

STUDIES OF MEXICAN AND CENTRAL AMERICAN PLANTS.

BY J. N. ROSE.

PREFATORY NOTE.

Owing to the large number of sources from which plants are sent to us from Mexico, it seems advisable to discontinue, at least for the present, the publication of reports upon separate collections from that quarter. There is the added reason that many of the species are absent from even our largest American herbaria, which makes the identification doubly tedious. It is my plan, therefore, to work up the various collections jointly, reporting upon them somewhat irregularly by genera or families, presenting revisions, synopses, or even monographs, when the material at hand seems to justify it.

Miscellaneous new species will be published from time to time. These studies will be mostly upon the Polypetalae, although not necessarily confined to this group.

NOTES ON CELASTRACEAE.

Maytenus phyllanthoides Benth. Bot. Sulph. 51. 1844.

Shrub 30 to 45 dm. high.

Collected by Mr. C. G. Pringle in calcareous soil, Tehuacan, Puebla, altitude 1,808 meters, December 20, 1895 (No. 6285).

Myginda scoparia Hook. & Arn. Bot. Beech. 283. 1836-40.

Leaves of two kinds; some small, 6 to 10 mm. long, occasionally opposite, mostly alternate; the others much larger, 3.7 cm. or more long, always alternate; flowers small, brownish in color; fruit pear-shaped, 6 mm. long, obtuse, red, 1-seeded.

Not common; in river bottoms and on shaded hillsides. Collected by Dr. Edward Palmer, Acapulco, December, 1894 (No. 170).

This species was omitted by Mr. Hemsley from the *Biologia Centrali-Americana*.

The original specimens came from Acapulco, and there is no doubt of the identity of Dr. Palmer's plant. In the above description we have intended simply to supplement or correct the original characters, which were based on flowering specimens only.

This species has not before been represented in the National Herbarium.

Hippocratea acapulcensis H. B. K. Nov. Gen. & Sp. 5: 157. 1821.

Climbing shrub, 15 to 24 dm. high; leaves dark green, flowers greenish white.

Collected by Dr. Edward Palmer near Acapulco, March, 1895 (No. 629).

This species was originally collected near Acapulco, by Humboldt and Bonpland, and was afterwards obtained there by Lay and Collie.

Mr. Nelson has collected the species in the State of Oaxaca at the following places: valley about Cuicatlan, altitude 590 meters, November 3, 1894 (No. 1863); Jamiltepec to Rio Verde, altitude 131 to 328 meters, February 24, 1895 (Nos. 2373 and 2374).

It has not heretofore been represented in the National Herbarium.

This appears to be *Tontellea hookeriana* Miers and *Pristimera tenella* Miers.

Hippocratea mexicana Miers, Trans. Linn. Soc. 28: 352. 1872.

Sometimes a tree 7.5 to 9 meters high, with trunk 20 cm. in diameter.

Collected by Dr. Edward Palmer near Acapulco, February and March, 1895 (Nos. 430, 584, and 588).

We have seen no named specimens of *H. mexicana*. Mr. Hemsley has referred this species to *H. uniflora* DC.

The identification of the above two species is not at all satisfactory.

Perrottetia longistylis Rose, sp. nov.

Leaves oblong, 12.5 to 15 cm. long, long-acuminate, cuneate at base, coarsely toothed; inflorescence puberulent; sepals narrow, acute; petals ovate, ciliate; style elongated, enlarged at base, 2-lobed.

Collected by Bourgeau in Izhuatlancillo near Orizaba, 1865-6 (No. 2827).

This plant is referred to *P. quindiuensis* by Mr. Hemsley in the *Biologia Centrali-Americana*, but that species came originally from South America and besides has glabrous petals, stamens shorter than the petals, and the style very short.

Bourgeau's plant is perhaps nearer *P. ovata*, from which it differs in its larger, more acuminate leaves, less ciliate petals, and longer and thicker style.

Perrottetia ovata Hemsl. Diag. Pl. Nov. 1:6. 1878.

Collected by Mr. E. W. Nelson from near Totontepec, Oaxaca, altitude from 1,217 to 1,808 meters, July 15 to 20, 1894 (No. 786); also from about Tumbala, Chiapas, altitude 1,312 to 1,807 meters, October 20 to 29, 1895 (No. 3354).

My material, while presumably of this species, has the leaves oblong rather than broadly ovate. Only the male flowers have been described. The female flowers may be thus characterized: Sepals and petals as in the male flowers, ovary glabrous, style short, stigma two-parted, fruit broader than high, 4-lobed.

Perrottetia glabrata Rose, sp. nov.

A shrub 24 to 30 dm. high, nearly glabrous; leaves oblong, shortly acuminate, glabrous, excepting veins and petiole, or becoming glabrate, rounded at base, sharply and finely serrate, 7.5 cm. or less long, 3.7 to 5 cm. wide, pale beneath; inflorescence glabrous throughout; petals small, slightly ciliate; stamens long.

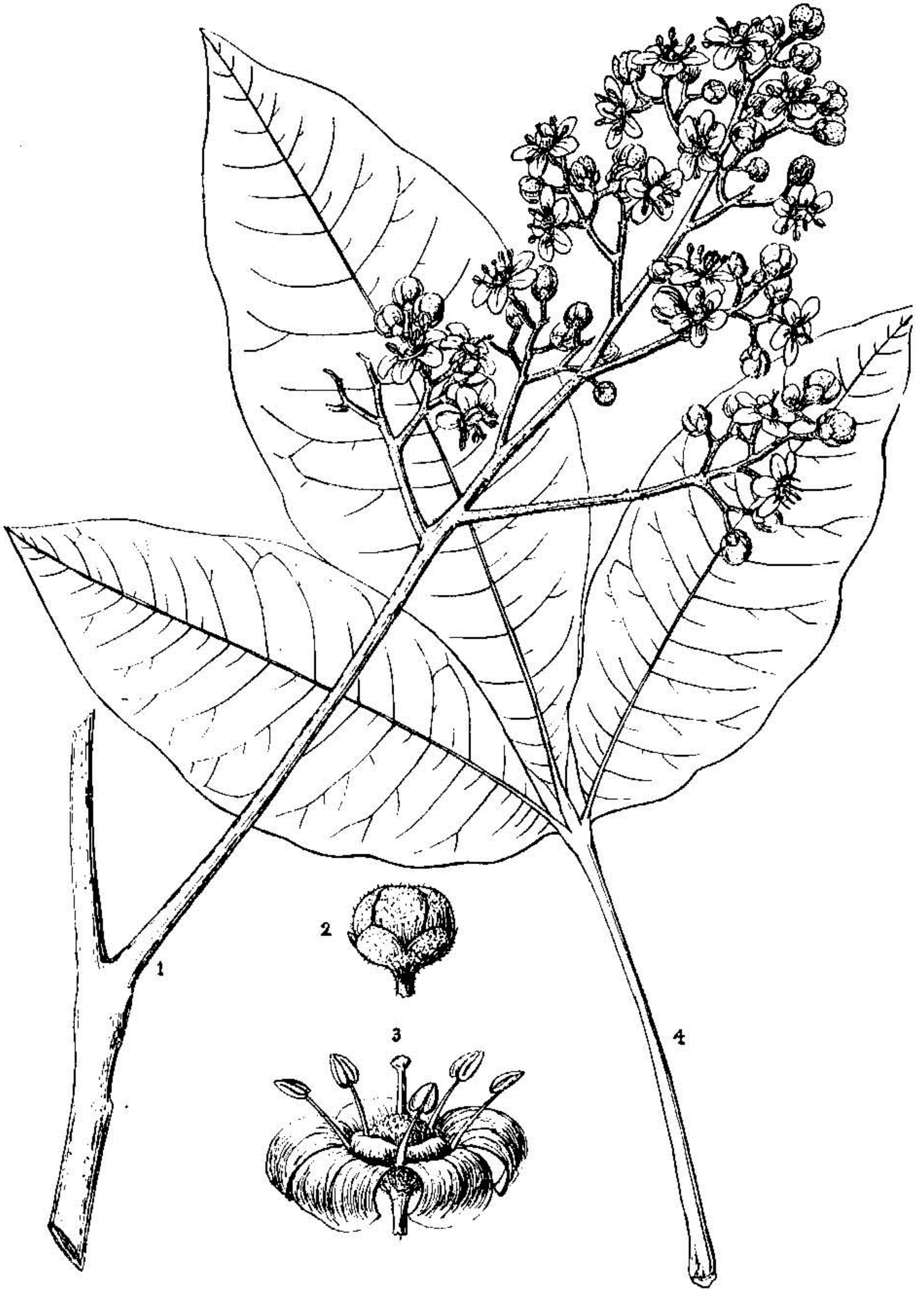
Collected by E. W. Nelson on Mt. Orizaba, altitude 1,607 to 2,460 meters, March 18, 1894 (No. 313). Here seems to belong Harris's plant which Mr. Hemsley referred to his *P. ovata* in the *Biologia Centrali-Americana*. *P. ovata* differs from the above species in the reddish pubescence of the inflorescence, the densely ciliate petals, coarser-toothed leaves, etc.

NOTES ON RUTACEAE.

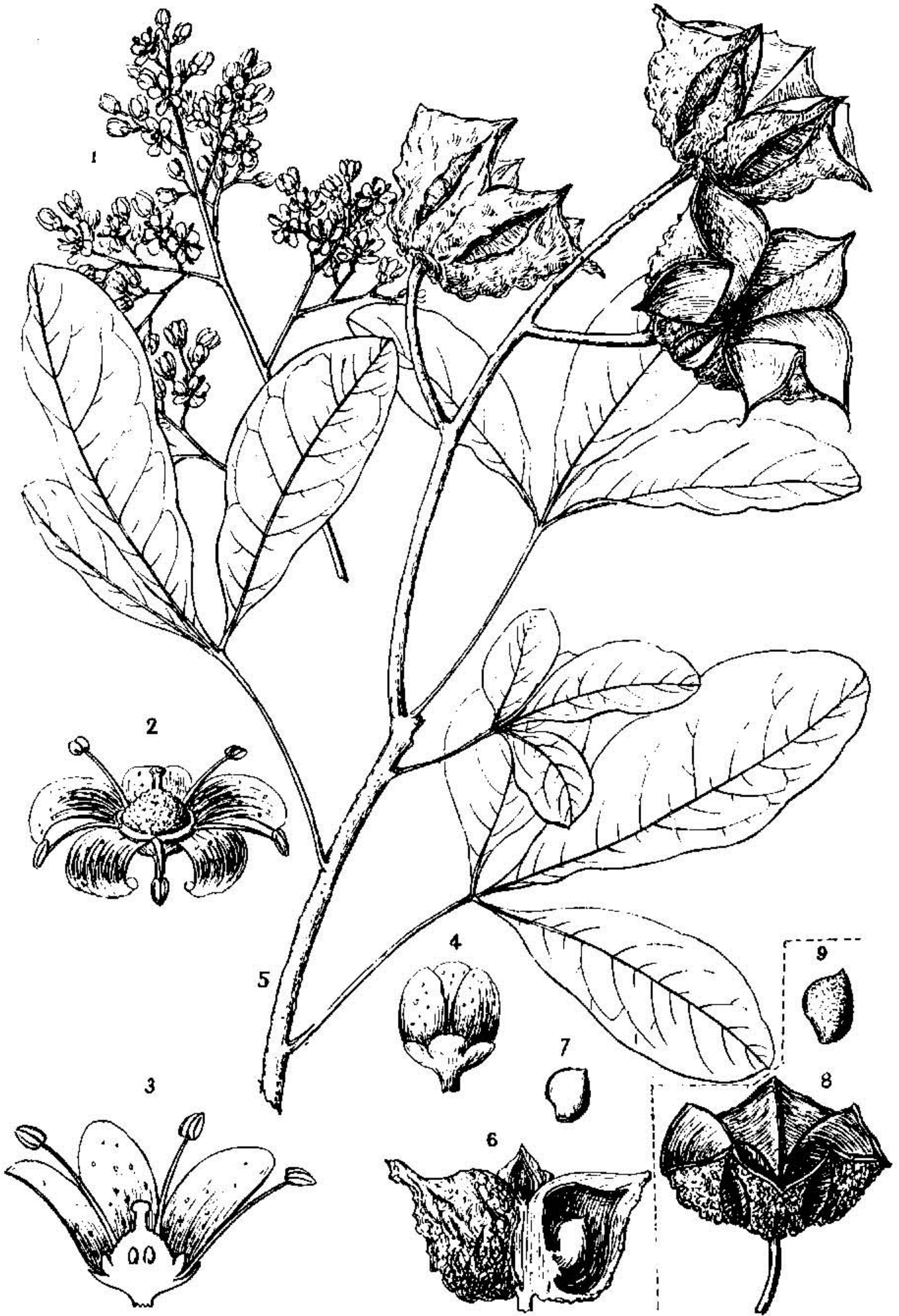
ESENBECKIA

The genus *Esenbeckia* is said by Bentham and Hooker to contain about 22 species confined to South America and the West Indies. Mr. Hemsley in his enumeration of Mexican plants¹ reports a single species, *E. berlandieri*. In addition to my two new species described below, two others have recently been described, viz: *E. flava* and *E. hart-*

¹ Biol. Centr. Amer. 1: 170.



ESENBECKIA MACRANTHA Rose.



ESENBECKIA ACAPULCENSIS Rose and *E. BERLANDIERI* Baillon.

manii, making in all five species for Mexico. The following key will be helpful in separating these species:

* *Leaves simple.*

+ *Leaves large, 5 to 10 cm. long, pubescent, pale.*

Esenbeckia flava Brandegee, *Zoe*, 1:378, t. 12. 1891.

Collected by T. S. Brandegee at San Jose del Cabo, Lower California, 1890. Only known from this one collection.

- - *Leaves small, 2.5 to 5 cm. long, nearly glabrous, bright green, finely reticulated.*

Esenbeckia hartmanii Robinson & Fernald, *Proc. Am. Acad.* 30:115. 1894.

Type specimens collected by C. V. Hartman, La Tinaja canyon, State of Sonora, November 19, 1890 (No. 240), and since by Dr. Palmer near Culiacan, October 25 to November 18, 1891 (No. 1801).

* * *Leaves ternate.*

+ *Leaflets very large, pubescent beneath, flowers few and large, sepals and petals not pellucid-dotted.*

Esenbeckia macrantha Rose, sp. nov.

PLATE II.

A tree 4.5 to 6 meters high; young branches and inflorescence silky-pubescent; leaves alternate, long-petioled, 3-foliolate; leaflets large, oblong, 15 to 20 cm. long, 5 to 7.5 cm. broad, somewhat oblique at base, somewhat acuminate at apex, green and shining above, paler and somewhat silky beneath, covered with small pellucid dots, strongly veined; inflorescence paniculate; sepals 5, small, rounded; corolla 10 mm. broad; petals imbricate, pubescent without; stamens 5; disk very large, slightly lobed.

Collected by Mr. E. W. Nelson in a canyon along wagon road 6 miles above Dominiguillo, State of Oaxaca, altitude 1,443 to 1,607 meters, October 30, 1894 (No. 1831).

EXPLANATION OF PLATE.—Fig. 1, flowering branch; fig. 2, flower bud; fig. 3, open flower; fig. 4, leaf; figs. 1 and 4, scale $\frac{1}{2}$; figs. 2 and 3 enlarged.

+ + *Leaflets glabrous and smaller, flowers numerous and smaller.*

+ + *Sepals and petals pellucid-dotted, petals white, seeds silvery and with a deep concavity at base.*

Esenbeckia acapulcensis Rose, sp. nov.

PLATE III.

A small tree, 6 meters high; stem 7.5 to 10 cm. in diameter, glabrous throughout; leaves ternate; leaflets oblong to obovate, rounded at apex, somewhat tapering at base into slender petiolules, 3.7 to 12.5 cm. long; flowers abundant, in a short, broad terminal panicle; inflorescence puberulent; sepals nearly orbicular, glabrous, dotted; petals white, thin, dotted; fruit flat-topped, 5 cm. broad, deeply 5-lobed, very much ridged; seeds brownish.

Collected by Dr. Edward Palmer, in river bottoms near Acapulco, December, 1895 (No. 175).

Very different from the two recently described species (*E. flava* and *E. hartmanii*) from western Mexico. It is nearest *E. berlandieri* of eastern Mexico.

EXPLANATION OF PLATE.—Fig. 1, flowering branch; fig. 2, flower; fig. 3, flower dissected; fig. 4, bud; fig. 5, branch with fruit and leaves; fig. 6, fruit; fig. 7, seed; figs. 1 and 5, scale $\frac{1}{2}$; figs. 2, 3, and 4 enlarged.

+ + + *Petals spotted, seeds dull and with a mere scar at base.*

Esenbeckia berlandieri Baill. *Adansonia*, 10: 151. 1871.

PLATE III.

Type specimens from woods near Tampico, Tamaulipas (Berlandier, No. 3125).

Since the above key was prepared Capt. John Donnell Smith has published *E. litoralis* from Guatemala in the *Botanical Gazette* (23: 242). I have not seen his specimens but he states that it is most nearly related to *E. acapulcensis*. I should judge that it is clearly distinct.

I have been able to examine a duplicate type of this at the Gray Herbarium. The species, while closely related to the last, appears to be distinct, having somewhat different carpels and seeds, less pellucid leaflets, etc.

EXPLANATION OF PLATE.—Fig. 8, capsule; fig. 9, seed; scale $\frac{1}{2}$.

SPECIES OF OTHER GENERA.

Amyris thyrsoflorus Turcz. Bull. Soc. Nat. Mosc. 21, pt. 1: 475. 1858.

Collected by Mr. E. W. Nelson at San Andres Tuxtla, State of Vera Cruz, altitude 328 meters, May 7, 1894 (No. 453).

This is the only representative we have of this species. It answers the original description fairly well except that the petioles and petiolules can hardly be said to be winged.

The type of this species also came from Vera Cruz.

Pilocarpus longipes Rose, sp. nov.

A shrub 15 to 36 dm. high, glabrous throughout; leaflets 3 to 5, rarely solitary, 5 to 10 cm. long, oblong, obtuse to retuse, broadly cuneate at base, strongly reticulate and glabrous above and beneath; raceme 3 to 5 dm. long; pedicels horizontal in flower, ascending in fruit, 20 to 25 mm. long, glabrous, with 1 or 2 small bracts just beneath the flower; fruit deeply 5-lobed or parted, 1 to 5 maturing; mature coccos glabrous with parallel semicircular grooves, 10 mm. in diameter; seeds black, glabrous, 6 to 8 mm. long.

Collected by Dr. Edward Palmer on shady hillsides near Acapulco, Mexico, February, 1895 (No. 514).

This seems nearest the Brazilian species *P. seloanus*, but has the bracts of the pedicels differently situated, fewer leaflets, etc.

Pilocarpus has not heretofore been reported from Mexico.

Triphasia trifoliata DC. Prodr. 1: 536. 1824.

Shrub 18 to 30 dm. high; flowers very fragrant; fruit red. In cultivation at Acapulco, February, 1895 (No. 467).

The plant is often used for hedges. The fruit is made into a kind of jelly.

Zanthoxylum arborescens Rose, sp. nov.

Small tree, 30 to 36 dm. high; branches with few short, scattered thorns; leaves large; leaflets 3 to 7, mostly 5, very variable, the larger ones 15 cm. long, oblong, tapering at base, the terminal leaflet more cuneate, slightly crenate, becoming glabrate above, puberulent beneath, especially on the veins; panicles open, terminal, puberulent (as well as young branches and rachis of leaves); calyx small; petals 5, reflexed, greenish-yellow; stamens 5, a little longer than the petals; styles 2; ovary 1-celled, 2-ovuled; seed 5 mm. long.

Collected by Dr. Edward Palmer along river banks and in arroyos, Ymala, August 16 to September 25, 1891 (No. 1451, immature fruit; No. 1455, in flower); and October 18, 1891 (No. 1405a, mature fruit).

A very distinct species and seemingly nearest the rare species *Z. melanostrictum*.

Zanthoxylum pterota (L.) H. B. K. Nov. Gen. & Sp. 6: 3. 1823. *Fagara pterota* L. Syst. ed. 10: 897. 1759?

Collected by Dr. Edward Palmer at Ymala, August 16 to 25, 1891 (No. 1424).

Zanthoxylum foetidum Rose, sp. nov.

Shrub 3 to 6 meters high; branches dark green and nearly glabrous; thorns plentiful, small, recurved and sharp; leaves compound; leaflets 3 to 5, lanceolate, petiolate, 2.5 to 6.2 cm. long, shortly acuminate, cuneate at base, crenate, puberulent on the veins beneath, thickly set with pellucid dots; panicles axillary, puberulent, many-flowered, 2.5 to 5 cm. long; sepals 4; petals 4; stamens with filaments longer than the petals; anthers ovate with a large gland at the tip; styles 2; fruit very glandular.

Collected by Mr. C. G. Pringle in barrancas above Cuernavaca, Morelos, altitude 1,808 meters, November 14, 1895 (No. 6207).

The leaves give forth a very offensive odor.

Near *Z. limoncello*, but distinct.

NOTES ON BURSERACEAE.

The genus *Bursera* up to 1883 was in a very confused condition. In this year appeared Dr. A. Engler's monograph of the genus,¹ in which 39 species are described. Since then, however, a number of new species have come to light in Mexico, of which the following is a list:

Bursera cerasifolia Brandegee, Proc. Cal. Acad. ser. 2, 3: 121. 1891.

Duplicate type in the National Herbarium.

Bursera fragilis Wats. Proc. Am. Acad. 21: 422. 1886.

Duplicate type (No. 72) in the National Herbarium.

Bursera glabrescens Rose, Contr. Nat. Herb. 3: 313. 1895. *Bursera palmeri glabrescens* Wats. Proc. Am. Acad. 25: 145. 1890.

Duplicate type (No. 77) in the National Herbarium.

This species may yet prove to be *B. jorullensis* (H. B. K.) Engler.

Bursera jonesii Rose, Contr. Nat. Herb. 3: 314. 1895.

Type (No. 491) in the National Herbarium.

Bursera aptera Ramirez, Anales Inst. Med. Nac. 2: 16. 1896.

Bursera trijuga Ramirez, Anales Inst. Med. Nac. 2: 16. 1896.

Bursera morelensis Ramirez, Anales Inst. Med. Nac. 2: 17. 1896.

Bursera laxiflora Wats. Proc. Am. Acad. 21: 44. 1889.

Duplicate type (No. 70) in the National Herbarium.

Bursera nelsoni Rose, Contr. Nat. Herb. 3: 314. 1895.

Type (No. 493) in the National Herbarium.

Bursera palmeri Wats. Proc. Am. Acad. 22: 402. 1887.

Duplicate type (No. 78) in the National Herbarium.

Bursera pringlei Wats. Proc. Am. Acad. 25: 145. 1890.

Duplicate type (No. 71) in the National Herbarium.

Bursera schaffneri Wats. Proc. Am. Acad. 22: 469. 1887.

Bursera tenuifolia Rose. Contr. Nat. Herb. 3: 314. 1895.

Type (No. 484) in the National Herbarium.

