

minus profundis, calyce pilis minutis stellatis satis dense induto haud villosa-tomentoso recedit; a *T. columnari* Hochr. foliis brevius petiolatis angustioribus haud basi cordatis minus pilosis, calyce minute stellato-piloso nec pilis paucis simplicibus atque stellatis intermixtis leviter pubescente facile distinguenda; a *T. longicuspside* Turcz. habitu graciliore, foliis minoribus brevius petiolatis, ramulis abbreviatis ex axillis foliorum exortis, floribus minoribus, calyce satis dense minute stellato-piloso appendicibus brevioribus, androgynophoro longiore recedit.

Frutex 1-3 m. altus; rami teretes, graciles, 2-3 mm. diametro 4 dm. infra apicem, ramosi, ramulos abbreviatis foliatis axillares gerentes, novelli pilis minutis stellatis satis dense induti. *Folia* lanceolata usque ovata, plerumque 4-9 cm. longa, 1.5-3 cm. lata, apice longiuscule acuminata, basi obtusa vel rotundata, e basi 3-nervia, utrinque plus minusve pilis satis rigidis hirsutula et in nervis venisque praesertim pilis minutis stellatis leviter pilosa, serrata, serraturis acutis vel obtusis et saepe glanduliferis; petioli circiter 5 mm. (usque ad 1 cm.) longi. *Inflorescentiae* versus apices ramorum confertae, pluriflorae, nonnunquam bracteas foliaceas 1-2 gerentes, cymulis ultimis trifloris fasciculatis vel pedunculatis; pedunculi nulli vel usque ad 3.5 cm. longi; pedicelli circiter 6 mm. longi, sicut pedunculi minute stellato-pilosi; bracteae parvae, lineares, mox deciduae. *Alabastra* 1.5-2 cm. longa, subcylindrica, inferne leviter ampliata, minute stellato-pilosula, appendicibus subulatis 1 mm. longis coronata. *Sepala* 5, intus glabra, linearia, 1 mm. lata, basin versus levissime latiora et ibidem breviter ciliata. *Petala* 5, parte inferiore 2.5 mm. longa lineari breviter villosa, parte superiore lineari-oblongata acuta 7.5 mm. longa glabra. *Androgynophorum* 1.5 mm. longum, glandulis 5 distinctis oblongo-ellipticis paullo brevioribus praeditum, apice annulo angusto glabro coronatum. *Stamina* 20, filamentis 1.5 cm. longis filiformibus basin versus levissime ampliatis et ibidem breviter villosis, antheris oblongis 1 mm. longis. *Ovarium* globosum, 1 mm. diametro, echinulatum, stylo filiformi 1.2 cm. longo apice brevissime bifido. *Fructus* echinati, cum aculeis usque ad 1 cm. diametro, plus minusve puberuli; aculei numerosi, rigidi, plus minusve arcuato-recurvi, 2-3 mm. longi, spinula unica recta ascendente vel plus minusve recurva terminati.

STATE OF MEXICO. District of Temascaltepec: Rincón del Carmen, 1340 m., Oct. 1932, *Hinton* 1935, "By the water, 1 m. high"; Nanchititla, Jan. 1933, *Hinton* 3082, "Oak woods, 3 m. high"; *ibid.*, Oct. 1933, *Hinton* 4962, "Oak woods, 1.5 m. high"; Pungarancha, 950 m., Nov. 1935, *Hinton* 5253, "Oak woods"; *ibid.*, Oct. 1934, *Hinton* 6746 (type), "1 m. high, see 5253 from same place"; Ypericones, Nov. 1934, *Hinton* 6996, "Oak woods, 1.5 m. high."

MALPIGHIACEAE (A. A. Bullock).

Byrsonima crassifolia (Linn.) H. B. K. Nov. Gen. et Sp. 5, 149 (1822); Standl. in Contrib. U.S. Nat. Herb. 23, 564 (1923);

Niedenzu in Engl. Pflanzenr. Malpigh. 718 (1928) ; Morton in Publ. Carnegie Inst. Washington, No. 146, 140 (1936).

