrightii* Seem. and *A. Watsoni* Woot. & Standl., but differs widely from these two species in its small purple-spotted leaves, long peduncles and small subtubular short-limbed perianth. Its leaves are greener and much less hairy than in *A. Wrightii* and grayer and more hairy than in *A. Watsonii*.

***Aristolochia lassa*, sp. nov.**

Herba prostrata multicaulis e radice palari carnosio fusiformi erumpens; caulibus basim versus ramosis 1.5–3 dm. longis ca. 1 mm. crassis, internodiis 7–12 mm. longis; foliis saepe 12–24 mm. longis sparse hispidulo-villosulis (infimis minoribus subcordatis) medialibus et superioribus trilobatis basim versus latioribus saepe 10–18 mm. latis basi laminae excisa, sinu 2–5 mm. profunde obtuso inter auriculas saepe 4–5 mm. longas ovatas divergentes late aperto; petiolo 2–4 mm. longo; flori-

bus in axillis solitariis; pedunculo 1–4 mm. longo bracteis foliaceis lanceo-ovatis 2–6 mm. longis terminato; ovario ad anthesin ad 5 mm. longo velutino subsessili; perianthio ca. 1.5 cm. longo extus plus minusve hispidulo-villosulo; utriculo ca. 5 mm. longo supra medium 3–4 mm. crasso intus supra medium villosulo; tubo infra medium abrupte geniculato (angulum 80° – 90° latum formante) intus supra medium sparse villosulo imam ad basim 2.5–3 mm. crasso, supra geniculum cylindrico ca. 2 mm. crasso 4–5 mm. longo; limbo valde obliquo angulo ad 30° ab axi partis superioris tubi divergente ca. 1 cm. longo ad 5 mm. lato (basim versus latiore) late lanceolato os tubi undique ambiente basi plus minusve emarginato supra (praesertim marginem versus) sparse villosulo; gynostemio 5-mero ovoideo 1.5–1.8 mm. longo ca. 0.4 mm. longe stipitato; capsula obovoidea 1–1.4 mm. longa apice truncata basi 1–2 mm. longe stipitata.

COAHUILA: Saltillo, common in bottom lands, prostrate, fl. maroon with crimson shade, base greenish yellow, May 1898, *Palmer 187* (TYPE, Gray Herb.); mountains 40 miles south of Saltillo, July 1880, *Palmer 1183* (G).

The present plant seems to be most closely related to the plant collected by Karwinsky (no. 712, from "Mexico") and later described as *A. Karwinskii* Duchartre, in DC. Prodr. **15**¹: 442 (1864). Duchartre gives the leaves of *A. Karwinskii* as 3.2–3.5 dm. long and about 2.8 dm. wide on a petiole 8–10 mm. long. The measurements of the leaf-blade are incongruously disproportionate to the other measurements and details given. It seems probable that a decimal point was misplaced and that the blade is probably only 3.2–3.5 cm. long and 2.8 cm. wide. In any case the leaves are larger than in *A. lassa* and are subreniform or deltoid-cordate rather than distinctly auriculate and hence trilobed. In *A. Karwinskii* the perianth is larger (8 cm. long) and has a deltoid-cordate limb (2.5 cm. long and 1.5 cm. wide) which is deeply incised at the base. The type was probably collected, during Karwinsky's second Mexican expedition, in southwestern Tamaulipas and perhaps in the region about Jaumave, Palmillas and Santiaguillo where, in 1842 and 1843, the major part of his collection was obtained.

***Aristolochia Coryi*, sp. nov.**

Herba perennis prostrata e radice profundo fusiformi succulento oriens; caulibus pluribus gracilibus saepe basim versus ramosis elongatis 1–4 dm. longis 1–1.5 mm. crassis sparse hispidulo-villosis, internodiis 1–3.5 cm. longis; foliis viridibus conspicue auriculatis (ergo trilobatis) 1.8–5 cm. longis 1–4 cm. latis, margine ciliolatis, subtus sparse incon-