The following species have recently been acquired by the National Herbarium, one of which proves to be undescribed:

Bursera diversifolia Rose, sp. nov.

Tree 36 to 75 dm. high; older branches glabrous, shining, reddish; younger branches, rachis of leaves, and inflorescence pubescent; leaflets 4 to 6 pairs, the lower ones often again pinnate with 3 to 7 leaflets; the leaflets 25 mm. or less long, ovate or oblong, serrate, obtuse, rarely acute, rounded at base, or the terminal sometimes cuneate, pubescent and somewhat shining above, paler, softly pubescent and reticulated beneath; rachis between the leaflets narrowly winged; inflorescence contracted; fruit glabrous, 10 mm. long.

Collected by Mr. E. W. Nelson along road from Ocuilapa to Tuxtla, State of Chiapas, altitude 515 to 985 meters, August 29, 1895 (No. 3066).

This species seems nearest *B. submoniliformis*.

Bursera bicolor (Schlecht.) Engler in DC. Monogr. Phan. 4: 53. 1883. *Elaphrium bicolor* Schlecht. Linnaea, 17: 625. 1843.

¹In De Candolle, Monographiae Phanerogamarum, Vol. IV.

A shrub 45 to 60 dm. high. Collected by Mr. C. G. Pringle at Cuernavaca, 1896 (No. 6325).

Collected here also by Knechtel. It is new to the National Herbarium. I do not find that the height of the plant has been before mentioned.

Bursera galeottiana Engler in DC. Monogr. Phan. 4:47. 1883.

The leaflets were originally described as being 6 to 8 pairs. In the specimens before me some have only 6 pairs while others have from 12 to 14 pairs. The number of leaflets as in the closely related species *B. microphylla* is very variable. The nutlets are strongly 3-angled. Mr. Pringle says that this species is a small tree.

Collected by Rev. Lucius C. Smith on the hills at Milta, Oaxaca, altitude 1,969 meters, July 18, 1894 (No. 92); and by Mr. C. G. Pringle from Monte Alban near Oaxaca, Oaxaca, same altitude, November 27, 1894 (No. 6071).

This species was collected in Oaxaca by Galeotti at about the same altitude as Mr. Pringle's plant.

Bursera lanuginosa (H. B. K.) Engler in DC. Monogr. Phan. 4:58. 1883. *Elaphrium lanuginosum* H. B. K. Nov. Gen. & Sp. 7:31. 1825.

Much like *B. cuneata*, but with more numerous leaflets. "Curanavica" is the type locality of the species as given by Humboldt. The species has not since been reported.

Collected by Mr. C. G. Pringle on hillsides near Cuernavaca, Morelos, altitude 1,607 meters, November 9, 1895 (No. 6208).

Bursera ovalifolia (Schlecht.) Engler in DC. Monogr. Phan. 4:40. 1883. *Elaphrium ovalifolium* Schlecht. Linnaea, 17:248. 1843.

Collected by Dr. Edward Palmer near Acapulco, February, 1895 (No. 378). Without leaves, the determination very uncertain.

Bursera palmeri Wats. Proc. Am. Acad. 22:102. 1887.

Collected by Dr. Edward Palmer near Acapulco, February, 1895 (No. 432).

Bursera submoniliformis Engler in DC. Monogr. Phan. 4:55. 1883. *Elaphrium submoniliforme* Marchand; Engler, loc. cit., as synonym.

NOTES ON CUCURBITACEAE.

The Cucurbitaceae here reported are based upon the following collections: First, those of Mr. C. G. Pringle during his three trips to Mexico in 1894, 1895, and 1896; second, those of Dr. Edward Palmer in western Mexico, 1891 and 1892, and at Acapulco, 1894 and 1895; third, that of Mr. E. W. Nelson from 1894 to 1896; and fourth, that of Rev. Lucius C. Smith in the State of Oaxaca. I have also made reference to a number of specimens from other collectors as found in the collections at the Gray Herbarium, in those of John Donnell Smith and Mr. T. S. Brandegee, and in the National Herbarium.

ECHINOPEPON AND ITS ALLIES.

The genus *Echinopepon* appears to me to be perfectly distinct from *Echinocystis* proper. This was the view held by the late Dr. Sereno Watson. It is true that Prof. Alfred Cogniaux, our most eminent authority on this order, still retains *Echinopepon* as a subgenus; yet he now admits¹ that there is good reason for the separation. But even if *Echinopepon* is not restored, a strict application of the rules of priority will prevent the use of the name *Echinocystis*, this having been antici-

¹ Contr. Nat. Herb. 1:100.

pated by that of *Micrampelis*, which has already been restored by a number of botanists.

The genus *Echinopepon* was established in 1866 by Ch. Naudin,¹ who based it upon three till then undescribed species, viz, *E. milliflorus*, *E. quinquelobatus*, and *E. horridus*. In 1881 Professor Cogniaux, in his Monograph of the Cucurbitaceae, made *Echinopepon* and *Megarrhiza* sections of *Echinocystis*. This view has been generally accepted. Dr. Watson, however, in the Bulletin of the Torrey Botanical Club for 1887² contends that each deserves generic rank. A careful study in these groups extending over several years leads me to believe that these genera may be maintained on about the lines there laid down by Dr. Watson. By the removal of several outlying species which have been referred to *Echinocystis* either on account of poor material or for want of a better place, these genera can be more clearly defined. For the species cut off there have recently been established by Professor Cogniaux the new genera *Vaseyanthus* and *Brandegea* into which these abnormal forms seem very easily to fit.

A fourth section of *Echinocystis* called *Pseudo-echinopepon* was established by Professor Cogniaux in the Proceedings of the California Academy of Sciences³, which also deserves generic rank, or rather should be merged into his recent genus *Vaseyanthus*. A short time before Dr. Watson established the section *Heterosicyos* in the genus *Sicyos* for a plant belonging to this same group. The species appears to me to belong to *Brandegea* rather than to *Sicyos*.

As I understand the group therefore the following genera are to be recognized :

- ECHINOPEPON** Naudin. *Echinocystis* § *Echinopepon* Cogn.
MARAH Kellogg. *Megarrhiza* Torr.; *Echinocystis* § *Marah* Cogn.
MICRAMPELIS Raf. *Echinocystis* Torr. & Gr.
VASEYANTHUS Cogn. *Echinocystis* § *Pseudo-echinopepon* Cogn.
BRANDEGEA Cogn. *Sicyos* § *Heterosicyos* Wats.

ECHINOPEPON.

I have examined specimens of the following species of *Echinopepon* all of which, except one, are to be found in the National Herbarium. I have seen additional material at the Gray Herbarium and have gone over John Donnell Smith's private collection.

Echinopepon cirrhopedunculatus Rose, Contr. Nat. Herb. 1:100, pl. 4. 1891.

Collected by Dr. Edward Palmer near Alamos, State of Sonora, September 16 to 30, 1890 (No. 634); also by Mr. C. G. Pringle at Tequila, State of Jalisco, October 3, 1893 (No. 4562).

The former specimen is the type (No. 220) of this species.

Echinopepon confusus Rose, sp. nov.

Stems slightly scabrous; leaves strongly 3-lobed to scarcely lobed, thin, acute,

¹ Ann. Sci. Nat. ser. 5, 6: 17.

² Bull. Torr. Club, 14: 158.

³ Proc. Cal. Acad., ser. 2, 3: 59. 1890.

with broad open sinus; male flowers in long racemes (10 to 20 cm.), pedicels slender; corolla large (10 mm. wide), petals retuse, glabrous both within and without; female flowers nearly sessile; fruit oblong, 25 mm. long, with a slender beak; prickles short and stiff.

It differs from *E. wrightii* in its very long racemes, large male flowers which are not at all punctate-glandulose, and perhaps smaller fruit.

SPECIMENS EXAMINED IN GRAY HERBARIUM.

New Mexico:

Prinos Altos Mountains, September 16, 1890, E. L. Greene;

Copper Mines, October 11, 1891, Geo. Thurber (No. 1122); also a second specimen without data, also C. Wright's specimen from the Coppermine Creek, August, 1851, referred to *E. coulteri* in original description.

This species was also originally included by Dr. Gray in *Elaterium coulteri*, which species was based upon fruiting specimens collected by Coulter and flowering specimens of this species, which we now separate for the first time.

Certain specimens of this species have been confused with *E. wrightii*.

E. confusus and *E. wrightii* are the only two species of this genus found in the United States.

Echinopepon coulteri (Gray) Rose. *Elaterium? coulteri* Gray, Pl. Wright. 2: 61. 1853. *Echinocystis coulteri* Cogn. Mem. Cour. Acad. Belg. 8vo, 28: 88. 1878.

Collected by Mr. C. G. Pringle in the Sierra de San Felipe, Oaxaca, altitude 2,460 meters, October 5, 1894 (No. 4958).

These specimens answer better to the type of *E. coulteri* than any of the various specimens heretofore referred to it, and so far as I am aware it is really the first time the species has been re-collected.

The original description was based upon several specimens which appear to me to belong to two species. Those from the United States I have separated as above under the name of *E. confusus*. I have taken as the type of *E. coulteri*, Coulter's No. 51 from Zacatecas, Mexico, as this is the first plant mentioned in the description and the one which suggested the specific name. Professor Cogniaux has referred to *E. coulteri*, *E. horridus*, but a careful examination of considerable material has led me to separate the latter as below.

Echinopepon floribundus (Cogn.) Rose. *Echinocystis floribunda* Cogn. Mem. Cour. Acad. Belg. 8vo, 28: 89. 1878.

Collected by Mr. E. W. Nelson in the valley of Oaxaca, altitude 1,607 to 1,705 meters, September 20, 1894 (No. 1272), and between Huajuapam, State of Oaxaca, and Reltazingo, State of Puebla, altitude 1,540 to 2,146 meters, November 19, 1894 (No. 1988); also from the same valley by Rev. Lucius C. Smith, October 8, 1894 (No. 217), and by Mr. C. G. Pringle in the valley of Oaxaca, State of Oaxaca, altitude 1,673 meters, September 22, 1894 (No. 4957).

Echinopepon horridus Naud. Ann. Sci. Nat. ser. 5, 6: 19. 1866.

It seems to be best to keep this separate from *E. coulteri*, to which it has been referred by Professor Cogniaux; it differs especially in the shape and lobing of the leaves, the much larger and more spiny fruit, the punctate-glandular corolla, etc.

SPECIMENS EXAMINED.

Central America:

Cartago, Prov. Cartago, Costa Rica, altitude 1,046 meters, Juan J. Cooper, November, 1887 (No. 5775).

Haie sur les bords du Rio Maria Aguilar, Costa Rica, altitude 1,135 meters, Ad. Tonduz, November 11, 1892 (No. 7177), and altitude 1,100 meters, December 29, 1892 (No. 7267). San Jose, Costa Rica; H. Pittier, November, 1889.

Coban Alta Paz, Guatemala, H. von Turckheim, December, 1886 (No. 1099).

Buena Vista, Depart. Santa Rosa, Guatemala, altitude 1,807 meters, Heyde & Lux, December, 1892 (No. 4188).

Vaseyanthus insularis, (Wats.) Rose. *Echinopepon insularis* Wats. Proc. Am. Acad. 24: 51. 1889.

Only known from Dr. Edward Palmer's specimen (No. 409) from San Pedro Martir Island, Lower California, 1887. A duplicate specimen of the type (No. 347) is deposited in the National Herbarium.

BRANDEGEEA.

The genus Brandegea was established by Professor Cogniaux in 1890, and was based upon two species from different genera. One of them, *i. bigelovii*, has long been a puzzle, having previously been referred to 4 different genera. The genus, while apparently a valid one, should be made to include a number of outlying species which have been assigned to several genera.

As I understand the genus the following species may be recognized:

Brandegea bigelovii (Wats.) Cogn. Proc. Cal. Acad. ser. 2, 3: 58. 1890. *Elaterium bigelovii* Wats. Proc. Am. Acad. 12: 252. 1877. *Echinocystis bigelovii* Cogn. in DC. Monogr. Phan. 3: 804. 1881. *Echinopepon bigelovii* Wats. Proc. Am. Acad. 24: 52. 1889.

The only United States specimens are from the valley of the Lower Colorado, where they were collected by Dr. E. Palmer and J. M. Bigelow. We have a specimen of Dr. Palmer's plant (type No. 257) in the National Herbarium.

The species has been collected in Lower California by Brandegea at Soledad (January 8, 1890) and San Gregorio (February 7, 1889).

In the Botany of California this species was referred to *Melothria pendula* L.; afterwards Dr. Watson separated it as a new species of *Elaterium*, and later he referred it to *Echinopepon*. Professor Cogniaux first referred it to *Echinocystis*, but afterwards made it the type of this genus.

Brandegea monosperma, (Brandegee) Cogn. Proc. Cal. Acad. ser. 2, 3: 59. 1890. *Cyclanthera monosperma* Brandegea, Proc. Cal. Acad. ser. 2, 2: 159. 1889.

Collected by T. S. Brandegea at Agua Dulce, Lower California in 1889 and perhaps also by Palmer at La Paz in 1890 (No. 144).

Brandegea palmeri (Wats.) Rose. *Echinopepon palmeri* Wats. Proc. Am. Acad. 24: 52. 1889.

Only known from original specimens collected by Dr. E. Palmer near Guaymas, Mexico, 1887 (No. 304).

Duplicate type specimens (No. 346) are deposited in the National Herbarium.

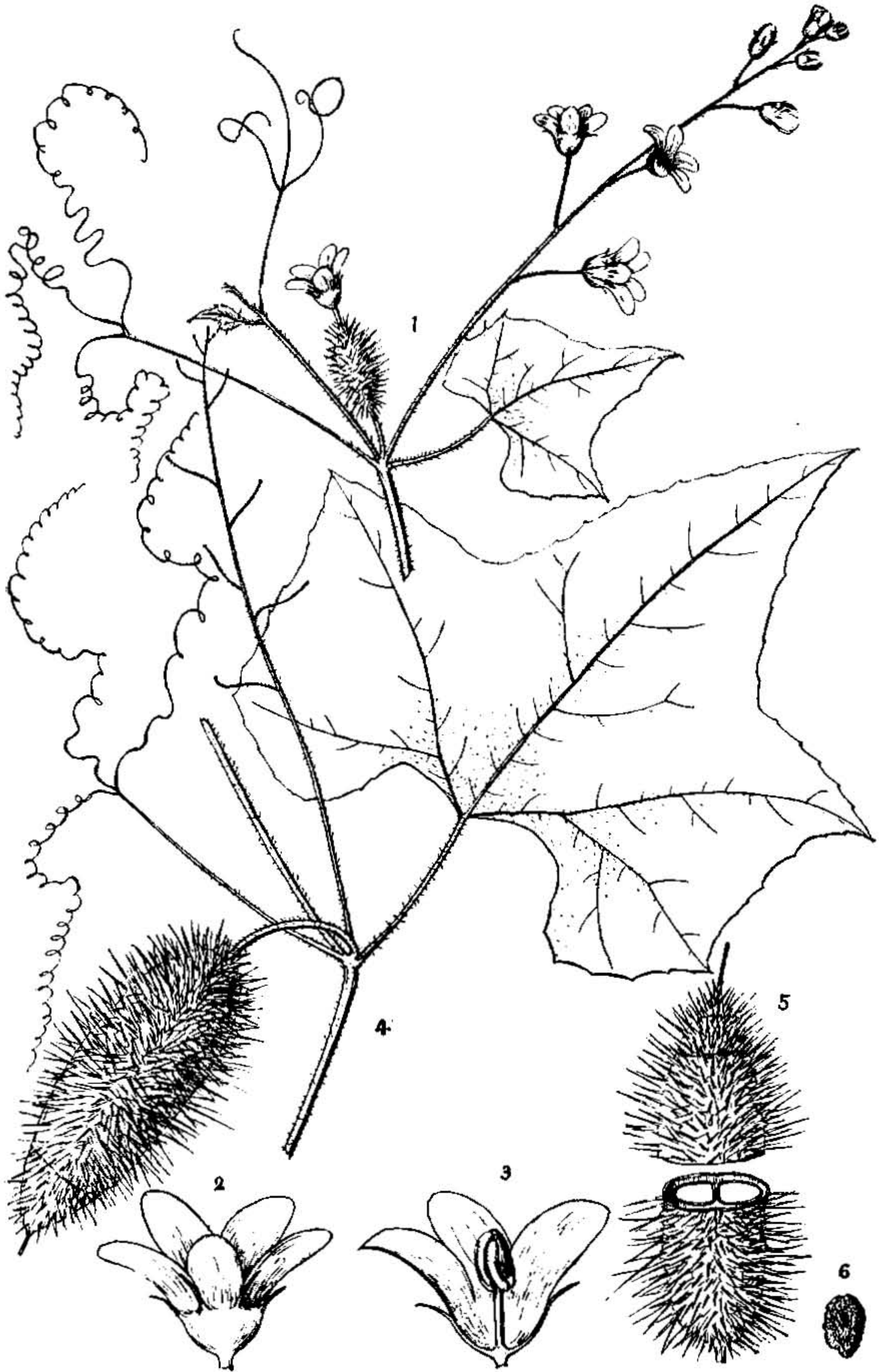
Brandegea parviflora Wats. *Echinocystis parviflora* Wats. Proc. Am. Acad. 17: 373. 1882. *Echinopepon parviflora* Wats. Proc. Am. Acad. 24: 52. 1889.

Said to have been collected by W. G. Wright "in the San Bernardino Mountains, California," in 1880, but not since collected. I have seen the type in the Gray Herbarium.

After I had made the above change in manuscript my attention was called by Mr. Samuel Parish to the occurrence of the combination *Brandegea parviflora* with the authority "Watson, in herb." in Patterson's checklist. Though there a nomen nudum, the name should be retained with Watson as author. I had examined the type at Cambridge but had found no reference to Mr. Watson's transfer. The citation should have been Watson "in lit." rather than "in herb."

The above quotation regarding the type locality is from Mr. Watson. In regard to this as well as time of collection Mr. Parish has kindly furnished the following note:

I collected the cucurbit you ask me about in April, 1879, I rather think in company with Mr. Wright, at any rate at the same place. It—the station—is wrongly given by Dr. Watson (Proc. Amer. Acad. 17: 373) as "San Bernardino Mountains."



ECHINOPEPON PRINGLEI Rose.

Echinopepon jaliscanus Rose, sp. nov.

Stems climbing, grooved, pubescent; leaves rather thickish, pubescent, 3 to 5-lobed, the central lobe acuminate, with a broad open sinus at base; tendrils 3-parted; male flowers in racemes 15 to 25 cm. long, corolla rather large; female flowers nearly sessile, single, axillary, fruit nearly orbicular, 2 mm. long, tapering into a slender beak; prickles stout, slightly pubescent.

Collected by Mr. C. G. Pringle, at Tequila, State of Jalisco, September 30, 1894 (No. 4563), and distributed as *Echinocystis coulteri*.

Echinopepon lanatus (Cogn.) Rose. *Echinocystis lanata* Cogn. Mem. Cour. Acad. Belg. 8vo, 28:92. 1878.

Collected by Dr. Edward Palmer at Lodiago, October 9 to 15, 1891 (No. 1584). I am indebted to Prof. A. Cogniaux for the identification of this plant, but he refers it to *Echinocystis*.

I have recently seen a specimen collected by Mr. T. S. Brandegee in the Arroyo Hondo, Lower California, October 27, 1893. It has mature fruit which is 3 cm. thick. This is the largest-fruited species which I have seen.

Echinopepon minimus (Kellogg) Wats. Proc. Am. Acad. 24:52. 1889. *Marah minima* Kellogg, Proc. Cal. Acad. 2:18. 1863. *Elaterium minimum* Wats. Proc. Am. Acad. 12:252. 1877.

Collected by Dr. T. H. Streets on Cedros Island in 1876, and by Dr. Edward Palmer in March, 1889 (No. 719); also by T. S. Brandegee on Santa Margarita Island, Lower California, 1889; also by Dr. Palmer, La Paz, Lower California, January 20 to February 5, 1890 (No. 65).

Echinopepon longispina (Cogn.) Rose. *Echinocystis longispina* Cogn. Mem. Cour. Acad. Belg. 8vo, 28:92. 1878.

I have seen duplicates of the type in the Gray Herbarium. It was collected at Jorulla, Mexico, by Schiede, 1829 (No. 1080). It is characterized by the very long spines of the fruit, as the name would indicate, and by the peculiar inflorescence.

Echinopepon milleflorus Naud. Ann. Sci. Nat. ser. 5, 6:18. 1866. *Echinocystis milleflora* Cogn. Mem. Cour. Acad. Belg. 8vo, 28:88. 1878.

Collected by Mr. C. G. Pringle in the valley of Mexico, 1896 (Nos. 6467 and 6516).

These two specimens show considerable difference in the foliage; the latter shows more variation from the type. The following characters may be noted: the leaves are reniform, not at all lobed, 6.2 cm. broad with a deep sinus, and on petioles 12.5 cm. or less long; the male racemes are sometimes 12.5 cm. or more long.

The above species is new to the National Herbarium, and until now has been known only from the original specimens of Bourgeau.

Echinopepon nelsoni Rose, sp. nov.

A low delicate vine, 6 to 9 dm. long; leaves small, 3-lobed, lateral lobes obtuse, central one acute and apiculate; male flowers in short racemes on peduncles longer than the leaves; corolla small, greenish white; female flowers on slender peduncles 18 to 25 mm. long; fruit narrow, covered with slender prickles and with the slender beak more or less prickly.

Collected by E. W. Nelson in the valley about Cuicatlan, State of Oaxaca, November 3, 1894 (No. 1878), and also near the same locality by V. Gonzales, December 18, 1895.

Echinopepon pringlei Rose, sp. nov.

PLATE IV.

High-climbing vine; stem sulcate, pubescent; blade of leaf broadly ovate in outline, very variable in size, 5 to 10 cm. long, 3.7 to 12.5 cm. broad, more or less 3-lobed, the middle lobe triangular, acuminate, the lateral ones broader, somewhat rounded, often again lobed, apiculate, remotely serrate, more or less hispid on both sides; sinus broad, somewhat rectangular; petiole 12 to 50 mm. long, covered with stiff, straight hairs; tendrils 2 or 3-parted; male flowers in simple elongated racemes; racemes much longer than the leaves, 10 to 17.5 cm. long, many-flowered; pedicels

slender, 10 mm. long; calyx greenish, 4 mm. broad, 3 mm. high, pubescent; sepals filiform, one-fourth the length of the tube; corolla white, 10 mm. broad; lobes short and obtuse; stamens conduplicate; female flowers solitary; peduncles 6 to 18 mm. long, 3.7 to 5 cm. long, 18 mm. broad, thickly covered with slender prickles; prickles more or less pubescent; beak slender, tardily breaking away, seeds 10, black.

Collected by Mr. C. G. Pringle in a barranca near Cuernavaca, Morelos, Mexico, 5,000 feet altitude, November 8, 1895 (No. 6183).

EXPLANATION OF PLATE.—Fig. 1, flowering branch; fig. 2, male flower; fig. 3, a longitudinal section of the same; fig. 4, a fruiting branch; fig. 5, fruit; fig. 6, seed; scale of all $\frac{1}{2}$.