STATE OF MEXICO. District of Temascaltepec : El Picacho (mountain near Tejupilco), 1600 m., June 1932, *Hinton* 717, "Shrub 4 m. high ; the fruit is common in the markets" ; San Lucas del Maiz, Feb. 1933, *Hinton* 3324 ; Tejupilco, March 1932, *Hinton* 445 ; *ibid.*, 1340 m., July 1933, *Hinton* 4382.

STATE OF GUERRERO. District of Coyuca : Pungarabato, on a hill, April 1934, *Hinton* 5950, "A shrub 2 m. high."

Vernacular names : *Nanche*, *Nanche de Zorro*.

Although Niedenzu described numerous forms of this very variable and widely distributed plant he evidently had not the opportunity of examining all the material at Standley's disposal, for he maintained, in addition to *B. crassifolia*, all the species which Standley had rightly reduced as being founded on characters which are not correlated and which are normally variable ; this view was also maintained by Morton. The reduced species were *B. cotonifolia*, H. B. K., *B. oaxacana* Juss. and *B. Karwinskiana* Juss.

***Malpighia puniceifolia* L.** Sp. Pl. ed. 2, 609 (1762) ; Small in N. Amer. Fl. 25, 156 (1910) ; Standl. in Contrib. U.S. Nat. Herb. 23, 566 (1923) ; Niedenzu in Engl. Pflanzenr. Malpigh. 622 (1928).

STATE OF GUERRERO. District of Coyuca : Coyuca—Querendas, in a barranca, June 1934, *Hinton* 6132.

Niedenzu records this plant from Oaxaca and Yucatan, in addition to its range in the West Indies and northern South America. Its distribution in Mexico evidently requires further investigation.

***Malpighia Hintoni* Bullock**, sp. nov. ; affinis *M. cordatae* Small, sed foliis multo majoribus supra fere glabris subtus adpresso-pilosis vix tomentosis, floribus minoribus ut videtur numerosioribus, tubo staminali 1 mm. (nec 4 mm.) longo facile distinguenda.

Frutex "2.5 m. altus" (*Hinton* 4489, 4736), vel "*arbor* 5 m. alta" (*Hinton* 8051), vel "*arbor magna*" (*Hinton* 1192) ; ramuli novelli villosi-tomentosi, demum cortice fibroso griseo-brunneo induti. *Folia* opposita, rotundato-elliptica vel latissime elliptica, nonnunquam plus minusve late obovata, usque ad 10 cm. longa et 8 cm. lata (*Hinton* 1192), vel circiter 7 cm. longa et 4.5 cm. lata (*Hinton* 4489), apice rotundata vel acutiuscula, nonnunquam breviter late cuspidata, basi late rotundata, vix truncata vel subcordata, supra glabra vel in costa et nervis tantum pubescentia, subtus persistenter pubescentia vel villosa vel lanata, vix tomentosa, costa et nervis lateralibus (utrinsecus circiter 6) arcuato-adscendentibus prominentibus ; petioli tomentosi, circiter 5 mm. longi, eglandulosi. *Racemi* in axillis foliorum solitarii vel bini, floribus apicem versus in axillis bractearum dense confertis ; pedunculi tomentosi, sub anthesin 1–1.3 cm. longi, nonnunquam longiores, medio bracteis 2 foliaceis oppositis instructi ; pedicelli ex axillis bractearum orti, oppositi vel 3–4-natim verticillati, tomentosi, circiter 1 cm. longi, infra medium vel basin versus bracteolis

2 oppositis vel suboppositis instructi; bractee atque bracteolae triangulares vel subulatae, acutae, usque ad 3 mm. longae, tomentosae. *Sepala* ovata, 3-4 mm. longa, 2 mm. lata, apice obtusiuscula, basi glandulis 2 carnosis glabris lateralibus dimidio brevioribus praedita, extra ceterum villosa-pilosa, intus minute papillosa, in insertionem valde incurva, superne sub anthesin inter petala incurva. *Petala* unguiculata, patentia; unguis carnosus, 3 mm. longus; lamina rotundato-obovata, 6-7 mm. longa, 5-6 mm. lata, marginibus fimbriata, extra intusque glabra. *Stamina* 10; filamenta appanata subulata, basi in tubum 1 mm. longum coalita, partibus liberis circiter 0.75 mm. longis; antherae oblongae, 1.5 mm. longae, 0.75 mm. latae, introrsum dehiscentes. *Ovarium* ovoideum vel ovoideo-globosum, 2 mm. longum, 2 mm. diametro, glabrum, apice stylis 3 carnosis 2 mm. longis coronatum, stylo uno quam ceteris tenuiore. *Fructus* immaturi globosi, 6 mm. diametro.