spicueque villosis, supra sparse inconspicuissimeque villosis vel villosio-hispidulis; parte centrali laminae anguste triangulari basim versus 5–15 mm. lata deinde apicem versus gradatim attenuata ab apice petioli usque ad apicem laminae 1–4 cm. longa; lamina basi excisa, sinu profundo obtuso inter auriculas amplas 5–15 mm. longas 3–11 mm. latas rotundas divergentes late aperto donata, petiolo 5–25 mm. longo; floribus in axillis solitariis; pedunculo 1–8 mm. longo bractea foliacea ovata 4–10 mm. longa acuta basi rotundata perbreviter petiolata terminato; ovario ad anthesin 5–7 mm. longo velutino apice ad 1 mm. crasso deinde deorsum gradatim contracto 1–3 mm. longe stipitato; perianthiis 2–3.5 cm. longis extus plus minusve villosulis; utriculo 2.5–6 mm. crasso 4.5–7.5 mm. longo supra medium crassiore subasymmetrico intus glabro; tubo leviter falcato-curvato 10–15 mm. longo 2–3 mm. crasso intus supra medium (praesertim apicem versus) pilifero; limbo valde obliquo os tubi undique 2–4 mm. late ambiente late elliptico 10–18 mm. longo (in alabastro a latere viso lunato) basi plus minusve emarginato, facie interiore saepe glabro; gynostemio 5-mero 2.3 mm. alto obovoideo-obconico apice 1.8 mm. crasso ca. 0.6 mm. longe stipitato; capsula angulata elliptica vel obovoidea vel depresso globosa 10–13 mm. crassa ca. 12 mm. longa 2–4 mm. longe stipitata.

TEXAS: Substation no. 14, Edwards Co., June 8, 1934, *V. L. Cory* 8491 (TYPE, Gray Herb.); "on the llano," May 1885, *Reverchon* 129 (G); stony prairies, Chicon Cr. to Piedra Pinta Cr. [i.e. near Brackettville, Kinney Co.], May 17, 1851, *Wright* 1700 (G); Big Bend of Devils River, limestone hills, Val Verde Co., July, *Wright* (G); prairies of San Felipe Cr. & in bottoms of Devils River, Val Verde Co., July 17 and 25, 1849, *Wright* 567 (G).

This very well marked species has passed as one of the forms of *A. brevipes* Benth. The broadly elliptic limb of the perianth, however, quickly distinguishes *A. Coryi* from *A. brevipes* and its relatives. The species ranges along the southern margin of the Edwards Plateau, of western Texas. It is well separated from *A. Wrightii* var. *texana* Johnston, of northern Chihuahua and trans-Pecos Texas (Davis Mts.), the only true relative of the central Mexican, *A. brevipes*, that approaches it geographically. The more hairy, usually somewhat velvety and tawny, herbage of *A. Wrightii* and its velvety unilabiate corolla with a very elongate narrow limb, are characters permitting *A. Wrightii* to be distinguished at a glance from *A. Coryi*.

Talinum Whitei, sp. nov.

Planta laxa ramosa, partibus inferioribus ignotis; ramis saltem 5 dm.

longis ad 4 mm. crassis herbaceis foliosis supra medium floriferis infra medium ramulos 1–3 dm. longos ascendentes supra medium floriferos gerentibus, internodiis saepe 2–3 cm. longis; foliis oblanceolatis compressis saepe 3–6 cm. longis 7–15(–20) mm. latis supra medium latioribus deinde basim versus in petiolum 1–3 mm. longum gradatim attenuatis apicem obtusum versus contractis costa et nerviis obscure notatis; inflorescentia elongata racemoso-paniculata ca. 3–4 mm. crassa et 1–2 dm. longa, foliis sursum gradatim reductis ornata; pedunculis ad 2 cm. (saepe 5–10 mm.) longis apice bracteas duas ovatas late scarioso-marginatas apice longe acuminatas et flores 1–2 vel rariter ramos duos ad 1 cm. longos floriferos proferentibus; pedicellis 1–2 cm. longis ascendentibus maturitate recurvatis; sepalis 2 deciduis late ovatis subaequalibus 5–10 (saepe 7–8) mm. longis, apice acutis vel extus inconspicue tridentatis, margine angustissime scariosis, dorso costas 3–5 longitudinales inconspicuos gerentibus; petalis “aurantiacis” (in sicco plus minusve sanguineis), ut videtur saltem 25 mm. longis; capsula ovoidea 5–7 mm. longa 4–5.5 mm. crassa straminea 2–3-valva saltem 25 semina gerente; seminibus nigris opacis ad 1.7 mm. longis strophio albo donatis, costas multas concentricas prominentes angustas valliculis latitudine quam altitudine costarum saepe 2-plo (1–3-plo) majoribus separatas gerentibus, valliculis abundantissime transverse minute sulcatis.