Echinopepon pubescens (Benth.) Rose. *Elaterium pubescens* Benth. Pl. Hartw. 6. 1839. *Echinocystis pubescens* Cogn. Mem. Cour. Acad. Belg. 8vo, 28:88. 1878.

Collected by Mr. C. G. Pringle on volcanic hills, Monte Leon, State of Michoacan, November 11, 1892 (No. 4346).

Echinopepon parvifolius Rose, sp. nov.

Stems slender; leaves 5-lobed, more or less scabrous, male flowers in slender racemes, 6 mm. wide, the lobes of the corolla ovate, acute; fruit oblong, small, prickly even to the apex.

Collected by C. Conzatti, Huitzo, Oaxaca, October 1, 1895 (No. 139).

Here perhaps belongs Bourgeau's No. 789, which, however, was referred by Professor Cogniaux to *E. wrightii*.

Echinopepon torquatus (DC.) Rose. *Elaterium torquatum* DC. Prodr. 3: 310. 1828. *Echinocystis torquata* Cogn. Mem. Cour. Acad. Belg. 8vo, 28: 90. 1878. *Echinopepon quinquelobatus* Naud. Ann. Sci. Nat. ser. 5, 6:18. 1866.

Collected by Mr. T. S. Brandegee in Lower California at Sierra San Lazaro, September 17, 1893, and La Mesa, October 24, 1893.

I have seen no Mexican material for this species and these specimens may not belong here; but they do not belong with any other described *Echinopepon*. Cogniaux has also referred here a plant from the Rio Magdalena (Lower California), which is probably the same as ours. The leaves, however, are larger and the peduncles much longer than described; the leaves are sometimes over 12 cm. long on petioles 7.5 cm. long.

Echinopepon wrightii (Gray) Wats. Bull. Torr. Club, 13:158. 1887. *Elaterium wrightii* Gray, Pl. Wright. 2:61. 1853. *Echinocystis wrightii* Cogn. Mem. Cour. Acad. Belg. 8vo, 28:88. 1878.

The type (No. 222) is in the National Herbarium and is C. Wright's No. 1090 from mountains at Guadalupe Pass.

SPECIMENS EXAMINED IN GRAY HERBARIUM.

New Mexico:

Mountains at Guadalupe Pass, C. Wright, 1851 (No. 1090).

Arizona:

Cienega, J. T. Rothrock, August, 1894 (No. 581).

Santa Catalina Mountains, altitude 2,624 meters, J. G. Lemmon, April, 1880 (No. 45).

Mexico:

Magdalena, Sonora, October, 1851, Geo. Thurber (No. 951).

Los Esqueros, Sonora, altitude 1,575 meters, October 13, 1890, C. V. Hartman (No. 168).

Acapulco, October, 1891 to March, 1895, Dr. Edward Palmer (No. 13).

This species has been confused in our herbaria with a very different species from New Mexico which was included by Dr. Gray under *Elaterium coulteri*, but which I have separated as above.

The corolla is punctate-glandular within, not "sprinkled with adherent pollen grains," as originally described.

The following species ascribed to *Echinocystis* probably belong in *Echinopepon*, but I only know them from descriptions and therefore leave them in the old genus:

Echinocystis glutinosa Cogn.
Echinocystis gemella Cogn.
Echinocystis muricata Cogn.
Echinocystis polycarpa Cogn.
Echinocystis arancosa Griseb.
Echinocystis paniculata Cogn.

The following species referred to *Echinopepon* and *Echinocystis* § *Echinopepon* are to be excluded from *Echinopepon*:

Echinopepon bigelovii Wats. = *Brandegea* sp.
Echinopepon palmeri Wats. = *Brandegea* sp.
Echinopepon insularis Wats. = *Vaseyanthus* sp.
Echinopepon parviflorus Wats. = *Brandegea* sp.

VASEYANTHUS.

The genus *Vaseyanthus* was first described by Professor Cogniaux,¹ and was based upon a single species, *V. rosei*. Previously, however, Professor Cogniaux had described an *Echinocystis* under the name *E. brandegei*, for which he constructed the separate section *Pseudo-echinopepon*. This species belongs more properly in the genus *Vaseyanthus*, and I have no hesitancy in referring it there. I fear, however, it is too near *V. rosei*, and have little doubt but it will eventually be combined with it.

There is still another somewhat anomalous species that I should refer here, viz, *Echinopepon insularis* Wats.

This species, while more like *Echinopepon* than either of the above, still differs from it in some important particulars.

The transfer of these two species to *Vaseyanthus* will make *Echinopepon* a more consistent genus.

The genus *Vaseyanthus* has a small globose fruit covered with short, stiff spines, capped with a cone-shaped caducous beak; its walls are very thick; it has a single cell with two ovules and mostly one seed. The genus is confined to Lower California and the adjacent islands. The species with synonymy and collections may be brought together as follows:

Vaseyanthus rosei Cogn. *Zoe*, 1: 368, *t. 11*. 1891.

Collected by Dr. E. Palmer near La Paz, Lower California, January 20 to February 5, 1890 (No. 102) and at Carmen Island, November 1 to 7, 1890 (No. 837).

The former specimen is the type (No. 560) and is deposited in the National Herbarium.

Vaseyanthus brandegei (Cogn.) Rose. *Echinocystis brandegei* Cogn. *Proc. Cal. Acad.* ser. 2, 3: 59. 1890.

Collected by T. S. Brandegec, La Paz, Lower California, November 1, 1890. Duplicate specimens of the type (No. 705) are deposited in the National Herbarium.

¹*Zoe*, 1: 368.

Vaseyanthus insularis, (Wats.) Rose. *Echinopepon insularis* Wats. Proc. Am. Acad. 24: 51. 1889.

Only known from Dr. Edward Palmer's specimen (No. 409) from San Pedro Martir Island, Lower California, 1887. A duplicate specimen of the type (No. 347) is deposited in the National Herbarium.

BRANDEGEEA.

The genus *Brandegea* was established by Professor Cogniaux in 1890, and was based upon two species from different genera. One of them, *i. bigelovii*, has long been a puzzle, having previously been referred to 4 different genera. The genus, while apparently a valid one, should be made to include a number of outlying species which have been assigned to several genera.

As I understand the genus the following species may be recognized:

Brandegea bigelovii (Wats.) Cogn. Proc. Cal. Acad. ser. 2, 3: 58. 1890. *Elaterium bigelovii* Wats. Proc. Am. Acad. 12: 252. 1877. *Echinocystis bigelovii* Cogn. in DC. Monogr. Phan. 3: 804. 1881. *Echinopepon bigelovii* Wats. Proc. Am. Acad. 24: 52. 1889.

The only United States specimens are from the valley of the Lower Colorado, where they were collected by Dr. E. Palmer and J. M. Bigelow. We have a specimen of Dr. Palmer's plant (type No. 257) in the National Herbarium.

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Brandegea monosperma, (Brandegea) Cogn. Proc. Cal. Acad. ser. 2, 3: 59. 1890. *Cyclanthera monosperma* Brandegea, Proc. Cal. Acad. ser. 2, 2: 159. 1889.

Collected by T. S. Brandegea at Agua Dulce, Lower California in 1889 and perhaps also by Palmer at La Paz in 1890 (No. 144).

Brandegea palmeri (Wats.) Rose. *Echinopepon palmeri* Wats. Proc. Am. Acad. 24: 52. 1889.

Only known from original specimens collected by Dr. E. Palmer near Guaymas, Mexico, 1887 (No. 304).

Duplicate type specimens (No. 346) are deposited in the National Herbarium.

Brandegea parviflora Wats. *Echinocystis parviflora* Wats. Proc. Am. Acad. 17: 373. 1882. *Echinopepon parviflora* Wats. Proc. Am. Acad. 24: 52. 1889.

Said to have been collected by W. G. Wright "in the San Bernardino Mountains, California," in 1880, but not since collected. I have seen the type in the Gray Herbarium.

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Mr. Wright and I both collected it in West Canyon, on the Eastern or Desert base of the San Jacinto Mountains, near Palm Springs, then called Agua Caliente. It was not seen in any of the other canyons of the neighborhood. The single specimen I then collected is still in my herbarium. The plant has a large Megarrhiza-like root, and it grows in sheltered places among rocks.

Last spring I revisited Palm Springs, and one of my principal objects was to collect again this rarity. A very careful search, however, failed to discover a trace of it. The canyon in which it grew is a short one, and as well as I can remember the plant was not very abundant, but I can hardly account for its apparent extinction at the type station. No doubt it may be found, sometime, in the little-explored region of its growth.

Brandegea minimus (Wats.) Rose. *Nicyos minimus* Wats. Proc. Am. Acad. 23: 274. 1888.

Collected by Mr. C. G. Pringle in the Sierra Madre, State of Chihuahua, October, 1887 (No. 1876), October 2, 1888 (No. 1871). Dr. Watson constructed a special section (Heterosicyos) for the species, but it appears to be congeneric with the above.

SPECIES OF OTHER GENERA.

Apodanthera pringlei Wats. Proc. Am. Acad. 25: 149. 1890.

Collected by Mr. E. W. Nelson near Huajuapán, State of Oaxaca, altitude 1,840 to 2,146 meters, November 16, 1894 (No. 1974).

Apodanthera roseana Cogn. Contr. Nat. Herb. 3: 317. 1893.

Collected by Dr. Edward Palmer near Ymalá, August 16 to 25, 1891 (No. 1444).

Cayaponia dubia (Hook. & Arn.) Rose. *Anguria dubia* Hook. & Arn. Bot. Beech. Voy. 292. 1839-40. *Bryonia attenuata* Hook. & Arn. Bot. Beech. Voy. 424. 1841. *Trianosperma attenuata* Hemsl. Biol. Cent. Amer. 1: 486. 1880. *Cayaponia attenuata* Cogn. in DC. Monogr. 3: 769. 1881.

Collected by Dr. Edward Palmer near Acapulco, March, 1895 (Nos. 499, 503). The type of *Bryonia attenuata*, was collected by Sinclair at Acapulco.

Corallocarpus emetocatharticus (Grosourdy) Cogn. Bull. Soc. Bot. Belg. 30, pt. 1: 279. 1891. *Doyerea emetocathartica* Grosourdy, El Medico Bot. criollo, 2: 388. 1864.

Low-climbing vine, but specimen without leaves or fruit.

Collected by Dr. Edward Palmer near Acapulco, March, 1896 (No. 558).

The material which we have of this species is very poor and I am indebted to Prof. A. Cogniaux of Verviers, Belgium, for its determination.

I have since seen specimens collected by C. G. Pringle on limestone ledges, Las Palmas, State of San Luis Potosí, April 27, 1891, altitude 1,470 meters (No. 5763).

Cucurbita foetidissima H. B. K. Nov. Gen. & Sp. 2: 123. 1817.

Collected by Mr. E. W. Nelson, but exact locality not given (No. 3886); also by Dr. Edward Palmer near Durango, June, 1896 (No. 248).

Cucurbita radicans Naud. Ann. Sci. Nat. ser. 5, 6: 8. 1866.

A low-climbing plant.

An elegant species with flowers 10 cm. in diameter, the fruit small, nearly spherical, 7.5 cm. long. This wild gourd is called "chicoyote." The seeds are used in making a cooling drink.

Collected by Dr. Edward Palmer near Acapulco, December, 1894 (No. 183). Also obtained by Dr. Palmer at Culiacán, October 25 to November 18, 1891 (No. 1802), but with somewhat smaller flowers. This latter specimen was determined by Professor Cogniaux.

Cyclanthera eremocarpa (Schauer) Cogn. Mem. Cour. Acad. Belg. 8vo, 28: 74. 1878.

Nicyos eremocarpa Schauer, Linnaea, 20: 722. 1847.

I have seen no named specimens of this species, and my identification may be wrong.

Collected by Mr. C. G. Pringle, 1896 (No. 6535).

Cyclanthera langaei Cogn. Mem. Cour. Acad. Belg. 8vo. 28:65. 1878.

Collected by Mr. C. G. Pringle in wet canyons, Sierra de San Felipe, Oaxaca, altitude 2,952 meters, November 21, 1894 (No. 6047); also by Mr. E. W. Nelson near San Cristobal, altitude 2,296 to 2,567 meters. September 18, 1895 (Nos. 3133, 3137, 3159, 3231).

Cyclanthera micrantha Cogn. Contr. Nat. Herb. 3:318. 1895.

Collected by Dr. Edward Palmer at Ymala, September 25 to October 8, 1891 (No. 1706).

The type (No. 486) is in the National Herbarium.

Cyclanthera ribiflora (Schlecht.) Cogn. Mem. Cour. Acad. Belg. 8vo. 28:63. 1878.

Elaterium ribiflorum Schlecht. Linnaea, 7:388. 1832.

Collected by Mr. C. G. Pringle on river banks near Orizaba, Vera Cruz, altitude 1,312 meters, January 18, 1895 (No. 6090).

Cyclanthera pringlei Robinson & Seaton, Proc. Am. Acad. 28:106. 1893.

Collected by Mr. C. G. Pringle, 1896 (No. 6534).

We have a duplicate type (No. 302) of this species in the National Herbarium.

Elaterium ciliatum Cogn. Mem. Cour. Acad. Belg. 8vo. 28:51. 1878.

Collected by Mr. E. W. Nelson near Tuxtla, State of Chiapas, altitude 790 to 921 meters, September 1, 1895 (No. 3099.)

This species has not before been reported from Mexico.

Elaterium longisepalum Cogn. Contr. Nat. Herb. 3:318. 1895.

Collected by Dr. Edward Palmer at Lodiego, October 9 to 15, 1891 (No. 1600).

The type (No. 442) is in the National Herbarium.

Luffa operculata (L.) Cogn. in Mart. Fl. Bras. 6, pt. 4:12. 1878. *Momordica operculata* L. Syst. ed. 10:1278. 1758-59.

Collected by Dr. Edward Palmer near Acapulco, March, 1895. No. 548.

Luffa operculata intermedia Cogn. Contr. Nat. Herb. 1:330. 1895.

Collected by Dr. Edward Palmer at Ymala, September 25 to October 8, 1891 (No. 1686).

This plant was determined by Professor Cogniaux.

Melothria donnell-smithii Cogn. Bot. Gaz. 21:9. 1891.

Collected by Dr. Edward Palmer at Lodiego, October 9 to 15, 1891 (No. 1604).

This plant was determined by Professor Cogniaux.

Melothria scabra Naud. Ann. Sci. Nat. ser. 5, 6:10. 1866.

Collected by Dr. Edward Palmer near Acapulco, March, 1895 (No. 557).

Microsechium helleri (Peyr.) Cogn. in DC. Monogr. Phan. 3:910. 1881. *Sicyos helleri* Peyr. Linnaea, 30:56. 1856.

Collected by Mr. E. W. Nelson in the vicinity of Cerro San Felipe, altitude 3,117 to 3,620 meters, 1894 (No. 1059).

Momordica zeylanica Mill. Dict. ed. 8: no. 3. 1768. *Momordica charantia abbreviata* Ser. in DC. Prodr. 3:311. 1828.

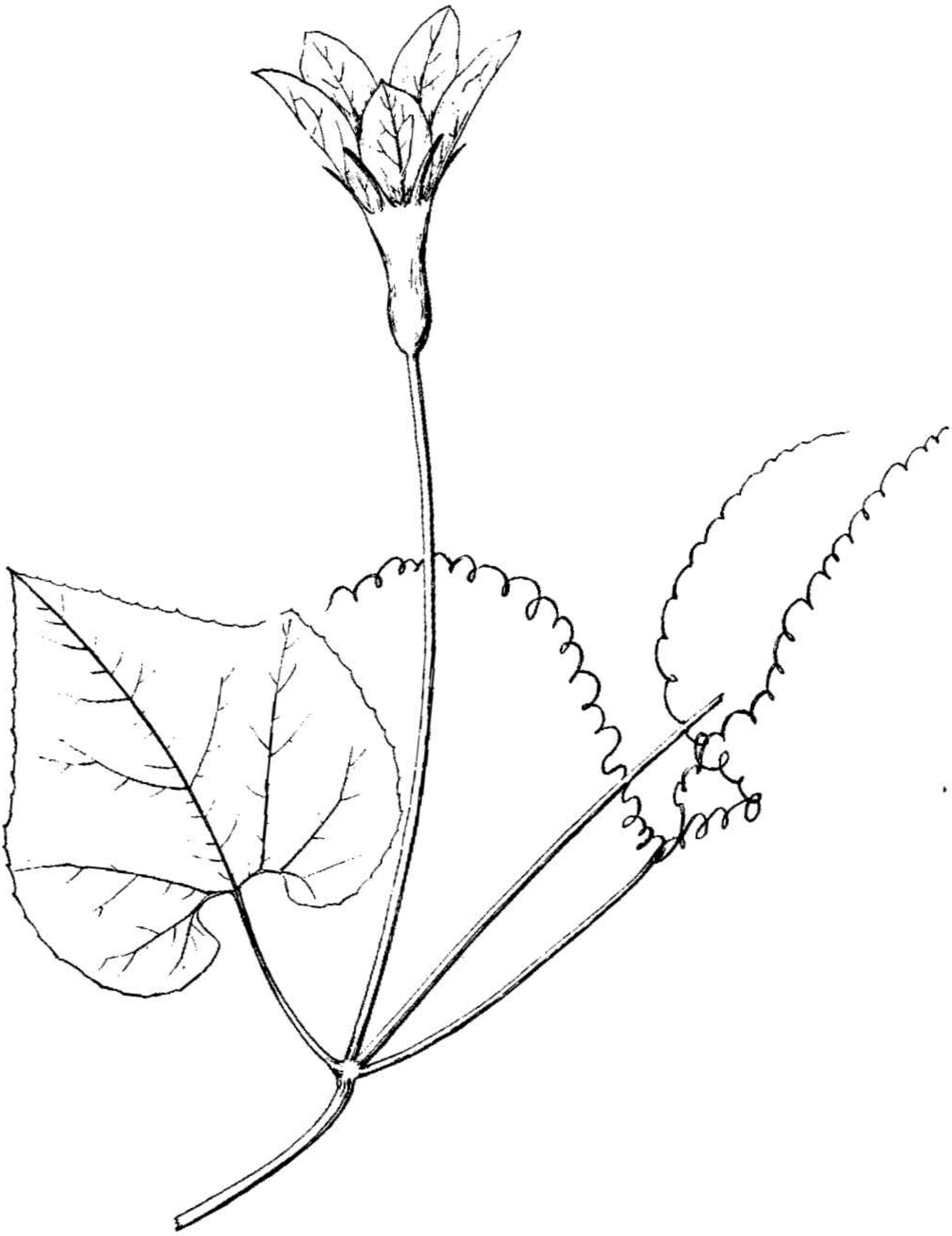
A low-climbing plant, at least in cultivation; stem angled, puberulent; leaves deeply 3-lobed, crenate; the lateral lobes again lobed; the base with broad open sinus; blade somewhat puberulent; flowers solitary; peduncles with minute bracts (a line or two long).

Collected by Dr. Edward Palmer near Acapulco, Mexico, March, 1895 (No. 555); also by Dr. Palmer at Culiacan, August 27 to September 15, 1891 (No. 1522).

This plant is the same as Wright's No. 1206 from Mazatlan, Mexico, which is referred as *M. charantia abbreviata* by Dr. B. L. Robinson.

The plant appears to me to be quite distinct from *Momordica charantia*, from which it differs in the shape and much smaller size of the fruit, and in the smaller leaves and bracts as also in the seeds.

This form has a wide range, being reported from many places in the Old World. The only stations known in Mexico are the three named above.



PITTIERA PARVIFOLIA Rose.

MISCELLANEOUS GENERA AND SPECIES.

PITTIERA.

The genus *Pittiera*, only recently (1891) established by Prof. A. Cogniaux, now contains four species, two of which appear here for the first time. Of three of these species we have specimens in the National Herbarium, one of them being a type, the other two duplicate types.

The following species is now first described:

***Pittiera parvifolia* Cogn. & Rose.**

PLATE V.

Foliis parvis, breviuscule petiolatis, tenuiter membranaceis, ovato-cordatis, indivisis, utrinque laevibus, primum brevissime puberulis demum glabratis; calyce brevissime et densiuscule glanduloso-puberulo, tubo anguste cylindrico superne satis dilatato, lobis lineari-subulatis tubo multo brevioribus; corollae segmentis obovato-oblongis, acutis; staminum filamentis basi paucipilosis.

Rami gracillimi elongati, sulcati, juniores petioli pedunculi cirrhiq; subtiliter puberuli. Petiolus gracilis, 2 cm. longus. Folia lacte viridia, margine spinuloso-denticulata, 2½-4 cm. longa, 2-3½ cm. lata; nervi laterales basilares trifurcati, in unum sinum marginantes. Cirrhi robustiusculi, sulcati, 4-5-fidi. Pedunculus masculus satis gracilis, 11 cm. longus. Calycis tubus 18-19 mm. longus, ad medium 3-4 mm. et ad apicem circiter 1 cm. latus; lobi erecto-patuli, 6-7 mm. longi, 1 mm. lati. Corolla tenuiter puberula, 22 mm. longa. Staminum filamenta filiformia, 12 mm. longa; capitulum antherarum oblongum, 10-11 mm. longum, 4 mm. crassum. Flores feminei et fructus ignoti.

Guatemala: E. W. Nelson, No. 3532.

EXPLANATION OF PLATE.—A flowering branch; scale ½.

The following note has been kindly furnished me by Professor Cogniaux:

On doit aussi rapporter aux *Pittiera* le *Cayaponia grandiflora* Cogniaux; d'où il résulte que ce genre se compose actuellement des quatre espèces suivantes:

1. ***Pittiera grandiflora* Cogn.** *Cayaponia grandiflora* Cogn. in DC. Monogr. Phan. 3: 779. 1881.

Folia paulo latiora quam longa, indivisa, membranacea, pubescenti-scabra; calycis lobi tubo satis breviores; corollae segmenta oblonga, obtusa; staminum filamenta basi dense villosa.—Yucatan; Guatemala ad Rio Samalá prov. Retalhuleu (Shannon n. 270).

2. ***Pittiera parvifolia* Cogn. & Rose, supra.**

[Type in the National Herbarium.]

3. ***Pittiera longipedunculata* Cogn.** Bull. Soc. Bot. Belg. 30, pt. 1: 272. 1891.

Folia fere aequilata quam longa, indivisa, tenuiter membranacea, scabra; calycis lobi tubo aequilongi vel vix breviores; corollae segmenta ovata, acuta; staminum filamenta basi pilosula.—Costa Rica.

[Duplicate type (No. 245) in the National Herbarium.]

4. ***Pittiera trilobata* Cogn.** Bot. Gaz. 20: 289. 1895.

Folia paulo longiora quam lata, plus minusve trilobata, rigidiuscula, pubescenti-scabra; calycis lobi tubo longiores; corollae segmenta obovato-oblonga, acuta; staminum filamenta basi pilosula.—Guatemala.

[Duplicate type (No. 245) in the National Herbarium.]

SCHIZOCARPUM.