STATE OF MEXICO. District of Temascaltepec: Vigas, 1080 m., July 1932, *Hinton* 1192 (type); Luvianos, July 1933, *Hinton* 4489; Limones, 910 m., Sept. 1933 (young fr.), No. 4736; *ibid.*, July 1935 (fl.), No. 8051.

This species does not fit into any part of Standley's key in his "Trees and Shrubs of Mexico" (p. 565) and is easily distinguished from all the species which he lists by its large broadly ovate or rotundate leaves, which are almost glabrous above but densely adpressed-hairy below. The loan of the type of *M. cordata* Small, from the United States National Herbarium, is gratefully acknowledged.

Thryallis Palmeri Rose in Contrib. U.S. Nat. Herb. 12, 281 (1909); Small in N. Amer. Fl. 25, 151 (1910); Standl. in Contrib. U.S. Nat. Herb. 23, 569 (1923). *Galphimia glandulosa* Rose in Contrib. U.S. Nat. Herb. 5, 137 (1897), non Cav. (1797). *G. paniculata* Bartl. var. *glandulosa* (Rose) Niedenzu in Engl. Pflanzenr. Malpigh. 599 (1928).

STATE OF GUERRERO. Near Acapulco, Oct. 1894-March 1895 (fl.), *Palmer* 474 (type in U.S. Nat. Herb.).

STATE OF MEXICO. District of Temascaltepec: Pineda, on a hill, Jan. 1933, *Hinton* 3195; Nanchititla, on a hill, Feb. 1933, *Hinton* 3411; *ibid.*, in an oak forest, Feb. 1935, *Hinton* 7354; Platanal, in oak woods, March 1934, *Hinton* 5749; Palmar, on a hill, March 1935, *Hinton* 7528.

According to the literature cited above, this plant was previously known only from the type collection, so that Mr. Hinton's specimens, which match the type, constitute an important new record of the species. It is a suffruticose plant up to a metre in height, the annual (?) stems arising from a thick, woody rootstock. The type specimen in the United States National Herbarium, was kindly sent on loan to Kew for comparison with Mr. Hinton's specimens.

Heteropteris* portillana S. Wats. in Proc. Amer. Acad. 22, 402 (1887); Niedenzu in Engl. Pflanzenr. Malpigh. 312 (1928). *Banisteria*

* The generic name *Heteropteris* A. Juss. is conserved.

portillana (S. Wats.) C. B. Robinson ex Small in N. Amer. Fl. **25**, 135 (1910); Standl. in Contrib. U.S. Nat. Herb. **23**, 577 (1923).

STATE OF MEXICO. District of Temascaltepec: Salitre, 1300 m., Dec. 1932, *Hinton* 3003.

This species was known previously only from the *locus classicus*, near Guadalajara in the State of Jalisco, where both Palmer and Pringle collected it. Niedenzu in a note says "Haec species antecedenti [*Heteropterys Gayana* Juss.] maxime affinis est, forsan subspecies cum ipsa conjungenda." The two species are, however, readily separable, by the various key characters given by Niedenzu and Standley respectively.

Heteropteris cotinifolia Juss. in Ann. Sc. Nat. Sér. II. **13**, 274 (1840); Niedenzu in Engl. Pflanzenr. Malpigh. 311 (1928). *Banisteria cotinifolia* (Juss.) C. B. Robinson ex Small in N. Amer. Fl. **25**, 134 (1910); Standl. in Contrib. U.S. Nat. Herb. **23**, 577 (1923). *Heteropteris pallida* Brandeg. in Univ. Calif. Publ. Bot. **6**, 182 (1915). *Banisteria pallida* (Brandeg.) Standl. *l.c.*

STATE OF OAXACA. Totolapa, Aug. (fl.), *Andrieux* 492 (type number, in Kew Herb.).