CHIHUAHUA: 10 mi. west of El Pozo, road to Santa Eulalia, 4600 ft., fl. orange, Aug. 18, 1939, *Stephen S. White 2440* (TYPE, Gray Herb.).

Because of the broad leaves this species suggests a luxuriant form of *T. triangulare* Willd. It is, however, clearly a relative of *T. aurantiacum* Engelm., having the seeds, broad sepals, long peduncles, large ovoid capsules, orange petals and coarse stems which characterize the typical form of Engelmann's species. It differs from the latter, however, in being a more succulent and herbaceous plant with loosely and abundantly branched stems and very broad dark green leaves.

***Vauquelinia heterodon*, sp. nov.**

Arbor 3–10 m. alta glabrescens; ramulis hornotinis brunneis; gemmis parvis albo-tomentosis; foliis juventate evanescenter albo-tomentosis mox glabris, maturitate glaberrimis viridibus subtus subpallidioribus; lamina anguste lanceolata vel lineari-lanceolata saepe 6–10-plo longiore quam lata, 7–12 cm. longa 7–20 mm. lata, infra medium (saepe basim versus) latiore, longitudine laminae quam petiolo gracili 3–4 mm. longo subtriplo vel rariter ad subquadruplo longiore, apice laminae acuta vel subacuminata, basi asymmetrica acuta vel obtusa, margine conspicue eroso-dentata (dentibus heteromorphis saepe glandulas gerentibus,

majoribus 1.5–3 mm. longis in utrinque marginibus saepe 10–15 donatis saepe 2–5 mm. distantibus, minoribus summum ad 1 mm. longis inter majores gestis), costa conspicua, nerviis primariis in facie inferiore laminae prominulis subparallelis ca. 1 mm. distantibus perspicue discretis, nervis secundariis perinconspicuis haud prominulis; inflorescentia sub anthesi glabra corymbosa 6–8 cm. diametro; hypanthio cupulato sub anthesi glabro; sepalis triangulari-ovatis erectis ca. 2 mm. longis quam hypanthio paullo longioribus, margine membranaceis saepissime pauci-denticulatis (denticulis glandulas capitatas proferentibus) sub anthesi plus minusve evanescenter tomentulosi; petalis late ellipticis 5 mm. longis albis sessilibus haud unguiculatis; staminibus glabris subulatis 5 et 6 mm. longis; ovariis dense strigosis; stylis 5 compressis clavatis 2 mm. longis; folliculis maturis adpresse villosis sepala 2–3 mm. longe superantibus.

COAHUILA: Caracol Mts., 21 mi. southeast of Monclova, Aug. 1880, *Palmer 329* (G, AA); Sierra Gavia, 40 mi. south of Monclova, tree frequent on canyon-sides and along the canyon-bottom, 3–8 m. tall, Aug. 1938, *Johnston 7217* (TYPE, Gray Herb.) near northern entrance of El Puerto de San Lazaro [Sierra Gavia], June 1936, *Wynd & Mueller 104* (G); Parras, Oct. 1910, *Purpus 4945* (G). TAMAULIPAS: Cerro de los Armadillos, near San Jose, Sierra de San Carlos, small tree on limestone, July 1930, *Bartlett 10207* (G).

This tree has been treated as a form of *V. corymbosa* Correa by Rydberg, No. Am. Fl. **22**: 260 (1908), and by Standley, Contr. U. S. Nat. Herb. **23**: 323 (1922). True *V. corymbosa*, however, is endemic to Hidalgo, and differs from *V. heterodon* in its less elongate, distinctly reticulate, more sparingly and saliently toothed leaves, proportionately longer petioles, and smaller fruit. Its range is separated from that of *V. heterodon* by San Luis Potosi and southern Tamaulipas. In this intermediate area the genus is represented by *V. Karwinskii* Maxim. (*V. latifolia* Rydb. is probably a synonym). The present species, *V. heterodon*, is most closely related to *V. angustifolia* Rydb., which extends from the Chisos Mts., in the Big Bend area of Texas, southwest to the San Eulalia Mts. near Chihuahua City. From this more western plant *V. heterodon* differs sharply in its less elongate, irregularly toothed, long-petiolate leaves, glabrous inflorescence and flowers, and usually gland-toothed sepals.