The genus *Schizocarpum* is restricted to Mexico and Central America. Only a single species is recorded in the *Biologia Centrali-Americana*. The genus is now represented by the six following species, one of them here first described:

Schizocarpum guatemalense Cogn. Bot. Gaz. 20: 290. 1895.

We have a duplicate type of this species.

Schizocarpum palmeri Cogn. & Rose, Contr. Nat. Herb. 1: 160. 1891.

Collected by Dr. Edward Palmer at Ymala, September 25 to October 8, 1891 (No. 1693). These specimens contain mature fruit and show that it is really 3-celled and not 2-celled as originally described.

We have the type of this species.

Schizocarpum liebmannii Cogn. in DC. Monogr. Phan. 3: 553. 1881.

Schizocarpum filiforme Schrad. Linnaea, 6. Lit. Ber.: 73. 1831.

This rare species has recently been collected by Rev. Lucius C. Smith on the Rancho de Calderon, San Juan del Estado, altitude 1,515 meters, November 4, 1894 (No. 302); also by Mr. E. W. Nelson in the vicinity of La Parada, altitude 2,460 to 2,797 meters, August 19, 1894 (No. 998); also by Mr. C. G. Pringle on dry bluffs, Sierra de San Felipe, Oaxaca, altitude 2,303 meters, October 11, 1894 (No. 4,980).

Schizocarpum parviflorum Robinson & Greenman, Proc. Am. Acad. 29: 386. 1894.

We have a duplicate type of this species.

Schizocarpum attenuatum Cogn. & Rose, sp. nov.

PLATE VI.

A low-climbing plant; younger branches angled, pubescent and with a few scattering stiff hairs; leaves ovate with a broad open sinus, 3-lobed, obtuse, denticulate, puberulent above and beneath, flowers axillary, solitary; pedicels of the male flower 37 mm. long, female 8 to 16 mm. long; sepals minute, filiform; corolla yellow, about 5 cm. long, with a cylindrical tube and long, attenuate lobes; stamens 3; fruit 3-angled, 3 to 6 cm. long, tapering at base, attenuate above into a slender beak; puberulent, 3-celled, each cell divided into 2 rows of 2 to 3 secondary cells, each 1-seeded; seeds flattened, somewhat spatulate, 8 to 10 mm. long, banded crosswise by light and dark stripes.

Collected by Dr. Edward Palmer at Acapulco, October, 1894 (No. 12).

This well-marked species differs from others of this genus in the attenuate lobes of the corolla.

Type in the National Herbarium.

EXPLANATION OF PLATE.—Fig. 1, flowering branch; fig. 2, fruiting branch; fig. 3, fruit with outer covering removed; scale $\frac{1}{2}$.

All these species are rare in collections, but it will be seen from the above that the National Herbarium contains five of the six, four of which are types.

SPECIES OF OTHER GENERA.

Roseanthus albiflorus Cogn. Contr. Nat. Herb. 3: 578, t. 28. 1896.

The type of this species is in the National Herbarium. The seed came from Acapulco, where it was collected by Dr. Edward Palmer in 1895.

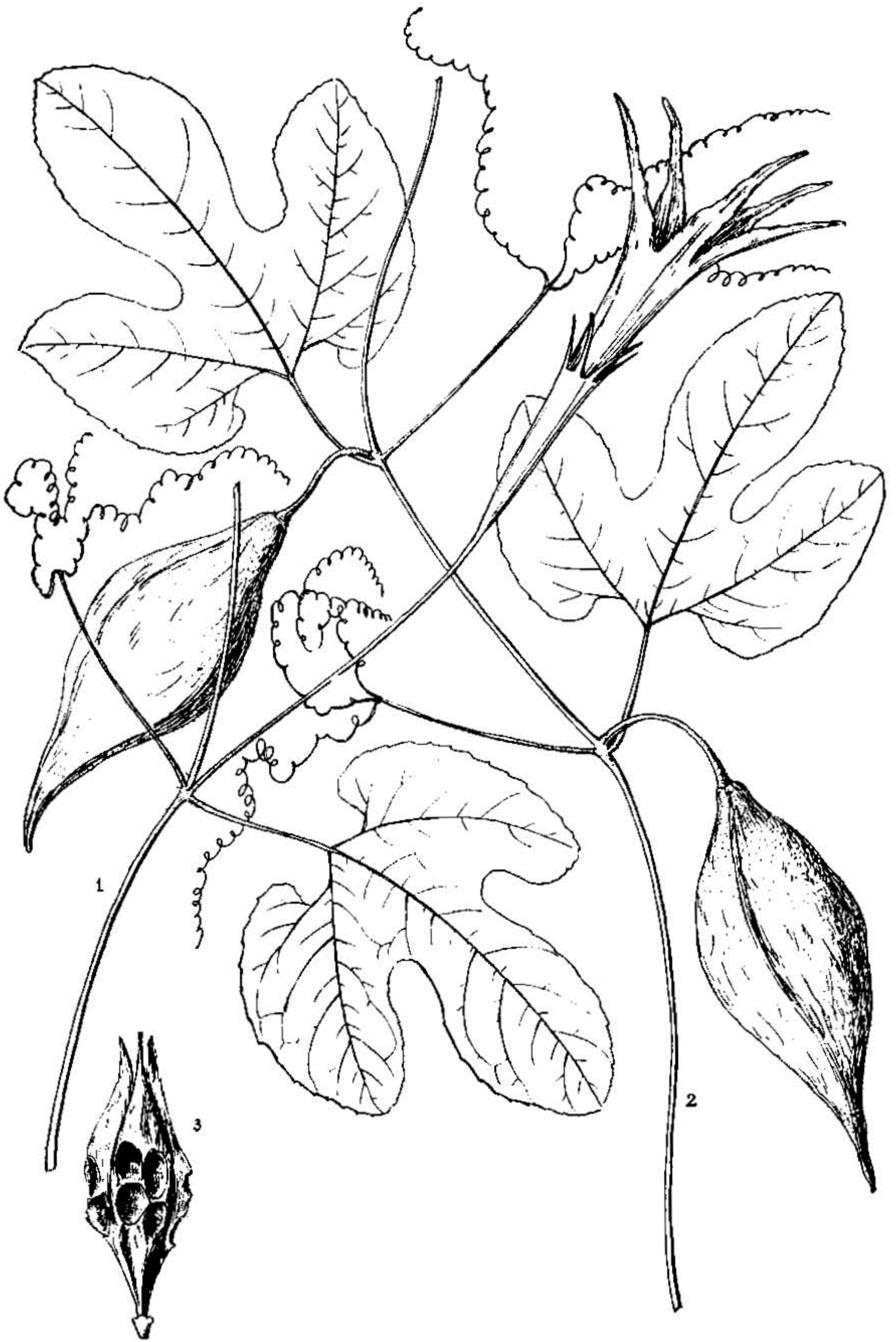
Sicyos angulata L. Sp. Pl. 2: 1013. 1753.

Collected by Mr. E. W. Nelson near San Cristobal, State of Chiapas, altitude 2,303 to 2,893 meters, September 18, 1895 (No. 3148).

Sicyos echinocystoides Cogn. Contr. Nat. Herb. 3: 319. 1895.

Collected by Dr. Edward Palmer at Tepic, January 5 to February 6, 1892 (No. 1894).

The type (No. 478) is in the National Herbarium.



SCHIZOCARPUM ATTENUATUM Rose.



HELIOCARPUS AMERICANUS L.

A SYNOPSIS OF THE SPECIES OF HELIOCARPUS.

The genus *Helioarpus* has been variously described as having from 1 to 5 species. Hemsley listed 7 species in the *Biologia*, but two of them are without specific name. Bentham & Hooker state that there are 4 species; Durand says there are 4 or 1, while Dr. Schumann, who has recently studied this genus for Engler & Prantl and had previously elaborated it for the *Flora Brasiliensis* accepts but a single species. My own study leads me to think that there are from 15 to 20 species. This number includes 6 species described here for the first time and 3 recent species described by Dr. Watson, all largely based on material not seen by others. In my enumeration I have recognized all the species heretofore published, although 1 or 2 of them are uncertain and may properly belong to synonymy. For instance I have seen no plant which seems to answer quite to *H. trichopodus*. I can easily make out all the Mexican species, but there is still some confusion in the Central and South American. The type of the genus is *H. americanus*, one of the rarest species of all, although much material has been referred to it. I have not attempted to treat this genus exhaustively here but more as suggesting needed study.

The genus is divided nearly equally into two groups by the presence of a stipe or its approximate or entire absence.

* *Stipe present, elongated and somewhat bristly.*

+ *Leaves not appendaged at base.*

++ *Sepals unappendaged at tip.*

1. ***Helioarpus americanus*** L. Sp. Pl. 1: 448. 1753. PLATE VII.

This species was based upon plate 16 of *Hortus Cliffortianus*. The only plant which I have seen in any of our American herbaria which at all approaches it is A. Fendler's No. 1277 B (in Herb. Gray) from Venezuela (1854-5).

Prof. Schumann states that the species was described from specimens grown from seed sent from Mexico, although Linnaeus' figure and description does not seem to answer any plant which we have seen from that country. Linnaeus says the plant is from the warmer parts of America, but does not state its habitat more definitely. I have here reproduced from *Hortus Cliffortianus* the plate upon which *H. Americanus* is based.

EXPLANATION OF PLATE.—Fig. 1, leafy branch; fig. 2, fruit; figs. 3, 4, flower; scale about $\frac{2}{3}$ that of original plate, where the flower is natural size.

2. ***Helioarpus popayanensis*** H. B. K. Nov. Gen. & Sp. 5: 341. 1821. *H. americanus popayanensis* Schum. in Mart. Fl. Bras. 12, pt. 3: 142. 1886.

I have not seen the type of this species, which comes from Popayan, U. S. of Colombia, but Miguel Bang's Bolivia plant (No. 1491) has been distributed under this name and answers the description fairly well. It may be characterized as follows: Leaves large, the lower ones cordate at base, the smaller ones sometimes rounded at base, dark green and somewhat stellate above, very pale and densely stellate beneath; inflorescence very much spreading, branching dichotomously, densely pubescent with both simple and stellate hairs; flowers in dense nodose clusters on very short pedicels; sepals 4, 4 mm. long, conspicuous, densely pubescent without, glabrous and nerved within; petals small; stamens 16 (in type "18-22"); ovary stipitate; fruit small, the body about 4 mm. in diameter, the marginal plumose hairs about the same length, the sides with short and slender hairs; stipe short for the section, 4 mm. long.

The description of the fruit is drawn from F. C. Lehmann's No. 5502 from "Columbia et Equador" as seen in Herb. Donnell Smith.

This species has a peculiar spreading inflorescence with dense clusters of flowers and appears quite different from any of the other species. It was referred by Professor Schumann as a variety of *H. americanus*, but it appears to be specifically distinct.

3. ***Heliocarpus tomentosus*** Turcz. Bull. Soc. Nat. Mosc. 31, pt. 1: 225. 1858.

A shrub or bush 1.8 to 7.5 meters high; leaves ovate, acuminate, rounded at base, crenately toothed, 7.5 to 15 dm. long, becoming glabrate above, densely stellate-tomentose beneath; panicles large, bearing numerous flowers; pedicels becoming reflexed; sepals 4, oblong, 5 mm. long, obtuse; petals shorter than the sepals; stamens 16; fruit densely pubescent and with a fringe of plumose hairs; body covered with simple hairs; stipe slender, pubescent and bearing a few plumose bristles.

Woods and dry hills of Mirador, Vera Cruz, E. W. Nelson, February, 1894 (Nos. 70 and 119); near Orizaba, Vera Cruz, altitude 1,312 meters, C. G. Pringle, January 17, 1895 (No. 6106).

This species originally came from near Mirador.

Approaching *H. palmeri* but quite distinct.

4. ***Heliocarpus trichopodus*** Turcz. Bull. Soc. Nat. Mosc. 1858, 1: 226. 1858.

The type of this species, which comes from Galipan in the Province of Caracasana, Venezuela, I have not seen. Here may belong Fendler's No. 1277 (at least specimens in Herb. Gray) also from Venezuela and collected in 1854-5.

*** Sepals appendaged at tip.

5. ***Heliocarpus arborescens*** Seem. Bot. Herald, 86. 1852.

Leaves with long petioles, long-acuminate point and very soft dense pubescence beneath.

Not seen in fruit.

I have seen in the Gray Herbarium a specimen of Seeman's which is probably a part of the type. It came from Panama.

6. ***Heliocarpus polyandrus*** Wats. Proc. Am. Acad. 21: 420. 1886.

This species has never been collected in fruit.

The type was obtained by Dr. E. Palmer in southwestern Chihuahua in 1895 (No. 109). There is a duplicate type (No. 1221) in the National Herbarium. Dr. Palmer also collected the species near Alamos, State of Sonora, in 1890 (No. 629).

7. ***Heliocarpus nodiflorus*** (Donnell Smith) Donnell Smith & Rose. *H. polyandrus nodiflorus* Donnell Smith, Bot. Gaz. 23: 240. 1897.

Trees; branches with both simple and stellate hairs, becoming glabrate; leaves very large, even the upper ones 7 inches long, 6 inches broad, broadly ovate, cordate and somewhat oblique at base, acuminate, with obtuse and irregular serrations (the lower ones glandular) very dark and finely stellate above, very pale and densely stellate beneath, perhaps becoming nearly glabrate in age.

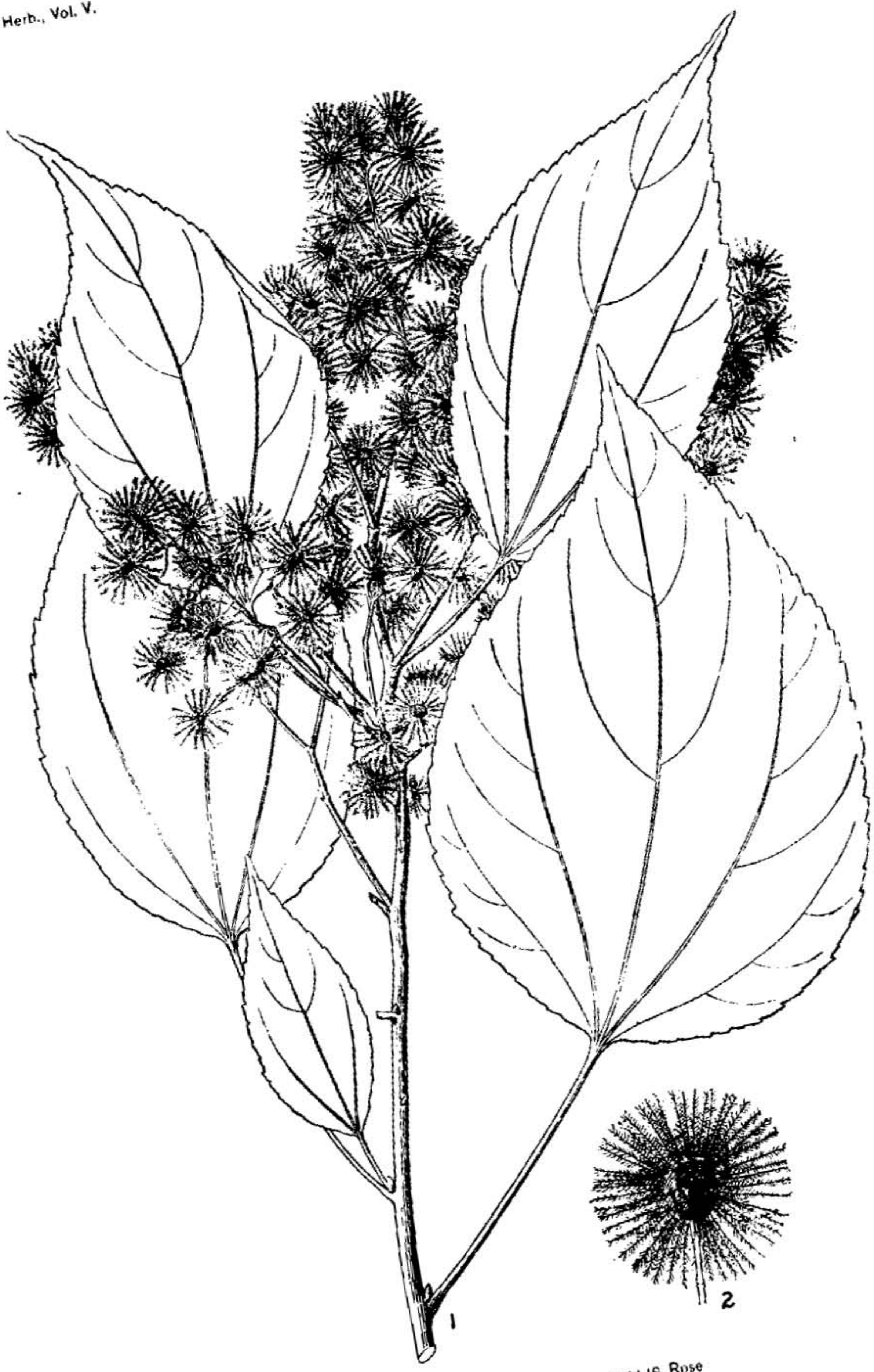
Inflorescence a small panicle with pedicels or branches in nodose clusters, stellate-pubescent; buds oblong, constricted at base, with appendages at tip small not spreading; sepals 5, with small appendages near the tip; petals small; stamens about 24; style 2-cleft at tip; fruit long-stipitate, the body 3 mm. in diameter, the margins fringed with plumose hairs, the sides stellate. Besides a part of the type of Mr. Smith's variety *nodiflorus* represented by Messrs. Heyde and Lux's plant from Rio Pinula (No. 4329), we refer to this species the following collections:

E. W. Nelson's plant from Guatemala, collected between Rodeo and Malacatan, altitude 461 to 1,152 meters, January 31, 1896 (No. 3742); E. Th. Heyde, Nos. 631 and 658 from Guatemala, collected in 1892.

+ + Leaves appendaged at base.

8. ***Hellocarpus appendiculatus*** Turcz. Bull. Soc. Nat. Mosc. 1858, 1: 225. 1858.

Leaves very large, broadly ovate, dark green, nearly glabrous above with a close



HELIOCHARFUS OCCIDENTALIS Rose

reddish stellate pubescence beneath; leaves rather thickish and strongly veined beneath; fruit globose, pubescent on the sides.

The only specimen of this species which bears this name is Capt. John Donnell Smith's (No. 1723) from Guatemala, thus distributed by him. It answers fairly well the description and comes from a point not far from the type locality. This species has heretofore only been known from the State of Tabasco, Mexico, where it was obtained by Linden.

Here also I would refer the specimen collected by Ad. Tonduz in Talemania, Costa Rica, in March, 1894 (No. 8561).

+ + *Stipe very short or wanting.*

+ *Fruit oblong.*

9. *Heliocarpus glanduliferus* Robinson in herb.

A tree; stems slightly hairy, more or less densely clothed with reddish glands; leaves ovate to ovate-oblong, entire, rounded or slightly cordate at base, acute or acuminate, densely and softly stellate beneath, darker and slightly pubescent above, serrate, the lower teeth especially glandular; inflorescence a small panicle with the pedicels or branches in nodose clusters; buds oblong, constricted at base, with appendages at tip very prominent and spreading; sepals 5, linear, 6 mm. long, appendaged near the tip; petals shorter than the sepals; stamens about 40; fruit sessile, oblong, the body 6 to 7 mm. long, the margin fringed with plumose hairs, the sides wrinkled and nearly glabrous.

Collected by Sutton Hayes in mountains near Santa Maria, Guatemala, November, 1860, and since collected in the same country by Messrs. Heyde and Lux in 1892 near Chupadero, altitude 5,000 feet, and distributed by Capt. John Donnell Smith under No. 3956; also by Mr. E. W. Nelson near Yajalon, State of Chiapas, November 21, 1891 (No. 3400); and by Ad. Tonduz, Rio Torres, S. Francisco de Guadalupe, Prov. S. Jose, Costa Rica, altitude 1,000 meters, December, 1893 (No. 8453). While this last plant is one of the numbers upon which *H. polyandrus nodiflorus* Donnell Smith¹ is based, it is clearly distinct from the other number as well as from the species *H. polyandrus*.

In *H. glanduliferus* the pubescence of the branches is composed mostly if not entirely of simple, somewhat crisped, hairs. The upper surface of the leaves has somewhat similar hairs, but often 2, sometimes 3 to 4-branched at base; the upper surface only a little darker than the lower, those of the branches always rounded at base and rarely if ever oblique. In all the above points, besides in its very characteristic fruit, it differs from *H. nodiflorus*.

Type in Herb. Gray and in National Herbarium.

+ + *Fruit orbicular.*

+ + *Leaves becoming nearly glabrate, scarcely if at all paler beneath, mostly rounded at base.*

10. *Heliocarpus occidentalis* Rose, sp. nov.

PLATE VIII.

A small tree 4.5 to 9 meters high, the trunk 7.5 to 12.5 cm. in diameter; leaves lanceolate to broadly ovate, rounded at base, palmately 5 to 7-nerved, long-acuminate, somewhat regularly serrate, with obtuse teeth, thin, green and somewhat roughened but becoming glabrate above; paler, more strongly veined, and somewhat stellate beneath; flowers unknown; inflorescence a large spreading panicle; pedicels 4 to 6 mm. long, jointed and breaking off near the base, with short stellate pubescence; stipe none; fruit 12 to 14 mm. long, including the fringe of plumose hairs; the body orbicular, 3 mm. in diameter, with rugose surface and slightly stellate.

Collected by Dr. E. Palmer at Acapulco, Mexico, December 1 to 31, 1890 (No. 440), and at Manzanillo, Mexico (No. 986).

¹ Bot. Gaz. 23:240. 1897.

Referred in Contributions from the National Herbarium, vol. 1, p. 310, to *H. tomentosus*.

Type in U. S. National Herbarium.

EXPLANATION OF PLATE.—Fig. 1, fruiting panicle with leaves, scale $\frac{1}{2}$; fig. 2, fruit, scale $1\frac{1}{2}$.

** ** *Leaves densely stellate-pubescent, especially below.*

= *Sepals not appendaged.*

11. *Heliocarpus nelsoni* Rose, sp. nov.

A shrub 2.4 to 6 meters high; young parts scurfy-pubescent; leaves broadly ovate, somewhat 3-lobed, slightly cordate at base, long-acuminate, irregularly serrate, densely almost velvety-pubescent, densely stellate above, 10 to 15 cm. long, 7.5 to 10 cm. broad; inflorescence a compact leafy panicle; buds purplish; sepals 4 or 5, oblong, 4 mm. long, not appendaged at tip; fruit almost equally covered with plumose hairs; stipe none.

This species is similar to *H. reticulatus*, but has the leaves less reticulated, sepals not appendaged, etc.

Collected by E. W. Nelson on the dry hills in the Valley of Oaxaca, September 8, 1894 (No. 1243); also in the foot hills on the west side of the Valley of Oaxaca, September 20, 1894 (No. 1485); also collected near Cuernavaca by Berlandier, October 20, 1827 (No. 1064), and near the same locality by Bourgeau in 1865-66 (No. 1200). The latter number is referred to in the Biologia by Mr. Hemsley under *Heliocarpus*, but without specific name.