STATE OF GUERRERO. Iguala, Aug. 1905 (fl.), *Rose, Painter and Rose* 9426. District of Coyuca: Balderrama, Aug. 1934 (fl.), *Hinton* 6496; *ibid.* (from the same vine), Oct. 1934 (fr.), *Hinton* 6867.

A portion of Mr. Hinton's number 6867 was submitted to Dr. C. V. Morton, of the United States National Herbarium, for examination and comparison with the material at his disposal, and he replied, "*Hinton* 6867 and *Rose, Painter and Rose* 9426 are close matches for the type of *Banisteria pallida* (Brandeg.) Standl., and are undoubtedly referable to that species. I am unable to say whether or not Niedenzu is correct in considering *B. pallida* the same as *B. cotinifolia*, but it seems likely that that is true."

The writer has now carefully compared *Hinton* 6496 and 6867 with the type material of *H. cotinifolia* at Kew and concludes that they are conspecific.

Heteropteris Gayana Juss. in Ann. Sc. Nat. Ser. II. **13**, 274 (1840); Niedenzu in Engl. Pflanzenr. Malpigh. 312 (1928) quoad formam typicam Niedenzu, *l.c.* tantum. *Banisteria Gayana* (Juss.) C. B. Robinson ex Small in N. Amer. Fl. **25**, 135 (1910), quoad nomen tantum; non Standl. in Contrib. U.S. Nat. Herb. **23**, 577 (1923).

STATE OF OAXACA. Guichiloma, between Tehuantepec and Guazacualcos River, Sept. (fr.), *Andrieux* 494 (type number in Kew Herb.).

Some doubt having arisen as to the validity of the treatment of this species by Small, Standley, and Niedenzu, a few samaras of *Andrieux* 494 were sent to Dr. Morton for comparison with material called "*B. Gayana*" in the United States National Herbarium. He replied, "The samaras of *Andrieux* 494, the type of *Banisteria*

Gayana, are not matched in the U.S. National Herbarium. You are quite right that the species treated by Standley and also by Small as *B. Gayana* is different and is *H. [Heteropteris] Gayana* f. *acapulcensis* Ndzu. pro parte. It is, I believe, more than a mere form and deserves specific rank. . . ."

The present writer concludes that *H. Gayana*, *sensu stricto*, has never been found since the type collection was made by Andrieux over a hundred years ago.

Heteropteris Palmeri Rose in Contrib. U.S. Nat. Herb. 1, 311 (1895). *Banisteria Palmeri* (Rose) C. B. Robinson ex Small in N. Amer. Fl. 25, 135 (1910); Standl. in Contrib. U.S. Nat. Herb. 23, 577 (1923). *B. Gayana* Small in N. Amer. Fl. 25, 135 (1910); Standl. in Contrib. U.S. Nat. Herb. 23, 577 (1923); non *Heteropteris Gayana* Juss. (1840). *H. Gayana* forma *acapulcensis* Niedenzu in Engl. Pflanzenr. Malpigh. 312 (1928), saltem partim.

STATE OF SONORA. Alamos, Sept. 1890 (fl. fr.), *Palmer* 655, 656 (co-type numbers in Kew Herb.).

STATE OF SINALOA. S. Ignacio, 450 m., May 1921 (fl.) *Ortega* 536; *ibid.*, 95 m., May 1921 (fr.), *Ortega* 641.

STATE OF COLIMA. Manzanillo, Dec. 1890 (fr.), *Palmer* 1025.

STATE OF GUERRERO. Acapulco, Oct. 1894–March 1895 (fr.), *Palmer* 79.

The above treatment of *Heteropteris Palmeri* is based on the specimens at Kew, and on Dr. Morton's memorandum cited (in part) under *H. Gayana* above. It will be observed that its range includes almost the whole of the west coast of Mexico.