***Eriosema laetum*, sp. nov.**

Planta fruticosa; ramis elongatis 4–6 dm. longis ad 3 mm. crassis molliter inconspicue pubescentibus, internodiis 5–9 cm. longis; stipulis

deciduis 7–8 mm. longis multistriatis molliter pubescentibus apice 2–3 mm. profunde dentatis dentibus acuminatis; rhachi folii 10–13 mm. longa 3–4 mm. supra basim jugum foliolorum gerente; foliolis 3 viridibus molliter inconspicue velutinis oblongis vel raro supra medium aliquantum latioribus, apice obtusis vel truncatis vel subemarginatis inconspicue apiculatis, basi rotundis vel plus minusve angulatis in petiolulum ca. 2 mm. longum abrupte contractis subtus costa et nervis pluribus ascendentibus prominulis ornatis, supra laete viridibus cum costa et nervis delicate impressis; foliolis lateralibus 5–8 cm. longis 1.8–3 cm. latis; foliolo terminali majore 5.5–8.5 cm. longo 2–3.5 cm. lato, petiolulo basi stipellato; racemis ex axillis superioribus rami orientibus; rhachi racemi floriferi gracili recta ca. 1 dm. longa quam folio suffulciente duplo longiore, internodiis 4–6 mm. longis; bracteis multistriatis ovatis acutis pubescentibus 5–7 mm. longis mox deciduis; floribus ca. 2 cm. longis; pedicellis ad 5 mm. longis stricte ascendentibus gracilibus; tubo calycis inaequali ca. 3.5 mm. profundo cupulato basi oblique rotundato; lobis calycis inaequalibus sparse setiferis, antico 6–7 mm. longo cuneato apice longe attenuato, basi ad 2 mm. lato, lateralibus 5–6 mm. longis oblique angusteque triangularibus, posticis 4–5 mm. longis; vexillo obovato 22 mm. longo 14 mm. lato, intus aureo glabro, extus sordido pubescente, apice emarginato, basi ca. 2 mm. longe lateque unguiculato; alis aureis quam carina 1–2 mm. brevioribus, ca. 20 mm. longis ultra medium 5.5 mm. latis apice rotundis, basi 2–2.5 mm. longe unguiculatis; carina 21 mm. longa lutescente glabra; ovario albo-strigoso; fructu ignoto.

SONORA: Cañon de Huepari, north of Aribabi, 4300 ft. alt., fl. yellow, Sept. 2–3, 1939, *Stephen S. White 2650* (TYPE, Gray Herb.).

This relative of *Eriosema grandiflorum* (C. & S.) Seem. grows in the Sierra Madre of northeastern Sonora and probably sets the northern limit for the genus in America. It differs from the widely ranging more southern *E. grandiflorum* in the lack of abundant fulvous indument (particularly on leaves and inflorescence), and in its greener obtusish oblong (rather than acute or acutish lance-oblong) leaflets, its golden yellow wings and standard which retain their bright color in drying, and its less hairy and distinctly shorter less elongate calyx-lobes. The plant is of a fresher brighter green than *E. grandiflorum* and the inflorescence does not become sordid and rufous when dry.

Cnidoscolus Shrevei, sp. nov.