Type in United States National Herbarium.

--- --- *Sepals appendaged.*

a. *Leaves strongly reticulated beneath.*

12. *Heliocarpus reticulatus* Rose, sp. nov.

PLATE IX.

A small tree; younger branches, leaves, and inflorescence densely stellate-pubescent; leaves broadly ovate, more or less 3-lobed, cordate at base, acuminate, somewhat irregularly serrate, strongly reticulated beneath, 7.5 to 15 cm. long, 5 to 10 cm. wide on petioles, 2.5 to 5 cm. long; inflorescence an open terminal panicle, but in fruit very compact; sepals 5, linear, 4 to 6 mm. long, with a small appendage near the apex; petals small, 2 mm. long; stamens about 20; fruit 10 mm. in diameter, including the fringe of plumose hairs, the sides with similar but short hairs; stipe wanting.

Collected by Mr. C. G. Pringle on the hills near Guadalajara, State of Jalisco, in November and December, 1888 (No. 1791), and distributed as *H. americanus* var.

This species resembles very much *H. americanus* in the shape of the leaves, but is very unlike it in its fruit, etc.

Type in United States National Herbarium.

EXPLANATION OF PLATE.—Fig. 1, flowering panicle with leaves, scale $\frac{1}{2}$; fig. 2, fruit; fig. 3, seed; figs. 2 and 3, scale $1\frac{1}{2}$.

aa. *Leaves not strongly reticulated beneath.*

b. *Shrubs, leaves stellate on both sides.*

c. *Fringe of fruit shorter and stouter than in the next, stamens 20, leaves broad.*

13. *Heliocarpus palmeri* Wats. Proc. Am. Acad. 21: 420. 1886.

Only known from type collection.

Type in Gray Herbarium. Duplicate type (No. 1226) in U. S. National Herbarium.

cc. *Fringe of fruit of slender bristles; stamens 16; leaves ovate, narrower than in the last.*

14. *Heliocarpus attenuata* Wats. Proc. Am. Acad. 21: 420. 1886.

Type in Gray Herbarium, duplicate type (No. 1225) in U. S. National Herbarium.

bb. *Small trees; leaves nearly glabrate above, beneath with a pale close tomentum.*

15. *Heliocarpus pallidus* Rose, sp. nov.

PLATE X.

Tree 3.6 to 7.5 meters high; young branches clothed with dense stellate hairs; leaves simple or 3-lobed, more or less broadly ovate, 5 to 7.5 cm. long, the petiole 2.5



HELIOARPUS RETICULATUS Rose.



HELIOARPUS PALLIDUS Rose

to 5 cm. long, long-acuminate, mostly rounded at base, dark green and becoming nearly glabrous above, very pale and covered with dense close tomentum beneath, palmately 3 to 5-veined, somewhat irregularly serrate; inflorescence an open spreading panicle; buds club-shaped, densely stellate; sepals 4, linear, 6 mm. long, with a small appendage near the apex; petals 4, minute, 2 mm. long; stamens about 20; stipe none; fruit 10 mm. in diameter, including the fringe of plumose hairs; the body orbicular, 2 mm. in diameter, densely stellate, and with a few scattered plumose hairs.

Collected by Dr. E. Palmer near Acapulco, 1894 (No. 157); also by Mr. E. W. Nelson between Copala and Juchitango, Guerrero, February 9, 1895 (No. 2298).

EXPLANATION OF PLATE.—Fig. 1, flowering panicle with leaves, scale $\frac{2}{3}$; fig. 2, fruit; fig. 3, seed; figs. 2 and 3, scale 1 $\frac{1}{2}$.

A SYNOPSIS OF THE SPECIES OF WIMMERIA.

The genus was established in 1831, two species, *W. concolor* and *W. discolor*, being described. It was monographed by Radlkofer in 1878, and the two species of Schlechtendal were increased to six. The *W. confusa* of Hemsley and the very recent species *W. cyclocarpa* bring the number up to eight. Of these eight species seven are Mexican. Until 1885 the genus was entirely unrepresented in the National Herbarium. We now lack but one of the Mexican species, this one of the original ones, *W. discolor*. The collections of Pringle, Palmer, and Nelson have just added three of the rarest species to our collection.

The following key to the Mexican and Central American species, taken largely from Radlkofer, will be found useful in disentangling herbarium specimens:

§ ENDALOPHUS: *fruit longer than broad, ovate-oblong, narrowly winged.*

Wimmeria concolor Schlecht. *Linnaea*, 6:428. 1831.

This species is represented in the National Herbarium by Mr. Pringle's No. 3706 from San Luis Potosi (1891).

Wimmeria discolor Schlecht. *Linnaea*, 6:428. 1831.

I do not know this species. It must be near the above. The type was collected at Papantla, State of Vera Cruz.

§ ENDOLOPHUS: *fruit shorter than broad, suborbicular, broadly winged.*

+ *Leaves pubescent.*

+ *Leaves large, thin, serrulate.*

Wimmeria cyclocarpa Radlk. *Bot. Gaz.* 18:199. 1893.

We have duplicates of the type which were distributed by Capt. John Donnell Smith.

+ + *Leaves small, thickish.*

+ + *Blade of leaf glabrous or becoming glabrate but with the petiole (as are the peduncles and young branches) puberulent, crenate; anthers obtuse.*

Wimmeria confusa Hemsli. *Diag. Pl. Nov. fasc.* 1:6. 1878.

This species is represented in the National Herbarium by the following specimens: Dr. Palmer's Nos. 261 and 262 from southwestern Chihuahua (1885); No. 368 from Jalisco (1886); No. 648 from Alamos (1890), and No. 1598 from Lodiago (1891).

+ + + *Blade of leaf pubescent on both sides, entire or serrulate, smaller than the last; anthers apiculate.*

Wimmeria pubescens Radlk. *Sitzb. Math. Phys. Akad. Muench.* 8:378. 1878.

Shrub 2.1 to 3 meters high; anthers broadly ovate, shortly acuminate.

Collected by Mr. C. G. Pringle on calcareous hills, Tehuacan, State of Puebla, 1895 (No. 6289); and by Mr. E. W. Nelson near Nenton, Guatemala, altitude 912 meters, December 13, 1895 (No. 3522). This species has only been known before from the specimens of Liebmann from Consoquitla. Mr. Nelson obtained excellent fruiting specimens which answer the description except that the leaves are not quite so long. On the other hand Mr. Pringle's plants, which are only in flower, have the longer leaves, but none of them are obovate. I have little hesitancy, however, in referring both specimens as above. The species is new to the National Herbarium.

* * *Leaves large, glabrous.*

+ *Leaves with lateral nerves indistinct, obtuse, scarcely serrate.*

Wimmeria pallida Radlk. in part.

A spreading shrub 24 dm. high; leaves lanceolate, obtuse, with slender cuneate base, 5 to 8.7 cm. long, 2.5 to 5 cm. broad, petioles slender; fruit broader than long, 20 to 30 mm. broad.

Collected by Dr. Edward Palmer near Acapulco, November, 1894 (No. 124). *Wimmeria confusa* was so called because it had been confused with *W. concolor* and so figured in Hooker's *Icones*. It was named in 1878 by Mr. Hemsley, who based it upon Hartweg's plant; the same year Radlkofer described his *W. pallida*, basing it in part upon Hartweg's specimens as figured in Hooker's *Icones*, but also referring it to specimens collected by Haenke (perhaps at Acapulco) and Liebmann. In the *Biologia* this species is referred to *W. confusa* and the confusion continued. Palmer's specimens I think belong to a different species from Hartweg's and I propose to retain for them Radlkofer's name of *W. pallida*. The two species as thus separated are very distinct both in fruit and foliage.

+ + *Leaves with lateral nerves more prominent, long-petioled, finely and regularly serrate.*

Wimmeria persifolia Radlk. Sitzb. Math. Phys. Akad. Muench. 8: 379. 1878.

Shrub 4.6 meters high.

Collected by Mr. C. G. Pringle at Cuernavaca, 1895 (No. 6210). This species, like the above, is only known from Liebmann's collection. It was collected at Ejutla, State of Oaxaca.

The above specimen seems properly referred, although the fruit is not so large as described. The species is new to the National Herbarium.

A SYNOPSIS OF THE AMERICAN SPECIES OF HERMANNIA.

The genus *Hermannia* in the first volume of the *Biologia Centrali-Americana* is represented by a single species (*H. texana*). The rare *H. inflata*, redescribed below, was overlooked, while two other species have recently been described. The genus is a large one, but is almost wholly South African. The four species here referred to are the only ones known on the American continent.

The following key will be of aid in determining our American material.

* *Calyx much inflated.*

Hermannia inflata Link & Otto, Ic. Pl. Rev. 55, t. 28. 1828.

This species has been rare in collections and was entirely wanting in the National Herbarium—in fact its publication has been overlooked by many. Dr. Gray thought it was simply a manuscript name. Mr. Hemsley omitted it from the first volume of the *Biologia Centrali-Americana*, while the writer was at first inclined to consider Mr. Nelson's plant a new species. My specimens may be described as follows:

Shrub, 12 to 18 dm. high; branches densely stellate-tomentose; leaves ovate, 3.7 cm. or less long, obtuse, with broad cuneate base, 3.7 cm. long; petioles short; stip-

ules linear-lanceolate; flowers in leafy racemes, on short peduncles: calyx inflated, strongly veined, purplish, 3 lines high with broadly ovate lobes; petals 5, distinct, purple, nearly orbicular, tapering at base into a slender claw with strongly incurved margins; stamens 5, opposite the petals; filaments broad with ciliate margins; anther cells ciliate with acuminate tips; styles 5, distinct; carpels densely stellate, but the crest not armed; cells 5, each 5-seeded.

Collected by Mr. E. W. Nelson, on dry hills in the valley of Oaxaca, September 8, 1894 (No. 1216); also by Mr. C. G. Pringle on limestone ledges of Monte Alban, altitude 1,906 meters, 1894 (No. 4798); also by Thomas Coulter near Zimapan (No. 802). The latter two specimens were seen in the Gray Herbarium.

* * *Calyx not inflated.*

- *Petals reflexed or spreading; stamens wholly exerted, filaments nearly wanting, anthers elongated and connivent; crest of carpels armed with long, glochidiate spines.*

Hermannia palmeri Vasey & Rose, *Contr. Nat. Herb.* 1: 67. 1890.

SPECIMENS EXAMINED.

Lower California:

La Paz, Dr. Edward Palmer, January 20, February 5, 1890 (No. 29);

Todos Santos, T. S. Brandegee, January 22, 1890.

The type specimens of this species are in the National Herbarium.

+ + *Petals at most spreading; stamens not wholly exerted; filaments distinct, anthers short, not connivent; crest of carpels not armed with long, glochidiate spines.*

+ + *Flowers yellow, minute; crest of carpels dentate or with very short spines.*

Hermannia pauciflora Wats. *Proc. Am. Acad.* 17: 368. 1882.

SPECIMENS EXAMINED.

Mexico:

Guaymas, Dr. Edward Palmer, 1887 (No. 227);

Arizona:

Santa Catalina Mountains, C. G. Pringle, April 11, 1881 (No. 344);

Sierra Tucson, C. G. Pringle, April 28, 1881;

South side of Santa Catalina Mountains, J. G. Lemmon, August, 1883 (No. 3669).

+ + *Flowers yellow, twice the size of the last; crest of carpels lined with rather pectinate bristles.*

Hermannia texana Gray, *Gen. Illustr.* 2: 88, t. 135. 1849.

SPECIMENS EXAMINED.

Mexico:

Nuevo Leon, Monterey, C. G. Pringle, June, 1888 (No. 1926);

Monterey, Chas. K. Dodge, May 1891 (No. 135);

Coahuila and Nuevo Leon, Dr. Edward Palmer, February to October, 1880 (No. 113).

New Mexico:

——, C. Wright, 1851 (No. 902).

Texas:

——, F. Lindheimer, 1846 (Nos. 356 & 357) and 1847 (No. 585);

Valley of the Rio Grande, J. M. Bigelow (No. 119);

Canyon of Sabinal, J. Reverchon, June (No. 108);

Pena, Duval County, G. C. Nealley, 1889 (No. 3916);

Western part, C. Wright, October, 1849 (No. 67).

A SYNOPSIS OF DRYMARIA NODOSA AND ITS ALLIES.

Two of our thin, linear-leaved species of *Drymaria*, *D. nodosa* and *D. tenella*, have been more or less confused in our collections. My study of the group in the light of recent collections and a comparison of both

types seems to warrant the separation from each of at least one species. My understanding of these four species is expressed in the following key, to which I have added a list of the various specimens examined. The collections studied were the Gray and National herbaria.

* *Stems not glabrous; sepals lanceolate; acuminate, strongly 3-nerred; capsule much shorter than the calyx.*

+ *Stems glandular-pubescent; petals longer than sepals; leaves narrow-channelled; of more northern range.*

Drymaria nodosa Engelm. Pl. Fendl. 12. 1849.

SPECIMENS EXAMINED.

Mexico:

State of Chihuahua, near Chihuahua, *C. G. Pringle* (No. 581) October, 1885, and (No. 716) October 15, 1886; also base of Sierra Madre (No. 1195), September 20, 1897; also at Cosiquiriachi, *Dr. Wislizenus*, June and July.

State of Sonora, Los Pinitos, *C. V. Hartman* (No. 138), October, 1890.

+ + *Stems pubescent, rarely if ever glandular; often glabrate; petals shorter than the sepals; leaves flat; of different habit and more southern range.*

Drymaria gracillima (Hemsl.) Rose; *D. nodosa* (?) *gracillima* Hemsl. Diag. Pl. Nov. 2:22. 1879.

Although this form seems to be separable as a species from *D. nodosa*, I should state that no two botanists have seemed to agree as to its position. Dr. Gray, who first published upon it, says:

From this [*D. nodosa*] No. 697 of Coulter's Mexican collection scarcely differs except that the plant is less diffuse, the leaves nearly flat, the alar pedicels shorter, and the petals smaller,—differences which are likely to arise from station.

Englemann, who described a number of species in this genus besides *D. nodosa*, considered it a good species, naming it after T. Coulter, although his name was never published. He says of it:

A small annual a few inches high, nearly related to *D. nodosa* but well distinguished by the erect growth, by the shorter flat linear (or almost linear-lanceolate) leaves, short pedicels, and inclosed petals.

Mr. Hemsley has followed an intermediate course, describing it as a variety of *D. nodosa*.

SPECIMENS EXAMINED.

Mexico:

State of San Luis Potosi, *Parry & Palmer* (No. 60), 1878, type; *Dr. J. G. Schaffner* (No. 140), 1876, at least in part and No. 5 at least in part.

Real del Monte, Sierra de Aguseo, altitude 2,500 meters, in gravelly soil, *T. Coulter* (No. 697);

Locality not given, *C. G. Pringle*, September 8, 1896 (No. 6482).

State of Durango, Durango, *Dr. Edward Palmer*, April to November, 1896 (No. 912).

* * *Stems glabrous; sepals ovate, obtuse, not strongly 3-nerred; capsule scarcely shorter or longer than the calyx.*

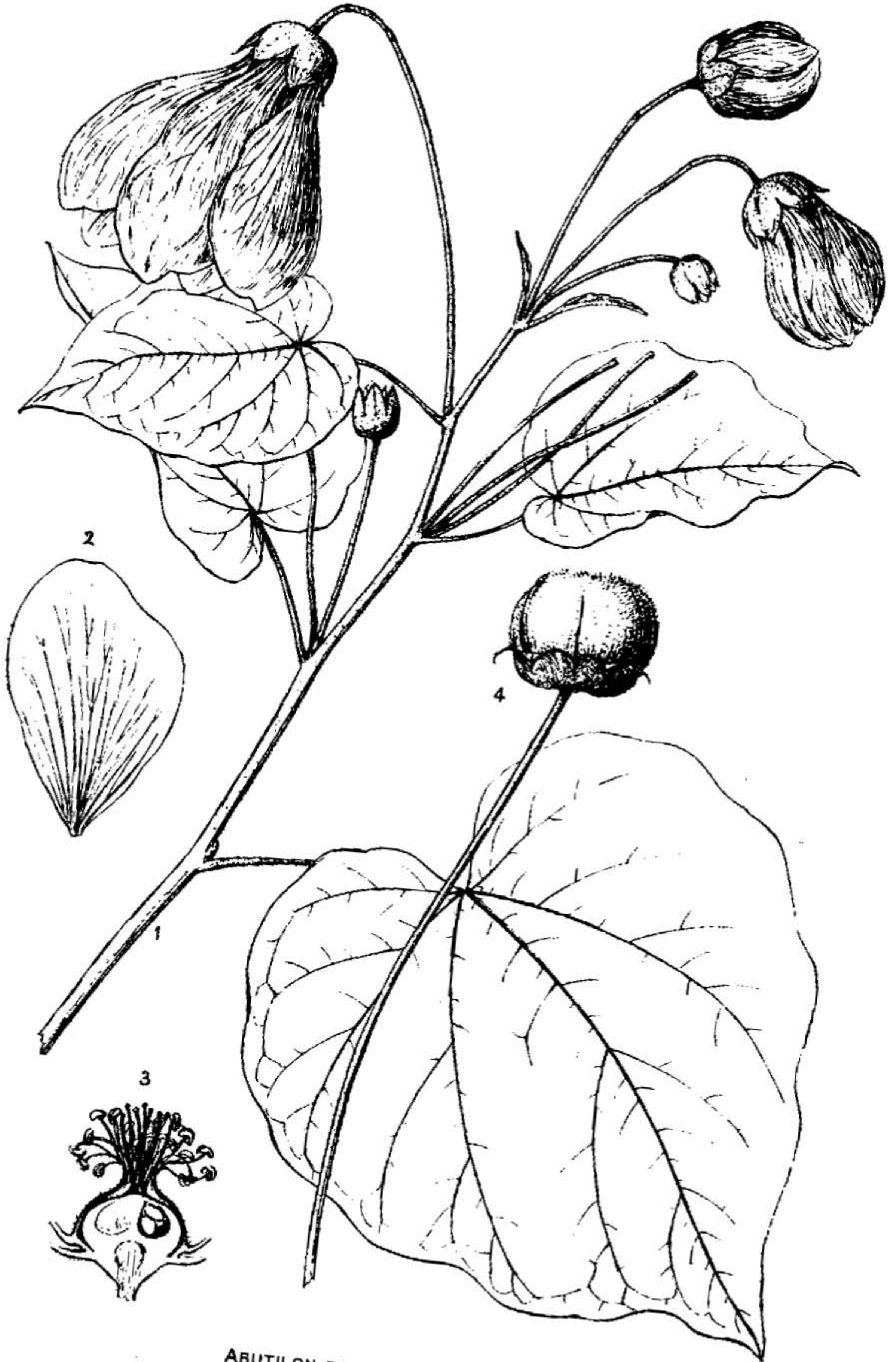
+ *Internodes much longer than the leaves; bracts often longer than the pedicels; sepals obtuse, clearly 3-nerred; petals shorter than the calyx; capsule as long as the calyx.*

Drymaria tenella Gray, Pl. Fendl. 12. 1849.

SPECIMENS EXAMINED.

Mexico:

State of Chihuahua, base of Sierra Madre, *C. G. Pringle* (No. 1194), September 21, 1887, and near Chihuahua (No. 581), October 2, 1885, and (No. 6180) 1897.



ABUTILON BAKERIANUM Rose.

New Mexico:

Pinos Altos Mountains, *E. L. Greene* (No. 332), September 8, 1880; *A. Fendler* (No. 56), 1847; also *C. Wright* (No. 868), 1851.

Colorado:

Dr. Hayden, 1869.

— — Internodes slightly longer than the leaves; bracts always shorter than the pedicels; calyx always shorter than the pedicels; sepals rounded at apex, faintly 3-nerved; petals much longer than the calyx; capsule longer than the calyx.

Drymaria confusa Rose, sp. nov.

Small glabrous annual, 5 to 7.5 cm. high, scarcely branching at base; radical leaves small, orbicular, 4 to 6 mm. long including the slender petiole; stem leaves linear, a little shorter than the internodes; pedicels sometimes 8 mm. long, nearly always twice longer than the calyx; sepals oblong, obtuse, scarious-margined; faintly 3-nerved, petals longer than the calyx, deeply 2-parted.

Collected by *Dr. Edward Palmer* in southwestern Chihuahua in 1885 (No. 59).

This species is near *D. tenella*, but of somewhat different habit, with longer pedicels, fainter nerves, somewhat differently shaped sepals, and longer petioles.

Distributed and listed¹ by *Dr. Watson* as *D. tenella*. 1886.

DESCRIPTIONS OF MISCELLANEOUS NEW SPECIES.

Abutilon bakerianum Rose, sp. nov.

PLATE XI.

Small tree, 45 to 60 dm. high; branches, calyx, and young leaves with reddish stellate pubescence; leaves broadly ovate, cordate at base, acuminate, palmately 7 to 9-nerved, 10 to 12.5 cm. long, 8.7 to 12.5 cm. broad, green and somewhat stellate-pubescent above, paler, more reticulate and stellate beneath; margin slightly undulate; petioles 3.7 to 6.2 cm. long, peduncles 2 to 3 in the axils of the upper leaves, 3.7 to 10 cm. long, articulated about 12 mm. below the apex; calyx 8 mm. or less long, cleft to the middle; lobes 3 or 5, ovate, acute; corolla light yellow, 7.5 cm. in diameter; petals oblique, notched or sometimes cleft nearly to the base, nearly glabrous; staminal tube short; styles 12, as long as stamens, glabrous; fruit in our specimens immature, stellate-pubescent; carpels obtuse.

Collected by *Mr. C. G. Pringle* in the Tomellin canyon, State of Oaxaca, Mexico, altitude 3,500 feet, December 1, 1895 (No. 6278). This species must be near *A. macranthum* Peyr.² if not really that species. The name *A. macranthum* can not be used here, however, being preoccupied by a South American species; otherwise I should certainly have adopted it. Whether it shall prove to be *Peyritsch's* plant or an undescribed one, the above new name will hold. It is a pleasure to be able to dedicate such a handsome species to *Mr. E. G. Baker*, for without his careful monograph of this genus the determination of the species would have been almost a hopeless task.

Our plant comes near *A. discolor*³ *Baker fil.* and *A. notolophium*⁴ *Gray* (both founded upon *Berlandier's* 2163), but is apparently different. From the description, it differs especially in its much smaller calyx. I have not seen the type of either, but *Mr. J. M. Greenman* has kindly compared my specimens with the type specimens of the latter now in the *Gray Herbarium*. I quote the following from his letter of April 11, 1896:

Having compared *Pringle's* No. 6278 *Abutilon* with the type sheets of *Abutilon notolophium* *Gray*, I would say that it differs from that species in the size of the calyx, in the lobing of the same, in the much shorter staminal tube, in the correspondingly shorter styles, and finally in the more slender and somewhat more numerous pedicels. I do not believe it referable to *A. notolophium* *Gray*. In connection with

¹ Proc. Am. Acad. 21: 417. 1886.