Mascagnia polybotrya (Juss.) Niedenzu in Arb. Bot. Inst. Lyc. Braunsberg, 3, 5 (1908), et in Engl. Pflanzenr. Malpigh. 94 (1928); Small in N. Amer. Fl. 25, 120 (1910); Standl. in Contrib. U.S. Nat. Herb. 23, 574 (1923). *M. Gouania* Small, l.c.; Standl. l.c. *Hiraea polybotrya* Juss. in Ann. Sc. Nat. Sér. 2, Bot. 13, 260 (1840).

STATE OF MEXICO. District of Temascaltepec: Chorrera, 1230 m., Nov. 1932, *Hinton* 2631; Salitre, 1350 m., Nov. 1932, *Hinton* 2595; Limones, Nov. 1934, *Hinton* 6990.

Mr. Hinton's notes indicate that this is either a liane sprawling over other trees, or a shrub with pendulous branches.

There seems to be no adequate means of separating Small's *M. Gouania* from Jussieu's plant, the diagnostic characters given by both Small and Standley being found to be too variable. Standley was not thoroughly satisfied as to the validity of Small's species, for under *M. polybotrya* he says, "No material seen by the writer; perhaps the same as *M. Gouania*."

Mascagnia dipholiphylla (Small) Bullock, comb. nov. *Hiraea dipholiphylla* Small in N. Amer. Fl. 25, 122 (1910); Standl. in Contrib. U.S. Nat. Herb. 23, 572 (1923); Niedenzu in Engl.

Pflanzenr. Malpigh. 144 (1928), sub spp. incertae. *Mascagnia polycarpa* T. S. Brandeg. in Univ. Calif. Publ. Bot. **10**, 409 (1924).

STATE OF VERZ CRUZ. Remudadero, April 1923 (fr.), *Purpus* 9019 (type of *M. polycarpa* in Univ. Calif. Herb.).

STATE OF MORELOS. Near Cuernavaca, 1500 m., Mar. 1899, *Pringle* 7730 (type, in Gray Herb.).

STATE OF MEXICO. Pungaranchu, by the river, Jan. 1933, *Hinton* 3147; Tenayac, 1450 m., Feb. 1933, *Hinton* 3314; Guayabal, by the river, Feb. 1933, *Hinton* 3370; *ibid.*, from the same vine, March 1935, *Hinton* 7523; Limones, Jan. 1934, *Hinton* 5569; Chorrera, 1230 m., on a dry hill, March 1934, *Hinton* 5744; *ibid.*, in a barranca, March 1935, *Hinton* 7513; Ixtapan, in a barranca, March 1935, *Hinton* 7498. Without locality, *Parkinson* s. n. (in Herb. Hook. and Herb. Benth.).

This is reported also from Oaxaca by Standley, but I have seen no specimens from that State. The type specimen, kindly sent on loan to Kew by the authorities at the Gray Herbarium, is matched very exactly by Mr. Hinton's numbers 7498 and 7513, both of which have flowers and fruit. Thanks are also due for the loan of the type of *M. polycarpa* from the herbarium of the University of California.

Nieden zu apparently did not see this plant, for he included it under "uncertain species," with the note, "Num revera *Hiraea*?"

In support of the above transference, it may be noted that the stipules are borne at the base of the petiole, the only character used by Small and Standley in their keys to the genera, though not one regarded as crucial by Nieden zu; in addition, the inflorescence and leaves are those of a *Mascagnia* and the plant is indeed closely allied to *M. macroptera* (Sessé et Moc.) Nieden zu. Morton (in Publ. Carnegie Inst. Washington, no. 461, 127: 1936) separates *Mascagnia* and *Hiraea* by the following key characters:—

"Stipules borne on the stems; flower stalks articulate and
bibracteolate above the base.....*Mascagnia*

Stipules borne on the petioles; flower stalks not articulate,
bibracteolate at the base.....*Hiraea*."

The present plant shows that these characters are not mutually exclusive: it has "stipules borne on the stem" as for *Mascagnia*, and "flower stalks not articulate, bibracteolate at the base," as for *Hiraea*.