Fruticulus 5–10 dm. altus; ramulis hornis 1–3 dm. longis 1–2.5 mm. crassis viridibus minute pubescentibus setas pallidas stimulosas rigidas

5–12 mm. longas divaricatas e basi bulbosa orientes sparse sed conspicue gerentibus, internodiis 5–15 (–25) mm. longis; petiolis 4–9 mm. longis pubescentibus non raro setis paucis armatis; lamina folii viridi crispa ca. 2.5–4 cm. lata et 2–2.3 cm. longa ad medium late trilobata (sinu acuto) praesertim petiolum versus pubescente (vetusta glabra), infra conspicue palmateque tricostata (costis prominulis pallidis nervos paucos rectos pallidos gerentibus setis paucis sparse armatis), basi late obtusa vel truncata, margine lorum conspicue graciliterque inciso-dentata, dentibus angustis 4–7 mm. longis attenuatis non raro curvatis setaceo-acuminatis (apice pallidis); stipulis minutis triangularibus 1–1.3 mm. longis deciduis anguste 3–5-lobulatis, lobulis glandulosis; inflorescentia axillari pauciflora inconspicua; pedunculo 5–10 mm. longo; floribus masculis ca. 1 cm. longis albis extus minute pubescentibus, lobis ovato-triangularibus obtusis inaequalibus 2–3 mm. latis 1.5–2 mm. longis extus paucae setosis, tubo elongato, staminibus monadelphis 6 (staminodiis nullis), filamentis 2.5 et 3.5 mm. longis (duobus interioribus longioribus et fortasse basim versus plus minusve connatis) in apice columnae staminalis gestis; columna ca. 2.5 mm. longa basim versus abrupte (hemisphaerica) expansa et pilos molles 1–1.5 mm. longos abundantes conspicue proferente alibi glabra, disco glabro carnosio annulato rubiginoso obscure 5-dentato; floribus femineis ca. 5.5 mm. longis albis extus pubescentibus, lobis latis ovato-triangularibus inaequalibus 1–1.5 mm. longis extus sparse setosis, tubo basim versus circumscisso (parte basali persistente), disco hypogyno annulari crasso margine interiore appendiculas subulatas 5 minutas gerente; ovario pubescente; stylis 3 medium versus bilobatis ca. 1.5 mm. longis, lobis compressis obovato-oblongis; fructu ignoto.

DURANGO: steep rocky slopes 7 miles southwest of Chocolate, woody at base, 2–3 ft. tall, 4225 ft. alt., Aug. 22, 1939, *Forrest Shreve 9104* (TYPE, Gray Herb.).

A very distinct new species belonging to the group CALYPTROSOLEN as defined by Pax. It is evidently related to *C. Palmeri* (Wats.) Rose, of Sonora and Baja California, but is conspicuously different in its smaller lobed short-petiolate strongly crisped lacerate-dentate leaves, bristly stems, smaller flowers, and fewer stamens. The leaves of this species are among the smallest in the genus. Their crisped blades are unique in *Cnidoscolus*.

***Bernardia obovata*, sp. nov.**

Frutex ca. 1 m. altus viridis irregulariter ramosus dioicus; ramulis hornotinis viridibus pilos minutos stellatos gerentibus mox glabrescentibus et pallidis, vetustis glabris plumbeis vel brunneis; foliis alternis

viridibus obovatis vel raro subellipticis saepissime supra medium evidenter latoribus 7–15 mm. longis 5–12 mm. latis, apice obtusis vel rotundis, basi late acutis in petiolum 1–2.5 mm. longum contractis, margine sparse evidenter crenatis (in utroque latere dentibus 3–6 glanduliferis obtusis antrorsis supra medium laminae majoribus donatis), subtus costa et nervis 2–4-jugatis prominulis ornatis et pilis ramosis sparsis nullo modo congestis polymorphis (in forma et magnitudine variabilibus) donatis, supra subviridioribus pilis quam eis faciei inferioris saepe aliquantum minoribus et sparsioribus ornatis; stipulis crassis strictis oblique ovato-oblongis 0.8–1 mm. longis ca. 0.7 mm. latis, in sicco pallidis; inflorescentia mascula axillari, rhachi saepe 3–4 mm. longa bracteas 1–4 triangulari-cordatas ad 1 mm. longas 5–8-floras gerente pilis stellatis vestita; floribus femineis in alabastro angulato-subglobois pilos paucos stellatos gerentibus, lobis ad anthesin 3(–4) obovatis ad 1.5 mm. longis et 1 mm. latis, pedicellis gracillimis 3–5 mm. longis subglabris; staminibus saepe 6 (5–8), filamentis ca. 0.5 mm. longis glabris non raro rosaceis, antheris ca. 0.15-mm. longis, connectivo apice rubiginoso, glandulis disci minutis obovoideis saepe ca. 5 rubiginosis; floribus masculis sessilibus solitariis; sepalis 3 ovato-cordatis 1–1.5 mm. longis ciliatis, prophyllis 2–3 ovatis brevioribus; disco annulari subnullo dentato perinconspicuo; ovario biovulato biloculari compresso dense stellato-pubescente; stylis 2 bilobis, lobis subulatis 1–1.5 mm. longis recurvatis integris; capsula ca. 7 mm. alta 9 mm. lata et 6 mm. crassa inconspicue pubescente; seminibus ad 5 mm. altis in facie axiali planis alibi alte convexis dorso apicem versus inconspicue carinatis, laevibus ecarunculatis.