² Linnaea, 50: 59. 1859.

³ Journ. Bot. 31: 73. 1893.

⁴ Proc. Am. Acad. 5: 175. 1861.

Pringle's No. 6278, may I call your attention to Bourgeau's No. 2120 and also Ghiesbreght's No. 864. These are two unnamed species in the Gray Herbarium, and if not the same as Pringle's No. 6278, certainly stand very near.

EXPLANATION OF PLATE.—Fig. 1, flowering branch; fig. 2, petal; fig. 3, section of ovary, showing also styles and stamens; fig. 4, immature fruit; scale of all $\frac{1}{3}$.

Abutilon nelsoni Rose, sp. nov.

PLATE XII.

Shrub 6 to 18 feet high; young branches, petioles, young leaves, etc., densely covered with a coarse reddish scurfy stellate pubescence; leaves very large; stipules ovate, 10 to 12 mm. long, deciduous; petiole 2.5 to 10 cm. long, blade broadly ovate to orbicular, 25 cm. or less long, 22.5 cm. or less broad, deeply cordate at base, entire, acuminate, strongly veined beneath, finely and densely stellate-pubescent on both sides; flowers 1 or 2 in the axils of the upper leaves, very large, 10 to 12.5 dm. in diameter; peduncle 15 cm. or less long; calyx 37 mm. long, 5-lobed; sepals oblong, rounded and apiculate at apex, nearly one inch long, with short dense pubescence within, and with long, lanate stellate hairs without; petals a dark or orange yellow, 5 to 6.2 cm. broad, nearly orbicular, slightly oblique, becoming reflexed; stamen tube slender, conical; styles about 24, slightly longer than the stamens; carpels not seen. This species which is one of the largest, if not the largest, of the genus was collected by Mr. E. W. Nelson in Guatemala, December 18, 1895 (No. 3562). It belongs near *A. macranthum* St. Hil. (not Peyr.) possessing the same remarkable calyx, but with entire leaves, larger stipules, and differently colored petals, as well as other important differences.

Mr. Greenman of the Gray Herbarium writes me that they have nothing like it there.

EXPLANATION OF PLATE.—Flowering branch with leaves, scale $\frac{1}{3}$.

Asimina foetida Rose, sp. nov.

A small shrub, 15 to 24 dm. high; young wood pubescent, old wood glabrate; leaves oblong, 10 to 20 cm. long, 3.7 to 7.5 cm. wide, obtuse or shortly acuminate, rounded at base, pubescent above or becoming glabrate in age, densely and softly pubescent beneath; petioles short, 2 to 6 mm. long, flowers solitary; peduncle about 18 mm. long, with an oblong, obtuse bract 6 to 14 mm. long; sepals 3, 12 mm. long, obtuse, densely pubescent; petals 6 to 9, very large 7.5 to 12.5 cm. long, oblong, obtuse, pubescent, brown in color; carpels (immature) 18 or more, stipitate, oblong, obtuse, 5 cm. long; seeds in two rows, flattened, 18 mm. long. The flowers have a very offensive odor, much resembling that of carrion.

Collected by Dr. Edward Palmer near Acapulco, December, 1894 (No. 189), with fruit, and February, 1895 (No. 394), in flower. Here I am inclined to refer Marcus E. Jones's No. 2024 from near the city of Colima, collected July 2, 1892, although the flowers and bracts are larger and the leaves more pubescent.

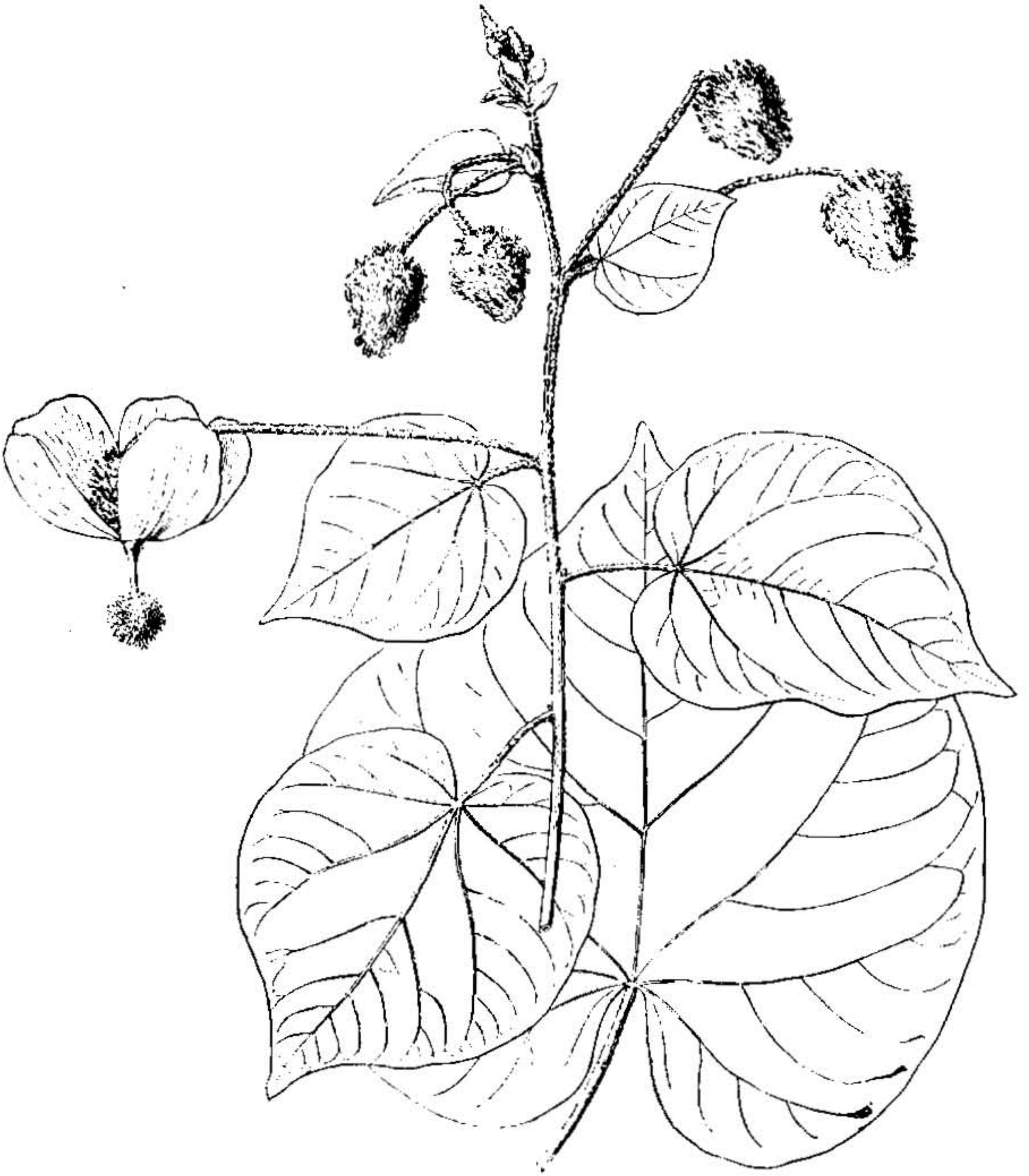
This species is remarkable for its extremely large flowers, some of which measure 12.5 cm. in diameter.

Brongniartia suberea Rose, sp. nov.

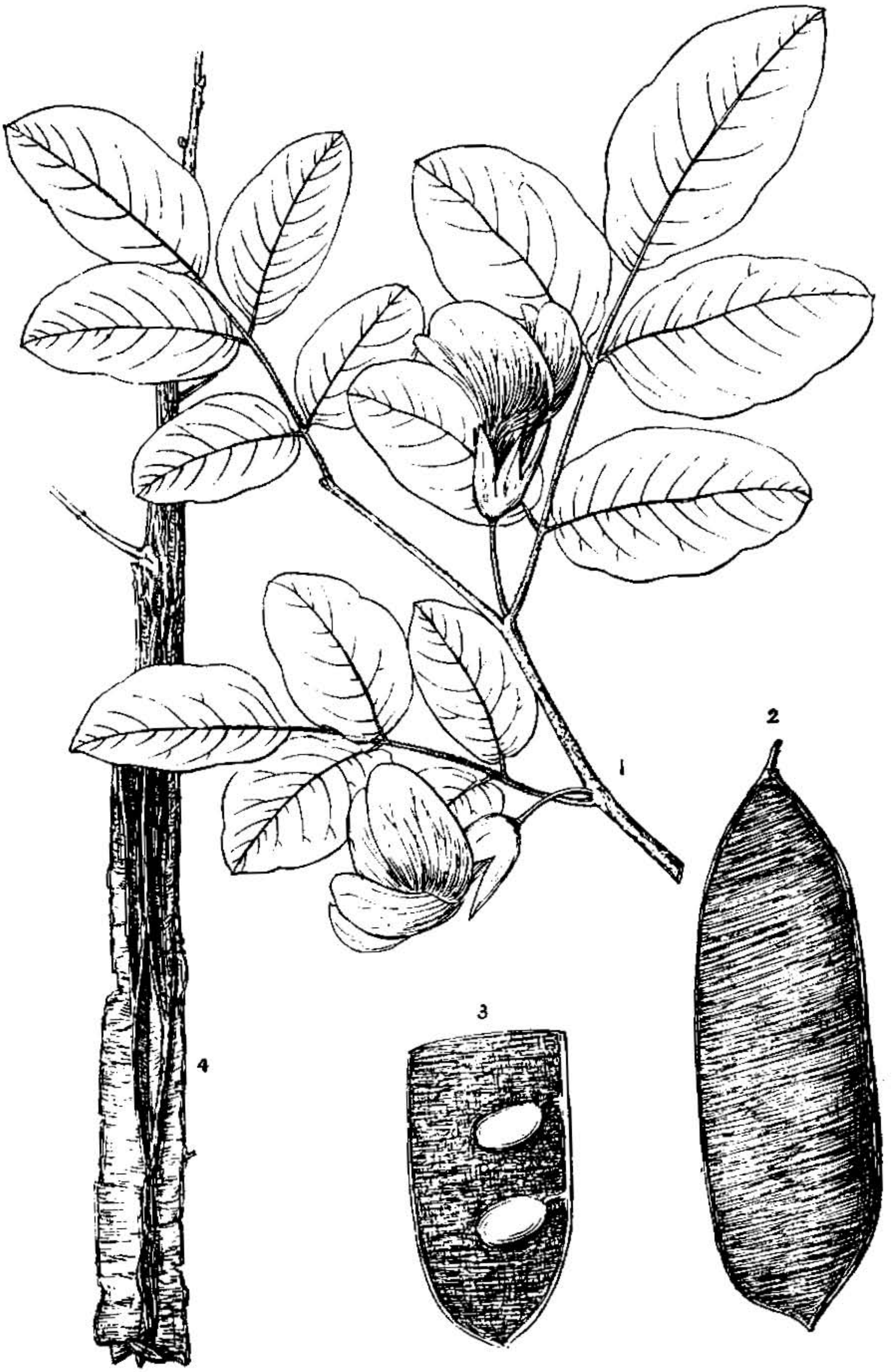
PLATE XIII.

An upright shrub, 24 to 36 dm. high; the smaller branches often with 6 to 7 thin high ridges of cork; younger parts of stem, petiole, and peduncle pubescent; leaves alternate; stipules caducous, not seen but probably not large; leaflets 5, ovate to ovate-oblong, 2.5 to 5 cm. long, 12 to 30 mm. broad, rounded at base, rounded or acute at apex, apiculate, green and glabrous above, paler and somewhat pubescent beneath; flowers axillary, solitary and large; peduncle slender, 6 to 16 mm. long, pubescent; calyx nearly glabrous, somewhat 2-lipped; the lower lip deeply 3-cleft; the upper broader and simply notched or retuse; margins of sepals pubescent; corolla rather large, brownish or "cherry color with seal brown lines;" banner very large, broadly oblong, 14 mm. long, retuse; pods glabrous, oblong or somewhat broader above, tapering at base into a short stipe, obtuse or acutish, 37 mm. long, 16 to 18 mm. broad, 3 to 6-seeded; seeds oblong, 8 mm. long, light brown.

Collected near Acapulco, Mexico, by Dr. E. Palmer, December, 1894 (No. 178).



ABUTILON NELSONI Rose.



BRONGNIARTIA SUBEREA Rose.

This species is very distinct from any other of this genus with which I am familiar. The excessive development of cork on some of the younger branches is very peculiar. Dr. Palmer states that this cork soon disappears and is not found on the older wood.

EXPLANATION OF PLATE.—Fig. 1, flowering branchlet; fig. 2, pod; fig. 3, a part of pod showing seeds; fig. 4, a branch showing corky wings; scale of all $\frac{1}{2}$.

Calliandra bijuga Rose, sp. nov.

A tree with wide-spreading top and trunk 20 to 22.5 cm. in diameter; branches with light gray bark, pubescent, soon becoming glabrate; stipules ovate, acute; petiole wanting or only 12 mm. long; rachis very short; pinnae 2 pairs; leaflets 9 to 12 pairs, oblong, 12 mm. long, acute, glabrous or nearly so, somewhat coriaceous, shining above, paler beneath; peduncles axillary, single or in twos, 2.5 cm. long; flowers capitate, sessile; calyx 2 mm. long, glabrous, hardly striate; carpels 6 mm. long; stamens 3.7 cm. long, bright crimson; pod 10 cm. long, 12 mm. wide, somewhat puberulent, acute, cuneate at base, with very thick margins.

In bottom lands at Acapulco; collected by Dr. Edward Palmer November, 1894 (No. 138).

A very handsome species, the crowded pinnae peculiar. This species belongs to the section Nitidae and the subsection Paucijugae.

Calliandra peninsularis Rose, sp. nov.

Pinnae always 6 pairs, leaflets about 20 pairs; the leaflets 4 to 6 mm. long, midvein eccentric, a little pubescent, acute; peduncle 3.7 to 5 cm. long, with numerous flowers; calyx less than 2 mm. long; petals 6 mm. long; pods 6.2 to 8.7 cm. long, considerably tapering at base, with thick margins and a little puberulent.

Only a single specimen collected, growing in a garden at La Paz. It is called "tabardillo," by which name yellow fever was known to the Indians. The root of this plant is now used by the people of this region as a remedy for fevers.

Collected by Dr. Edward Palmer, January 20 to February 5, 1890 (No. 22).

This is *Calliandra* sp. of the Contributions, Vol. I, p. 69. It belongs to Benthani's series Nitidae, near *C. Californica*.

Cassia nelsoni Rose, sp. nov.

Shrub 3 to 4.5 meters high, glabrous; young branches clothed with a reddish pubescence; leaflets 4 to 7 pairs, very unequal, obovate, the larger ones 2.5 to 5 cm. long, obtuse, pubescent beneath, glabrous and shining above; rachis pubescent, bearing usually a glabrous slender gland between the lower pair of leaflets, rarely also between the

second pair; stipules setaceous, deciduous, 12 mm. long; flowers few in terminal clusters, very large, 6.2 cm. broad; pedicels and buds densely reddish-pubescent; sepals broad, somewhat unequal, 6 to 10 mm. long, nearly glabrate; petals oblong, 25 to 30 mm. long, very pubescent on the veins; fertile stamens

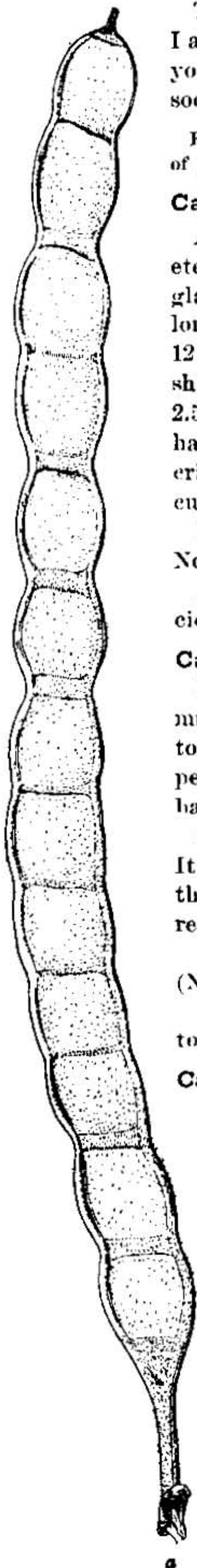


FIG. 1.—a, Legume of *Cassia nelsoni*, scale $\frac{1}{2}$; b, c, forms of leaflets, natural size.

FIGURE 1.

7, dehiscing by terminal pores, glabrous; ovary pubescent; legume (immature) becoming glabrate, 12.5 to 15 cm. long, 6 to 8 mm. wide, strongly flattened, articulated; stipe 10 mm. long.

Collected by E. W. Nelson between San Geronimo and La Venta, State of Oaxaca, July 13, 1895 (No. 2783), and also along road from Ocuilapa to Tuxtla, State of Chiapas, altitude 2,100 to 3,000 feet, August 29, 1895 (No. 3069); also by Mr. C. G. Pringle on lava beds near Cuernavaca, June 23, 1896 (No. 6340).

This species must be near the Brazilian *C. hypoleuca* Mart.

Cologania procumbens Kunth, *Mimoses*, 205, t. 57. 1819.

Collected by Mr. E. W. Nelson between Guichocovi and Lagunas, State of Oaxaca, altitude 187 to 289 meters, June 27, 1896 (No. 2750).

We have the following other specimens in the National Herbarium from Guatemala: Enrique Th. Heyde's Nos. 131 and 582, 1892; H. von Türekheim's No. 1419 (1888), from Santa Rosa, and W. C. Shannon's No. 4705 from Department of Guatemala, all in John Donnell Smith's distributions, in which the last two were sent out as *Galactia marginalis*, determ. Micheli.

Pringle's No. 4401 (1893) from Jalisco, also referred to the above, seems to belong to another species, differing from *C. procumbens* in that the pubescence of stem and petiole is erect instead of reflexed, the leaves much more elongated, and the flowers smaller. The species appears to be new and I would name and characterize it as below.

Cologania erecta Rose, sp. nov.

Stems from a woody base, erect, 7.5 to 15 cm. high, with rather close, erect pubescence; leaflets elongated, 10 to 15 cm. long, 4 to 8 mm. wide, rounded at base, somewhat tapering toward apex, but with obtuse apiculate tip; calyx 4 mm. long; pod 2.5 to 3.7 cm. long, 3 mm. wide, pubescent.

Collected by Mr. C. G. Pringle on rocky hills near Guadalajara, June 21, 1893 (No. 4401).

Combretum palmeri Rose, sp. nov.

A high-climbing woody vine; branchlets opposite or alternate, clothed with a short velvety pubescence, subtended by short straight spines; leaves opposite, oblong, obtuse, truncate or rounded at base, 5 to 6.2 cm. long, glabrous above, paler and pubescent beneath, especially along the veins, becoming glabrate; petioles short but distinct; inflorescence paniculate, more or less pubescent; spikes slender, loosely flowered; bracts setaceous shorter than the glabrous ovary; calyx turbinate, glabrous without, 5-toothed, thin; teeth shorter than the tube; petals "white" or yellow, short, oblong, 2 mm. long, obtuse, inserted at the top of calyx tube, alternate with the lobes; stamens 10, long-exserted, glabrous; 5 inserted with the petals, 5 near the middle of the calyx tube; ovary 1-celled, 5 to 8-ovuled; fruit 1-seeded, 12 mm. long, with 5 thin equal wings.

Very common in bottom lands; collected by Dr. Edward Palmer near Acapulco, February, 1895 (No. 396).

This species differs from all our American species in being thorny. Dr. Palmer states that it grows over the tallest trees about Acapulco, and that the flowers are white and as sweet-scented as apple blossoms.

Crotalaria filifolia Rose, sp. nov.

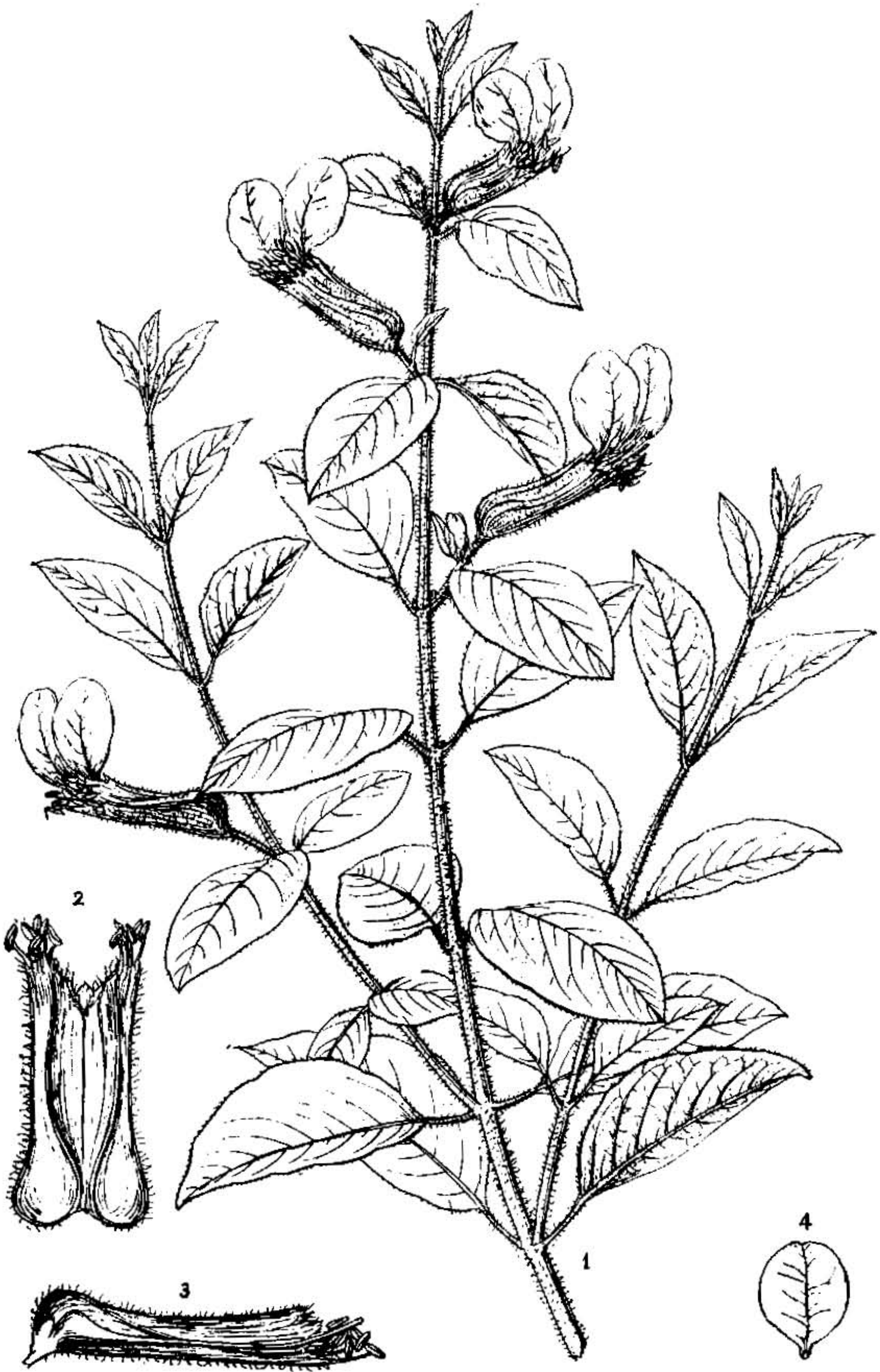
PLATE XIV.