Gaudichaudia cynanchoides H. B. K. Nov. Gen. et Sp. 5, 158, t. 445 (1822); Small in N. Amer. Fl. **25**, 129 (1910); Standl. in Contrib. U.S. Nat. Herb. **23**, 571 (1923); Nieden zu in Engl. Pflanzenr. Malpigh. 239 (1928). *H. mucronata* (Sessé et Moc. ex DC.) Juss. in Ann. Sc. Nat. Sér. 2, Bot. **13**, 253 (1840); Small *l.c.* 130 (1910); Standl. *l.c.*

STATE OF MEXICO. District of Temascaltepec: Rincón, 1960 m., Sept. 1932, *Hinton* 1704; Cumbre, 2485 m., Sept. 1932, *Hinton* 1695; Tejupilco, 1340 m., Oct. 1932, *Hinton* 2289.

There seems to be no reason for maintaining both *G. cynanchoides* and *G. mucronata*, and inspection of the plate and description of *G. cynanchoides* shows that Small's key diagnosis "Leaf-blades sessile or nearly so, narrowed to the base" is an error which Standley repeated. Morton (in Publ. Carnegie Inst. Washington, No. 461, 129: 1936) points out that Standley's identification of *G. mucronata* in Yucatan is also faulty, so that the specimens he examined had probably become mixed and written up in error. Niedenzu's treatment, as far as the species go, is followed here, but the named varieties and forms which he enumerates are not, in the present writer's opinion, distinct taxonomic entities.

Gaudichaudia mollis Benth. Pl. Hartw. 6 (1839); Niedenzu in Engl. Pflanzenr. Malpigh. 244 (1928).

STATE OF MEXICO. District of Temascaltepec: Ixtapan, 1000 m., July 1932, *Hinton* 1170; *ibid.*, Sept. 1932, *Hinton* 1634.

Both Small and Standley list this as a doubtful species, whilst Niedenzu divides it into two varieties, of which I have seen only var. *Hartwegiana* Niedenzu. The description of this (the type) does not seem to be sufficiently distinct from that of var. *Pringleana* Niedenzu to warrant separate treatment.

LEGUMINOSAE (N. Y. Sandwith).

Nissolia leiogyne Sandwith, sp. nov.; *N. Schottii* (Torr.) A. Gr. affinis, forma foliolorum, dentibus calycinis multo brevioribus, gynoeceo fructuque maturo glaberrimis differt; *N. Pringlei* Rose atque *N. diversifolia* Rose forma foliolorum, indumento calycis gynoecei fructus differunt.

Suffrutex scandens esetosus, ramulis gracilibus omnino glabris vel novellis inconspicue pubescentibus. *Stipulae* anguste lanceolato-subulatae, 2.5–4 mm. longae. *Folia* adulta glaberrima; petiolus 0.6–2.4 cm. longus; internodia rhacheos 0.4–1.5 cm. longa; petioluli vulgo 1–2 mm. longi; foliola 5, late obovata, rarius obovato-elliptica, saepius obcordata apice late rotundata retusa vel truncata, rarius rotundata tantum, semper ad 1 mm. mucronata, basin versus saepius attenuata sed basi ipsa rotundata vel saltem obtusa, magnitudine valde variabili, 0.3–2.3 cm. longa, 0.3–1.9 cm. lata, adulta chartacea, glaberrima, supra punctata, nervis lateralibus utroque costae latere 5–6, rete venularum in foliolis majoribus subtus manifesto intricato plano fere impresso. *Flores* axillares in quaque axilla usque 6, siccitate ad 8 mm. longi; bracteae basi pedicellorum subulatae, 1–2 mm. longae, pubescentes; pedicelli gracillimi, ad 7 mm. longi, glabri. *Calyx* tubo campanulato 2.5 mm. longo atque lato glabro; dentes subulati, 0.75–1.25 mm. longi. *Petala* lutea; vexillum cum ungue 8–9 mm. longum, ungue 1.5–1.8 mm. longo superne obscure ciliato, lamina applanata ovata 6–7.5 mm. longa 5–6 mm. lata basi rotundata haud auriculata ciliata extra praesertim inferne prope medium puberula vel glabrescente; alae ungue 3 mm.