CHIHUAHUA: El Pozo, Sierra de Santa Eulalia, shrub 1 m. tall, Aug. 1939, *S. S. White* 2426 (G). TEXAS: mesa north of Chisos Mts., Brewster Co., 1065 m. alt., on arroyo bank, June 27, 1931, *Moore & Steyermark* 3289 (TYPE, Gray Herb.); Green Gulch, Chisos Mts., rocky banks, *E. J. Palmer* 34137 (AA); East Black Hill, Brewster Co., Apr. 21, 1928, *Cory* 1873 (G); between Rio Grande and Eagle Spring, southern Hudspeth Co., hillsides, much branched shrub 2–3 ft. tall, June 21, 1852, *Wright* 1807 (G).

A very distinct species which has been confused with *Bernardia myricaefolia* (Scheele) Wats. It occurs in the mountains near the Rio Grande in trans-Pecos Texas and in northern Chihuahua, in the territory between that occupied by true *B. myricaefolia* and the recently recognized *B. incana* Morton, of Arizona and California. The species is readily recognized by its sparingly hairy green obovate leaves and 2-celled fruit. It has the simple style-branches and the few stamens of

B. incana and is probably most closely related to that western plant, but differs decisively from it by its lack of a pale dense indument, elongate leaves, trilocular fruit and dark stipules. It differs from *B. myricaefolia* in its less elongate concolored (rather than bicolored) leaves, its sparser indument, thick stipules, glabrescent male flowers, much fewer stamens, smaller less hairy bilocular fruit, and simple style-branches. True *B. myricaefolia* is a plant of central and southern Texas and does not extend west to the Pecos. In Mexico it ranges far south into Tamaulipas and west into the Monclova area of northeastern Coahuila.

***Leucophyllum virescens*, sp. nov.**

Frutex subvirescens; ramulis pallidis pilis stellatis minutis abundantibus adpressis vestitis, internodiis 1–5 mm. longis; foliis ad 1 cm. longis virescentibus pilos stellatos et glandulas capitatas minutissimas gerentibus, lamina obovata 3.5–5.5 mm. lata, apice rotundata vel obtusa rariter emarginata, supra medium latiore deinde basim versus gradatim contracta; petiolo vix differentiato vel ad 1 mm. longo; foliis inferioribus ramulorum hornorum pilis compositis ramos 3–4 divaricatos 0.1–0.25 mm. longos gerentibus haud dense vestitis; foliis superioribus novellis ramulorum pallidioribus pilis 3–4-plo minoribus abundantioribus congeste breviterque multiramosis stellatis (eisdem pilis ramulorum pedicellorum et calycium persimilibus) dense vestitis; pedicellis 2–4 mm. longis gracilibus pallidis; calycibus ad 4 mm. longis, lobis inaequalibus linearibus vel lineari-lanceolatis 0.5–0.7 mm. latis extus minute abundanterque stellatis pallidis, intus viridibus glabris; corolla (in sicco caerulea) ad 18 mm. longa e basi gradatim ampliata, lobis 5–6 mm. longis intus piliferis; filamentis 4 glabris ca. 4 et 6 mm. longis; ovario glabro vel apicem versus pilos paucos gerente; stylo sparse pilifero; fructu ignoto.

DURANGO: near La Loma, valley of the Rio Nazas, 4000 ft. alt., Aug. 22, 1939, *Shreve 9101* (TYPE, Gray Herb.).