Perhaps annual, 6 to 12 dm. high, usually several stems in a clump, somewhat branching above, green and nearly glabrous; leaves on petioles 12 to 18 mm. long; stipules small; leaflets 3, linear, elongated, 2.5 to 5 cm. long, acute, slightly pubescent; racemes slender, few-flowered (6 to 15), opposite the leaves and much longer (10 to 20 cm. long); bracts small, linear; pedicels slender, 6 to 8 mm. long, at first erect, but reflexed in fruit; sepals narrow, acute, 4 mm. long; corolla small, yellow often tinged with purple; banner orbicular; keel strongly curved, acuminate, margins slightly ciliate; wings much shorter than the keel, obtuse, ciliate on margins; imma-



MF

CROTALARIA FILIFOLIA Rose



CUPHEA NELSONI Rose.

ture pod with dense grayish pubescence, more or less purplish like the calyx, pedicels, and bracts.

Collected by Mr. C. G. Pringle on lava beds near Cuernavaca, September 15, 1896 (No. 6553).

EXPLANATION OF PLATE.—A branch showing leaves, pods, and flowers; scale $\frac{1}{3}$.

Cuphea (Diploptychia) empetrifolia Rose, sp. nov.

Stems woody; branches somewhat pubescent; leaves small, 10 to 12 mm. long, linear and narrowly oblong, glabrous and shining above; calyx purplish, 16 mm. long, strongly gibbous at base, slightly enlarged upwards, hispid without, a large yellow gland (?) near the insertion of each dorsal petal and prominent ridges within, almost surrounding the ovary and style; ridges glabrous; dorsal petals 2, purple, oblong, 8 mm. long, rounded at apex, slightly stalked; ventral petals 4, minute, 2 mm. long, oblong; stamens 11, exserted, glabrous throughout; ovary glabrous, about 20-ovuled; gland dorsal, channeled on the back, reflexed.

Collected by Mr. E. W. Nelson on the top of the Sierra Madre near Chilpancingo, altitude 2,650 to 3,000 meters, December 24, 1894 (No. 2199).

This species is near *C. hookeriana*, but has very different foliage, flowers, etc.

Cuphea (Diploptychia) nelsoni Rose, sp. nov.

PLATE XV.

A shrub 9 to 15 dm. high with many long, slender, purplish branches, strongly hirsute; leaves opposite, lanceolate to broadly ovate, slightly tapering at base, acute or shortly acuminate, scabrous above, hispid on both edges, paler and strongly veined beneath, 2.5 to 5 cm. long including the slender petiole (4 to 10 mm. long), 12 to 28 mm. wide; flowers solitary; calyx 20 to 28 mm. long, slightly gibbous at base, thickly covered with stiff purplish hairs, glabrous within, and with two narrow ridges extending to the base; petals 2, dorsal, large, 8 to 10 mm. long, deep scarlet; stamens 11, exserted, glabrous; gland dorsal, horizontal; ovules 10.

Collected by Mr. E. W. Nelson between Jacallanango and San Martin, altitude 1,705 to 2,303 meters, December 24, 1895 (No. 3600).

This species has very handsome flowers, its petals being among the largest of the genus.

EXPLANATION OF PLATE.—Fig. 1, a flowering branch; fig. 2, calyx cut open showing the two internal ridges; fig. 3, a different view of the calyx showing dorsal gland, etc.; fig. 4, petal; fig. 1, scale $\frac{1}{3}$; figs. 2, 3, and 4 somewhat larger.

Galactia acapulcensis Rose, sp. nov.

Climbing over small shrubs, somewhat pubescent; leaflets 3, oblong, 3.7 to 5 cm. long, 18 to 30 mm. wide, obtuse, apiculate, rounded at base, thinish, glabrous and shining above, with short and appressed pubescence beneath; inflorescence an interrupted slender raceme, 8 to 10 cm. long, clothed with a whitish pubescence; flowers in clusters of 3 or 4; pedicels 2 mm. long, bracts 2, ovate, small; calyx 4-lobed; sepals oblong; petals normal, "rose-colored;" legume oblong, rounded or somewhat cuneate at base, 3.7 to 5 cm. long, 6 mm. broad, clothed with stiff scattering hairs.

Collected by Dr. Edward Palmer near Acapulco, Mexico, November, 1894 (No. 135).

Near *G. glabella*, but with thinner leaves, somewhat different pods, etc.

Galphimia glandulosa Rose, sp. nov.

Shrub; leaves opposite, lanceolate, acute or obtuse, apiculate, cuneate at base, 3.7 to 6.2 cm. long, including the slender biglandular petiole, with entire somewhat revolute margins; racemes terminal, slender, 10 to 14 cm. long; calyx 3-glandular; sepals oblong, obtuse; petals yellow; anthers yellow, oblong, longer than the filaments; ovary pubescent; styles 3, filiform; fruit puberulent.

Collected by Dr. Edward Palmer in river bottoms near Acapulco, February, 1895 (No. 474).

This species differs from all the others of the genus in having a glandular calyx. These glands alternate with the sepals.

***Gouania pallida* Rose, sp. nov.**

FIGURES 2, 3.

High climber; branches glabrous and glaucous; leaves oblong, obtuse, slightly cordate, glabrous, paler beneath, margins with remote teeth, slender-petioled; stipules very large, reniform, obtuse; racemes 2.25 to 2.50 dm. long; flowers white, sweet-scented.

In river bottoms climbing over large bushes; collected by Dr. Edward Palmer, Acapulco, December, 1895 (No. 228).

This plant differs from *G. stipularis*, the only other species possessing large stipules, in the shape of the leaves, which are less heart-shaped at base and have the margin more toothed, and in its much longer racemes, as well as in the stipules themselves.

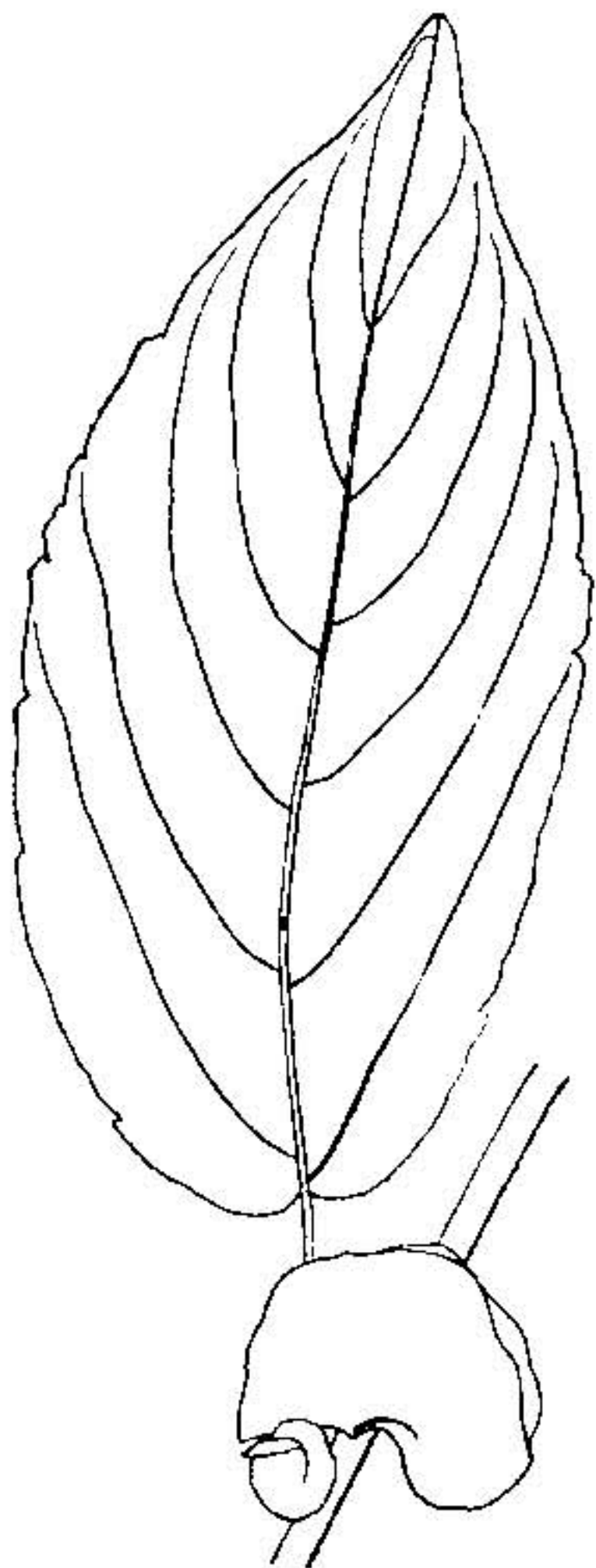


FIG. 2.—Leaf and stipules of *Gouania pallida*. scale $\frac{2}{3}$. (From a specimen in U. S. National Herbarium.)

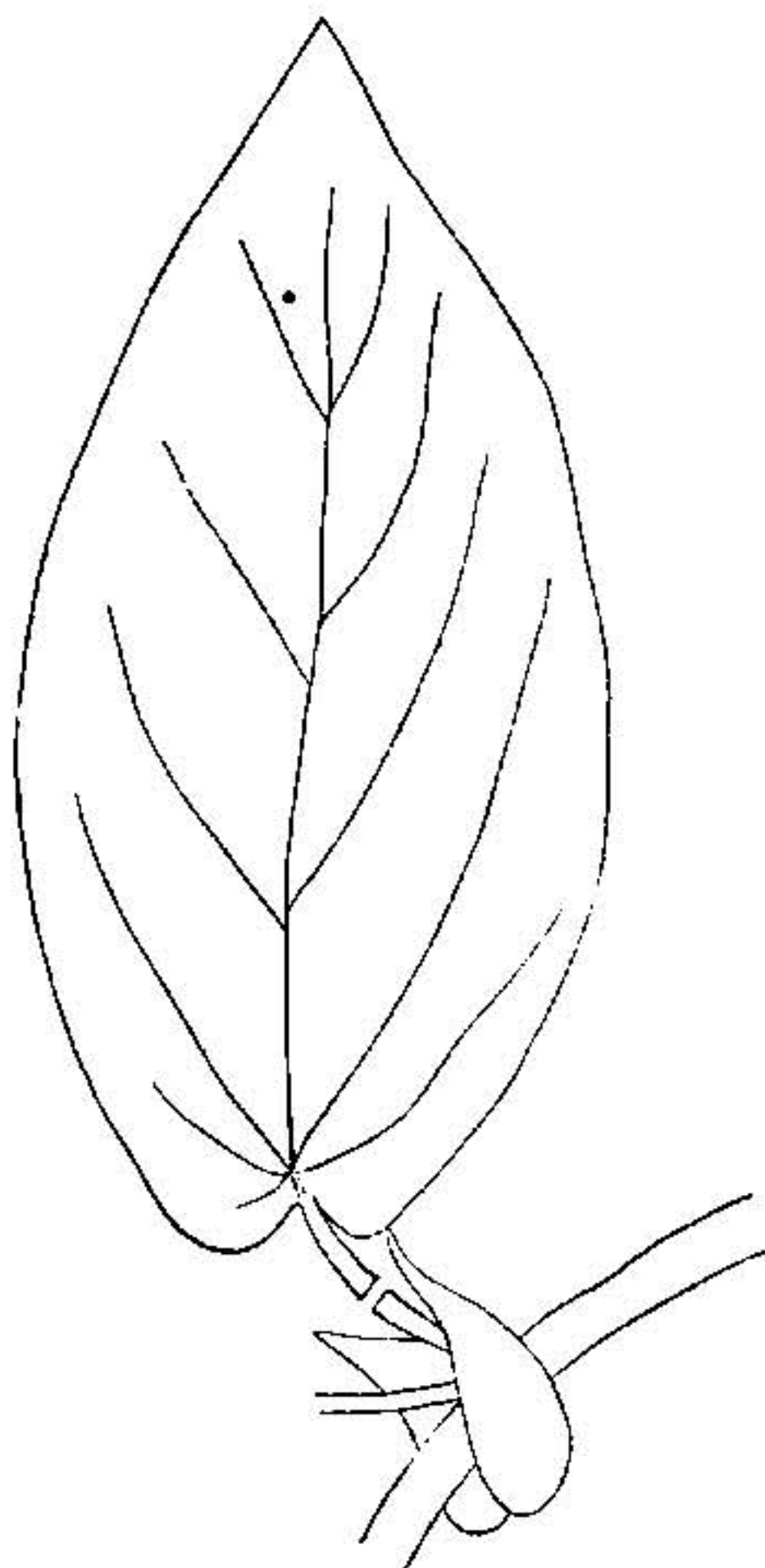
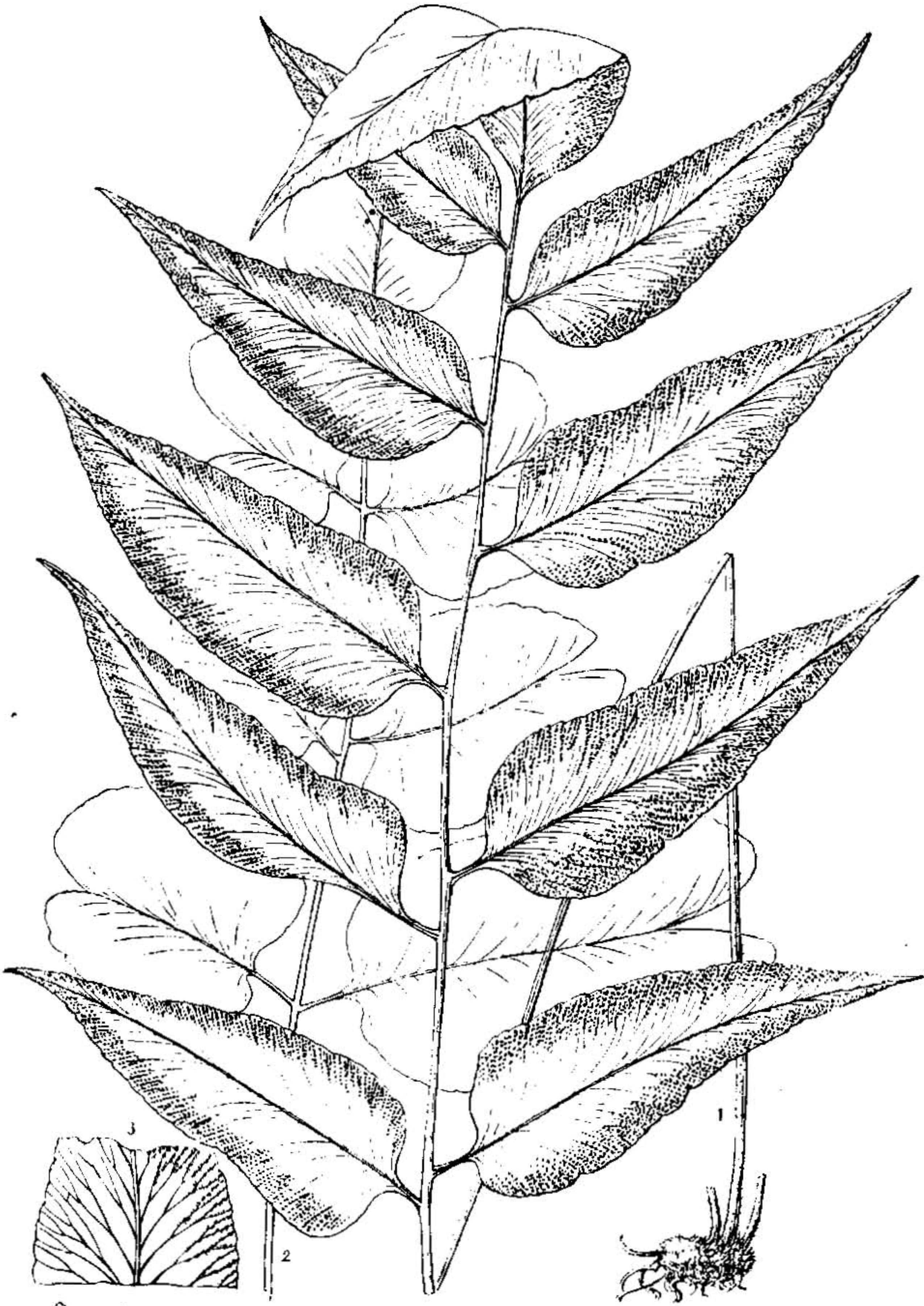


FIG. 3.—Leaf and stipules of *Gouania stipularis*. scale $\frac{2}{3}$. (From a tracing, somewhat modified, of the original specimen.)

***Gymnogramme subcordata* Eaton & Davenport, sp. nov.**

PLATE XVI.

Fronde clustered on a short stout rhizoma, the latter clothed with dark brown slightly fibrillose scales, the stipes and rachises chafly with more or less deciduous pubescence, surfaces naked, or minutely villous; stipes 15 to 22 cm. long, and, as well as the rachises, straw-colored (in young plants dark); laminae 10 to 22 cm. long, 7.5 to 17.5 cm. broad, pinnately divided into from 3 to 6 pairs of lanceolate, acuminate, subcordate stalked pinnae 5 to 8.7 cm. long, and a terminal pinna with an unequally one-sided or subcordate base; pinnae entire, or in the largest forms, deeply lobed with unequally rounded lobes, some of the basal lobes distinct, and, especially in the lowest pinnae, lance-ovate, acuminate, the lowermost 3.7 to 5 cm. long; or sometimes the pinnae imperfectly developed, then nearly reniform with the apex cleft



From del.

GYMNOGRAMME SUBCORDATA Eaton & Davenport.

into two lobes; margins entire or slightly crenately cut and toothed; texture thinly herbaceous; veins uniting below into two series of long irregular areolae, the lower series parallel with the costa, the secondary series obliquely ascending, forked once or twice above and free to the edge; sori confined to the free veinlets.

Habitat, Ymala, and Lodiego; collected by Dr. Edward Palmer (Nos. 1416 and 1572), August and October, 1891.

[Type specimen in U. S. National Herbarium.]

I regard the privilege of describing this unpublished species of Prof. Daniel Cady Eaton, to whom I have been indebted for so many and great courtesies, as a very great honor, and I trust that I have exercised due care in discharging the pleasant duty assigned to me by Dr. Rose. I have given to the specimens a very careful examination, although my confidence in Professor Eaton's judgment would have led me to accept of his determination without doing so.

In the brief note accompanying the naming of this fern Professor Eaton expressed the opinion that it was "near to *G. japonica* in venation, but more tender, and with pinnae of different shape," but it seems to me to differ from that species quite as much by its venation as by any of its other characters, and I believe that it will stand as a good species.

GEORGE E. DAVENPORT.

MEDFORD, MASS., *January 20, 1896.*

EXPLANATION OF PLATE.—Fig. 1, fertile frond; fig. 2, sterile frond; figs. 1 and 2, natural size; fig. 3, fragment of a pinna showing fruit dots, somewhat enlarged.

Heteropterys acapulcensis Rose, sp. nov.

A large climbing shrub; bark of reddish-brown color, densely spotted with small lenticels; leaves lanceolate, 7.5 to 15 cm. long, 2.5 to 5 cm. wide, acuminate, rounded at base, glabrous, dark green with reddish veins above, yellowish green beneath with more prominent veins, not glandular at base; flowers in short axillary panicles; calyx 10-glandular; petals yellow; stamens 10, all antheriferous; styles 3; samaræ single, oblong, obtuse, with grayish pubescence, without lateral crests, the wing bearing a single tooth on the back. Collected by Dr. Edward Palmer near Acapulco, December, 1894 (No. 219).

This species is very different from the other Mexican species.

Hiraea parviflora Rose, sp. nov.

FIGURE 4.

Shrub, 15 to 24 dm. high; older branches brownish, becoming glabrate; leaves small, less than 2.5 cm. long, oblong, acute, rounded at base, densely tomentose on both sides (as also the young branches), shortly petiolate; umbels 2-flowered, short-peduncled; pedicels slender, 12 mm. long, bibracteate, some distance below the middle; calyx villose, 8-glandular; petals glabrous, orbicular, small, 4 mm. long, tapering at base into a slender claw, violet; stamens 10, glabrous, free nearly to the base; samaræ 3, villose, 14 mm. in diameter, the lateral wing giving a circular outline; dorsal wing very small.

Collected by Mr. C. G. Pringle on dry hills near Tehuacan, altitude 5,500 feet, November 27, 1895 (No. 6274).

This species was distributed by Mr. Pringle in 1896 as *H. polybotrya*, which, however, is a very different plant. In this connection I might state that this latter species has been collected by Mr. Pringle the past season (1896) and distributed as No. 6500. It may be briefly described as follows:

Leaves large, sometimes 3 inches long, scantily pubescent on the lower surface, above nearly glabrous; petals denticulate, tapering at base into a slender claw, 3 lines long, violet color; samaræ 3, 20 to 25 mm. in diameter, becoming nearly glabrate, the lateral wings united giving a circular outline, dorsal wing minute.

I am indebted to Mr. W. Botting Hemsley for comparing my plant with the specimens at Kew.

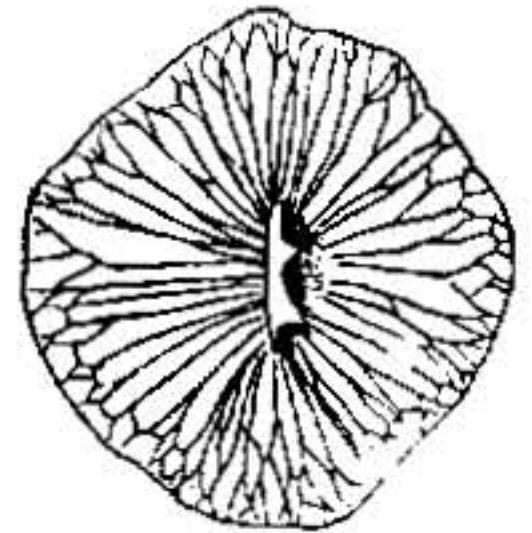


FIG. 4.—Samaræ of *Hiraea polybotrya*, scale $\frac{1}{2}$.

Indigofera cuernavacana Rose, sp. nov.

Branches herbaceous, somewhat pubescent, perhaps becoming glabrate, younger parts reddish-pubescent; leaves rather large, 10 to 12.5 cm. long including the petiole (less than 2.5 cm. long); stipules minute; leaflets oblong, 20 to 30 mm. long, obtuse and apiculate, rounded or slightly narrowed at base, petiolulate, strigose-pubescent on both sides, reddish on the young leaves; stipels like but smaller than the stipules; racemes slender, many-flowered, shorter than the leaves, on very short peduncles; calyx, corolla, and ovary reddish-pubescent; calyx spreading, cleft to the middle; legumes numerous, reflexed, nearly straight, terete, 2.5 cm. long, acute, slightly pubescent.