This is a species related to *L. minus* Gray, but differs in having broad greenish leaves of which the lowest on each shoot are clearly opposite and in displaying a marked difference in the form and abundance of the trichomes between the young and old leaves of the same shoot. The older leaves have large trichomes similar to those of *L. ambiguum* while the trichomes of the young leaves are smaller and suggest those of *L. minus*. The trichomes are much less abundant than in either of the two species mentioned. The older leaves become distinctly green above.

***Leucophyllum zygophyllum*, sp. nov.**

Frutex ramosissimus ramos et folia opposita vel subopposita gerens;

partibus juvenilibus dense pallideque tomentosis, pilis abundantissimis elongatis verticillas plures ramorum brevium superimpositas gerentibus; foliis concoloribus firmis medio-costatis, lamina orbiculari vel late obovata 4–7 mm. longa 4–6 mm. lata, apice rotundata vel obtusa, basi rotunda vel late acuta, in petiolum 1–1.5 cm. longum abrupte contracta; internodiis ramuli minus quam 5 mm. longis; calyce 4–5 mm. longo, basi rotundato, 2 mm. longe pedicellato, lobis oblongis (lobo brevior latissimo ad 1.4 mm. lato) extus tomentosis intus apicem versus tomentosis alibi glabris; corolla purpurea 12–15 mm. longa intus sparse pilifera, lobis ad 5 mm. longis, filamentis 4 et 4.5 mm. longis sparse piliferis; ovario subglabro vel tomentoso; stylo glabro vel sparse pilifero; fructu ignoto.

COAHUILA: El Berrendo near Muzquis, 1200 m. alt., fl. purple, "Ceniz," July 15–16, 1939, *Stephen White* 1799 (G). NUEVO LEON: Puerto de Pastores, southeast of Galeana, 2100 m., abundant on some limestone slopes, Aug. 2, 1934, *C. H. & M. T. Mueller* 1299 (TYPE, Arn. Arb.).

This species differs from all its known congeners in having evident and consistently opposite or subopposite leaves. Though smaller in size, the leaves in their outline and dense pale tomentum much suggest those of *L. frutescens* (Berl.) Johnston. The corolla in size and form is much like that of *L. minus* Gray. The dense pale tomentum which covers the leaves, calyx and leaf-bearing branches, is composed of complex elongate trichomes formed of a central axis bearing numerous superimposed whorls of short branches. Similar trichomes are found on the pedicels of *L. frutescens*. As with the other species of the genus there is considerable variation observable in the amount and distribution of hairs within the flower. The type specimen, from Nuevo Leon, has a distinctly tomentose ovary and a piliferous style, whereas in the material from Coahuila the style and ovary bear few, if any hairs, and the inner surfaces of the corolla have fewer hairs than in the type. In all other details the two collections show close agreement and I am confident that they are conspecific. The species is a very distinct and interesting addition to its genus.

Tecoma incisa (Rose & Standl.), comb. nov.

Stenolobium incisum Rose & Standl. Contr. U. S. Nat. Herb. **16**: 174 (1913).

Tecoma stans var. *angustatum* Rehder, Mitt. Deutsch. Dendr. Ges. **1915**: 227 (1915).

The present plant, a small bush with narrow incised-toothed glabrous leaflets and elongate corollas, is the only representative of its genus over

most of northern Mexico. Since it is readily recognizable and has a distinct range I believe it merits specific recognition. It ranges from Nuevo Leon, northern Zacatecas and central Durango north into western Texas and southern New Mexico and west along the international boundary into northeastern Sonora and southern Arizona. True *T. stans* (L.) HBK., with which it has been confused, in northern Mexico is a plant of the coastal districts, reaching north to Tamaulipas and central Sonora. South of the range of *T. incisa* the genus is represented by *T. mollis* HBK. Neither *T. stans* nor *T. mollis* have ranges which overlap that of *T. incisa*.

ARNOLD ARBORETUM,
HARVARD UNIVERSITY.



Johnston, I. M. 1940. "New phanerogams from Mexico. III." *Journal of the Arnold Arboretum* 21(2), 253–265. <https://doi.org/10.5962/p.325802>.

View This Item Online: <https://www.biodiversitylibrary.org/item/33597>

DOI: <https://doi.org/10.5962/p.325802>

Permalink: <https://www.biodiversitylibrary.org/partpdf/325802>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.