Collected by Mr. C. G. Pringle in a barranca near Cuernavaca, Morelos, 1896 (No. 6323).

Here perhaps belongs Bourgeau's No. 1192, from the same locality, reported in the *Biologia Centrali-Americana* by Mr. Hemsley without specific name.

Indigofera fruticosa Rose, sp. nov.

A shrub 9 to 15 dm. high; young branches clothed with a rather rough pubescence, either whitish or reddish, interspersed with brownish glands; leaves oddly pinnate; leaflets 3 to 5 pairs, opposite, very variable, mostly oblong, obtuse, strongly apiculate, slightly narrowed at base, petiolulate, sometimes obovate and retuse, 8 to 14 mm. long, whitish with dense appressed pubescence on both sides; stipules linear, somewhat pubescent; rachis with a ring of glands at the base of each pair of leaflets; stipels conspicuous; racemes 10 to 12.5 cm. long, much longer than the leaves, many-flowered; calyx reddish-pubescent, deeply cleft into linear sepals; outer lobes of corolla pubescent; ovary densely pubescent, tipped with a thick glabrous style; legumes at first reflexed but somewhat spreading when mature, 3.7 cm. long, strongly flattened, 4 mm. wide, somewhat curved, the pubescence reddish and somewhat spreading.

Collected by T. S. Brandegee in Lower California, at San Jose del Cabo, September 2, 1890 (No. 130); also at El Taste, September 12, 1893.

This is recorded as *Indigofera* sp. by Brandegee.¹ It is nearest *I. palmeri* Wats., being of similar habit and foliage but with longer racemes, sepals longer than calyx tubes, legumes longer, broader, and flatter, etc.

Indigofera salmoniflora Rose, sp. nov.

About three feet high, appressed-pubescent; buds, young leaves, calyx, and petals rusty-pubescent; leaves pinnate; leaflets 7 to 9, oblong, 20 to 36 mm. long, rounded or broadly cuneate at base, obtuse, appendiculate, glabrous above, silvery and appressed-pubescent beneath; racemes about the length of the leaves; flowers salmon or pink; banner orbicular, obtuse, sessile, 4 mm. long; anthers with purple connective, appendiculate; legume reflexed, about 2.5 cm. long.

Collected by Dr. Edward Palmer at Ymala, September 25 to October 8, 1891 (No. 1695); also a specimen (letter I) without number and locality, but probably from near the same station.

Leucaena glabrata Rose, sp. nov.

A tree 9 meters high, with large top and a trunk 3 dm. in diameter, glabrous throughout; leaves bipinnate (as in the genus), rather large; pinnae 4 to 7 pairs; rachis bearing a large cup-shaped gland between the pinnae of the uppermost (rarely the uppermost two) and of the lowermost pairs; leaflets 12 to 16 pairs, linear, 10 to 16 mm. long, oblique and broadly cuneate at base, acute, midrib eccentric, placed above the middle; heads axillary; peduncles 12 to 36 mm. long; calyx 2 mm. long, truncate or with small slightly ciliate teeth; petals 4 mm. long, linear; stamens 10; ovary glabrous; legume 15 to 20 cm. long, 18 mm. broad, glabrous and shining, tapering at base into the short stipe (12 mm. long), rounded and with a short straight apiculation.

Collected by Dr. Edward Palmer near Acapulco, Mexico, February, 1895 (No. 368).

This species is nearest *L. glauca*, but differs from it in having smaller pubescent

¹ Proc. Cal. Acad. ser. 2, 3: 126.

flowers and ovaries, as well as smaller, narrower pods with a sharper curved beak. The green pods of this species are often used as food, and are found for sale in the markets of Acapulco. The tree is sometimes cultivated, and like some of the other species of the genus is called "guage."

***Leucaena microcarpa* Rose, sp. nov.**

A small tree 6 meters high; branches glabrous; pinnae 2 or 3 pairs; leaflets 3 to 5 pairs, large, elliptical to obovate, somewhat oblique, 2 to 4 cm. long, acute, rounded at base, nearly glabrous; rachis bearing a gland at the insertion of the uppermost and lowermost pairs of pinnae; legumes small, 7.5 to 12.5 cm. long including the slender stipe (12 to 18 mm. long), 10 to 14 mm. broad, glabrous.

Collected by Mr. T. S. Brandegee at Miraflores, Lower California, October 13, 1890 (No. 186).

Mr. Brandegee says it is found among bushes between the mountains and the sea.

***Lychnis mexicana* Rose, sp. nov.**

Stems slender, 3 to 6 dm. high, erect, more or less lanate, especially above, not glandular; leaves linear, elongated; flowers upon elongated peduncles, somewhat nodding; calyx ovoid, 5 toothed, 8 mm. long; sepals densely lanate on the margins; petals 5, 8 mm. long, including the long narrow claw, oblong, not bifid, sometimes with lateral teeth and then appearing somewhat 3-lobed, without crest, purplish; stamens 10; styles 5; capsule longer than the calyx, splitting into 5 valves.

Collected by Mr. C. G. Pringle in the Sierra de Ajusco, altitude 3,215 meters, 1896 (No. 6456).

This species much resembles *L. drummondii* in habit but has different calyx, pubescence, and petals and narrower leaves.

***Mimosa caerulea* Rose, sp. nov.**

Stems erect, 6 to 9 dm. high, without prickles and nearly glabrous; leaves small; stipules linear, small; petioles 18 to 30 mm. long; pinnae 1 pair; leaflets 8 to 12 pairs, 10 to 16 cm. long, oblong, acute, glabrous on both sides and somewhat glaucous above, the margin with appressed hairs; flowers in small heads, bluish; peduncles 2.5 cm. or less long, 3 to 4 in the axils of the leaves; corolla 4-toothed; stamens 4, with rather broad and flattened filaments; legume linear, 3.7 cm. long, constricted between the seeds, long-stipitate, acuminate, glabrous except a few prickles along the margins, 3 or 4-seeded.

Collected by Mr. C. G. Pringle on foot hills above Cuernavaca, Morelos, altitude 1,968 meters, November 18, 1895 (No. 6200), and 1896 (No. 6385).

This species most resembles *M. xanti* Gray, but has glabrous legumes, etc.

***Mimosa lacerata* Rose, sp. nov.**

A shrub 15 to 24 dm. high, much branched; younger branches somewhat puberulent; prickles infrastipular, twinned, straight and stout; stipules linear, small; leaves pubescent; pinnae 8 to 12, 12 to 24 mm. long; leaflets 15 to 20, minute, linear, 2 mm. long; petiolule bearing 2 small glands; peduncles axillary, 2.5 cm. or less long; flowers capitate; stamens 10 (?); legume glabrous, flattened, stipitate, 3.7 to 8.7 cm. long; valves 6 mm. broad, not articulated; margin of legume nearly as broad as valves, thin and unequally cleft (often to the middle) into sharp spiny teeth.

Collected by Mr. E. W. Nelson from the vicinity of Piaxtla, Puebla, altitude 1,279 meters, November 24, 1894 (No. 2008); also by Mr. Pringle on limestone hills near Tehuacan and Esperanza, altitude 1,968 meters, December 23, 1895 (No. 6247); fruit also sent from Cuernavaca, 1896 (with No. 6384).

This species is very remarkable on account of the peculiar broad lacerate margin of the legume. The habit of the plant is much like that of *M. acanthocarpa* Benth. It should doubtless be referred to the section *Acanthocarpae*.

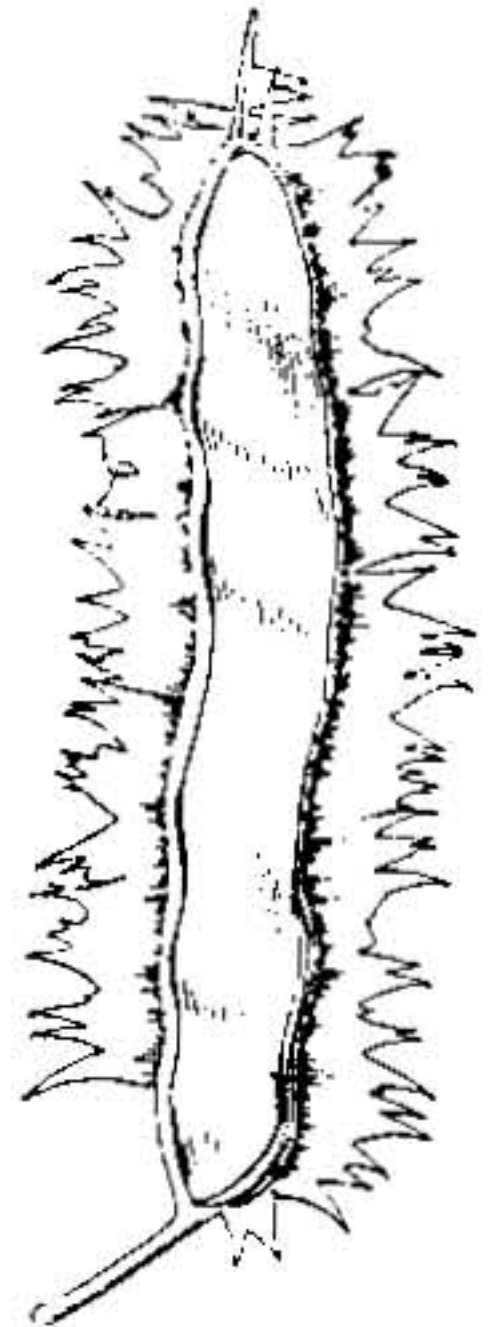


FIG. 5.—Legume of *Mimosa lacerata*, showing broad lacerate replum; scale $\frac{1}{4}$.

FIGURE 5.

Minkeliersia pauciflora Rose, sp. nov.

A vine 12 to 24 dm. high, pubescent; leaflets 3, ovate, obtuse, apiculate, 25 to 30 mm. long, 16 to 20 mm. broad; lateral leaflets more or less oblique, truncate at base, dark green above, nearly glabrate; stipules broadly ovate, membranaceous; racemes long-peduncled, 7.5 to 15 cm. long, few (4 to 6?)-flowered; bracts large, resembling the stipules, each subtending two flowers; bractlets 2, linear; calyx tube a little over a line high; sepals oblong, obtuse, 4 mm. long; corolla 12 mm. long; ovary straight, linear, densely hairy.

Collected by Mr. E. W. Nelson 18 miles southwest of the city of Oaxaca, altitude 2,146 to 2,952 meters, September 10 to 20, 1894 (No. 1362).

Minkeliersia multiflora Rose, sp. nov.

Vine, a little pubescent and slightly scabrous; leaflets 3, ovate, acute, slightly pubescent, rather strongly veined, about 5 cm. long; the lateral with mid-vein strongly eccentric and broad nearly truncate base; terminal one nearly regular with broad cuneate base; petioles 3.7 to 5 cm. long; stipules membranaceous, broadly ovate, acute, 10 mm. long; stipels small; racemes axillary, many flowered (15 or more), often 20 to 25 cm. long when mature including the slender peduncle (7.5 to 10 cm.); bracts conspicuous, of the size and shape of the stipules, each subtending 2 flowers; buds erect, flowers spreading, after anthesis reflexed; calyx tube almost 4 mm. long, much shorter than the lobes; 4 lower sepals lanceolate, acute, 6 mm. long; upper sepal broader and 8 mm. long; style hairy below the stigma; ovary linear, straight, hairy.

Collected by Mr. C. G. Pringle, in Valley of Mexico, 1896 (No. 6471); also by Bourgeau at Pedregal, Valley of Mexico, 1865-1866 (No. 576), and referred by Mr. Hemsley in the *Biologia* (Vol. I. p. 307) to "*Phaseolus* sp."

This species differs from typical *Minkeliersia* only in its numerous flowers and perhaps shorter calyx. It differs from all species of *Phaseolus* in its calyx, but in foliage more resembles that genus than do the other species of *Minkeliersia*.

Two other species of *Minkeliersia* have been described, both of which are rare in herbaria. *M. galactioides* is only known from the type collection of Galeotti, whose specimens came from Oaxaca. Unfortunately neither Pringle or Nelson came across the plant in their extensive collecting in that State. We have a single specimen of *M. biflora* obtained by Mr. Pringle in Chihuahua in 1887 (No. 1232). The only other collection of this species is the type (Schaffner's) from the Valley of Mexico.

Passiflora nelsoni Master & Rose, sp. nov.

PLATE XVII.

Usually an erect herb, 6 to 15 dm. high, glabrous; tendrils none or sometimes present; leaves simple, large, one-nerved, glabrous; blade ovate, 10 to 12 cm. long 7.5 to 10 cm. wide, acuminate, rounded or slightly cordate at base, entire, smooth; petiole 25 to 37 mm. long, glabrous with 4 sessile obtuse glands near the top; stipules linear, acute, entire, 12 mm. long; peduncle as long as petiole, solitary and axillary; bracts distinct, very large, broadly ovate, 7.5 cm. long, 5 cm. broad, shortly acuminate, 3-nerved, entire; sepals 30 mm. long, narrowly oblong, obtuse, apiculate; petals 5, about the length and shape of sepals; crown fimbriate, about two-thirds the length of petals.

Collected by Mr. E. W. Nelson near Tumbala, State of Chiapas, altitude 1,312 to 1,609 meters, October 20, 1895 (No. 3325), and in Guatemala by Capt. John Donnell Smith.

This species belongs in section *Graudadilla* and is perhaps nearest the species *guzumifolia*.

A very remarkable species on account of the enormously large bracts. Much resembling *P. laurifolia* but with larger leaves, more glands on the petiole, and with different bracts, crown, etc.

EXPLANATION OF PLATE.—Fig. 1, branch; fig. 2, leaf showing glands on petiole; fig. 3, flower. (Illustration made from Capt. John Donnell Smith's specimen in Herb. Gray.)



PASSIFLORA NELSONI Rose

***Pseudosmodingium multifolium* Rose, sp. nov.**

FIGURE 6.

Shrub, 2.4 to 6 meters high; leaves clustered at the ends of the young branches, pinnate; leaflets 12 to 15 pairs, linear-lanceolate, granulate-roughened, 20 to 28 mm. long, acuminate, crenate; flowers in panicles clustered at the top of the branches; flowers white; sepals 5, nearly orbicular, about 1 mm. long; petals 5, oblong, obtuse, 2.5 mm. long, strongly veined; stamens 5, short; styles 3, short; fruit strongly flattened and winged, nearly orbicular, slightly broader than high (6 mm. broad), glabrous, shining.

Collected by Mr. E. W. Nelson, at Oaxaca City, altitude 6,000 feet, April 6, 1895 (No. 2542); also by Rev. Lucius C. Smith at Cuesta de Ejutla Nacaltepec, State of Oaxaca, at 2,100 meters, June 1, 1895 (No. 459). Mr. Nelson states that this species was also seen along his route to Tehuantepec.

Three other species are credited to Mexico, two of which were originally described as belonging to the African genus *Smodingium*. Engler, however, has very properly separated them. The genus is new to the National Herbarium.

***Pterocarpus acapulcensis* Rose, sp. nov.**

A tree 7.5 meters high with trunk 4.5 dm. in diameter; leaves large; leaflets 9 to 13, oblong, 3.7 to 8.7 cm. long, glabrous on both sides, green and shining above, pale beneath, shortly acuminate, obtuse at apex or retuse and apiculate; flowers in slender racemes; rachis, pedicels, and calyx with dense blackish pubescence; petals yellow, glabrous; fruit broadly winged, puberulent, nearly orbicular, 5 cm. broad, 6.2 cm. long, somewhat oblique, tapering at base into a slender stipe.

Collected by Dr. Edward Palmer near Acapulco, November, 1894 (No. 83).

Dr. Palmer reports that this is a very handsome tree. It is known to the Mexicans under the name of "drago." It is perhaps nearest *P. drago* L. but differs in the dense pubescence of the inflorescence, large flowers, larger and paler leaflets, etc.

***Sedum tuberculatum* Rose, sp. nov.**

Perennial; stems branching and spreading at base, closely set with small red tubercles; leaves spatulate, 6 to 12 mm. long, obtuse, alternate, glabrous; inflorescence of 2 or 3 spreading racemes; pedicels very short or wanting; sepals 5, green, linear, 5 mm. long; petals narrow, 6 to 8 mm. long, white with a green ridge on the back; stamens 10; scales short, truncate; carpels 5, nearly free, tipped with a slender style, in fruit spreading

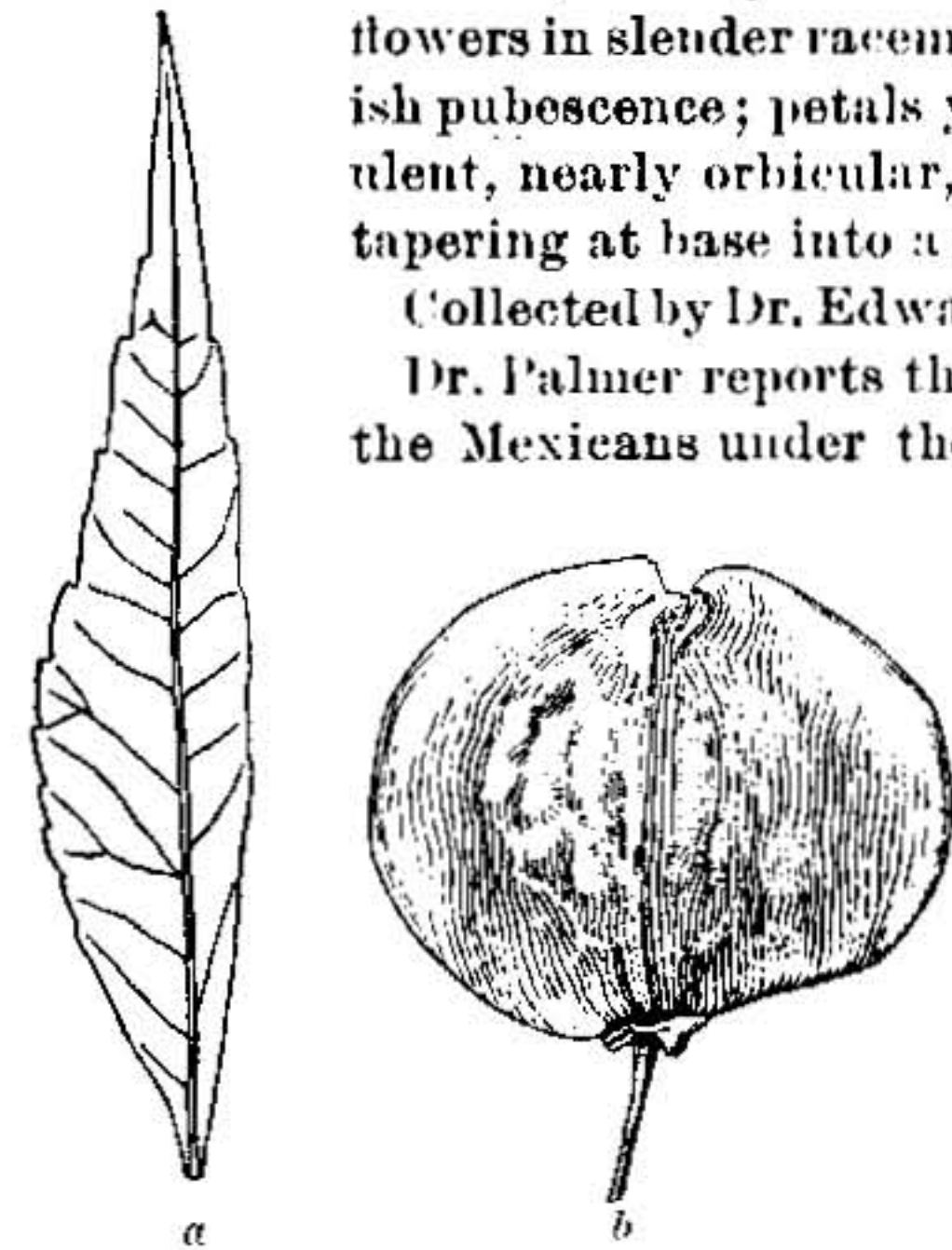


FIG. 6.—a, Leaflet of *Pseudosmodingium multiflorum*, scale $\frac{1}{2}$; b, samara, scale $1\frac{1}{2}$.

nearly at right angles to the axis; seeds oblong, tuberculate-roughened.

Collected by Mr. E. W. Nelson, 18 miles southwest of the City of Oaxaca, altitude between 2,172 and 3,117 meters, September 10 to 20, 1894 (No. 1329); also by Mr. C. G. Pringle (Nos. 6027 and 6141), Oaxaca, 1894.

***Tetrapterys nelsoni* Rose, sp. nov.**

A high-climbing vine, nearly glabrous; leaves ovate, 12 to 36 mm. long, acute, cordate at base, sessile or on short petioles, shining and nearly glabrous; fruit red; lower wings slightly longer than the upper, 10 mm. long; dorsal rib slightly winged; flowers not seen.

This species appears to be very distinct from the other Mexican species.

Collected by Mr. E. W. Nelson along the road between Nopala and Mixistepec, Oaxaca, March 5, 1895, altitude 804 meters (No. 2431).

***Thalictrum grandifolium* Rose, sp. nov.**

Stems tall, 15 to 24 dm. high, glabrous; leaves large, 3 to 6 dm. long, 4 to 5-ternate; petiole very short with the dilated stipules extending nearly its full length; leaflets

petiolulate, large, 2.5 to 5 cm. broad, nearly orbicular in outline, not peltate, cordate at base, terminal ones sometimes rounded, obtusely 3 to 7-lobed; glabrous except a few stout hairs on the veins beneath (as also on the rachis); inflorescence polygamous, 3 to 6 dm. long, nearly naked; filament slender, elongated; anthers linear, apiculate; stigma filiform 6 to 8 mm. long; style persistent, glabrous; akenes flattened, strongly nerved.

Collected by Mr. C. G. Pringle near Cuernavaca, 1896 (No. 6392).

Perhaps nearest *T. grandiflora* Watson.

Wissadula acuminata Rose, sp. nov.

Stems several feet high; leaves lanceolate, somewhat 3-lobed, lateral lobes small, acute, middle lobes long-acuminate, 12.5 to 15 cm. long including the petiole (3.7 to 5 cm. long), deeply cordate at base with an open sinus, crenate, bright green and somewhat pubescent above, pale (nearly white) and densely stellate-pubescent beneath; stipules filiform, deciduous, lower flowers solitary and axillary on elongated peduncles 2.5 cm. long, upper ones in rather dense clusters, the peduncles much shorter; calyx 12 mm. long, cleft below the middle; lobes 5, ovate, long-acuminate; petals yellow; capsule depressed, densely stellate; carpels 5, 6 mm. long, obtuse but shortly apiculate, one-celled but constricted below; lower cavity one-seeded; upper cavity with two collateral seeds; seeds smooth.

Collected by Mr. C. G. Pringle near Tula, State of Hidalgo, October 24, 1896 (No. 6610).

This is near *W. pringlei*, but differs in the shape and color of the leaves, its longer-acuminate sepals, smaller and less aristate carpels, etc.