

Forma **cryptodonta** (Robinson), stat. nov. Folia (plerumque eis formarum praecedentium paullo minora) ovata obscure cuspidato-denticulata neque lobata neque angulata.—*M. cryptodonta* Robinson, Contrib. Gray Herb. lxxiii. 22 (1924).—PERU: southern Huanaco, *Macbride*, nos. 4552 (Gr.) and 4683 (Gr.); also northern Junín, *Killip & Smith*, nos. 23,835 (Gr.) and 25,313 (Gr.). BRAZIL: Rio Acre Territory, Seringal S. Francisco, *Ule*, no. 9885 (K., phot. Gr.); State of Para, at Belem, *Dahlgren & Sella*, nos. 230 (Gr.) and 287 (Gr.). VENEZUELA: Orinoco Delta, Cano del Guinipa, *Bond, Gillin & Brown*, no. 92 (Gr.). TRINIDAD: *Eggers*, no. 1457 (Copenh.), *Broadway*, nos. 5102 (N. Y.) and 7000 (Gr.).

III. MIKANIA SCANDENS AND ITS NEAR RELATIVES.

BY B. L. ROBINSON.

THE plants referred by such authors as Schultz-Bipontinus, Baker, Klatt, Oliver, Hemsley, Hieronymus and Urban to *Mikania scandens* (L.) Willd. form a loose aggregate of small-headed, slender, cordate-, sagittate-, or hastate-leaved perennial twiners of North American and pan-tropical distribution.

Although long treated as a single polymorphous species, this complex, taken as a whole, does not have an ordinary or, from the phyto-geographic point of view, convincing range. On the other hand, if its elements are examined separately they drop into fairly circumscribed natural areas. Indeed, these individual ranges are in several cases mutually exclusive.

When treating the *Mikanias* of northern and western South America in 1922, the writer (Contrib. Gray Herb. lxiv. 24) indicated a provisional separation of the tropical American *M. micrantha* HBK. from the *M. scandens* aggregate, but through lack of material was obliged to suspend judgment regarding several Brazilian expressions of the group, as well as its still more problematic Old World phases. This need of adequate material is still much felt in the case of the African representatives of the group and about them little can even yet be decided. However, by the aid of the now pretty copious material (running to several hundred specimens) already examined, it seems possible to advance at least a working theory concerning the American, Asiatic and Malaysian segregates of the complex.

Though conclusions on the as yet all too imperfectly understood African members of the group must be deferred, the other elements in the aggregate may be tentatively summarized thus.—

M. scandens (L.) Willd. (sensu strictiori). Heads about 7 mm. long, mostly crowded in round-topped fastigiately branched corymbs; bractlets subfiliform to narrowly lanceolate, usually about two-thirds the length of the involucre; phyllaries lanceolate-linear, attenuate, whitish and often purplish-tinged; corollas pink, pale purplish or rarely white; pappus-bristles 30–35, white or sometimes purple-tinged.—Sp. Pl. iii. 1743 (1804). *Eupatorium scandens* L. Sp. Pl. ii. 836 (1753).—Wet thickets, southern Maine to Florida, chiefly near the coast, and (in more doubtful forms tending to white corollas and greater pubescence) through the Gulf States to Texas; also locally in the interior especially in New York, Southern Michigan, northern Indiana, eastern Missouri and Oklahoma.

This plant is in general nearly but never quite glabrous, but especially to the southward it passes imperceptibly into more hairy phases (*M. pubescens* Muhl., *M. menispermea* DC., *M. scandens* var. *pubescens* Torr. & Gray), which, however, appear to have no more than formal value.

The lilaceous coloration, nearly always perceptible, occurs most often in the corollas, but sometimes becomes evident in the pappus and phyllaries even when the corollas are by exception white.

M. micrantha HBK. Heads at maturity somewhat openly corymbose-paniculate, about 6 mm. long; bractlets narrowly lanceolate to elliptic, about half to two-thirds the length of the involucre; phyllaries linear, acute, greenish-stramineous; corollas white, the teeth small, spreading or recurved at tip, about 0.5 mm. long; pappus-bristles about 33–36, white or (especially in age) somewhat rufescent.—Nov. Gen. et Spec. iv. 134 (1820). *M. orinocensis* HBK. l. c. *M. subcrenata* H. & A. Comp. Bot. Mag. i. 243 (1836). *M. umbellifera* Gardn. in Hook. Lond. Jour. Bot. iv. 119 (1845) and *M. scandens* var. *umbellifera* Bak. in Mart. Fl. Bras. vi. pt. 2, 249 (1876) as well as *M. glechomaefolia* Sch.-Bip. ex Bak. l. c., being the more typical form with oval rather abruptly pointed and mostly crenate-dentate leaves. *M. subcymosa* Gardn. in Hook. Lond. Jour. Bot. vi. 448 (1847) and *M. scandens* var. *subcymosa* Bak. l. c., a seemingly trivial variant with more triangular-ovate, gradually pointed and subentire leaves.—Generally distributed from Mexico and the West Indies to Brazil, Argentina and Bolivia. A few doubtful specimens from tropical Florida may also belong here.

Though not capable of sharp definition on the side of *M. scandens*, this plant is of widely different and far more tropical range. Furthermore, it shows several perceptible distinctions. Thus its heads tend to be smaller. Its inflorescence is habitually looser and more panicu-

late. The phyllaries are acute rather than attenuate as in *M. scandens*. It seems never to show the purplish coloration nearly always present in *M. scandens*. The throat of the corolla is usually more turbinate-campanulate and the teeth tend to be shorter and more disposed to terminate in a spreading or recurved tip. While the leaves vary greatly in contour both in *M. scandens* and in *M. micrantha*, they tend on the whole to be more sharply angled and triangular-sagittate or -hastate in the former and more oval, cordate, and merely crenate in the latter. These foliar distinctions, though not holding good for diagnostic purposes, become evident when the species are compared in extended series.

Of this species, *M. ? alata* DC. Prod. v. 197 (1836) is a probable, though by no means certain, synonym. It was hesitatingly based by DeCandolle—apparently from description alone—upon *Kleinia alata* G. F. W. Mey. Prim. Fl. Esseq. 249 (1818). No type or authentic material of Meyer's species is known either at Goettingen, where Meyer worked, or elsewhere so far as ascertained. While most of the characters mentioned in the original description apply to *M. micrantha*, some do not. For instance, the statements that the leaves are very entire, that the bractlets are deciduous, and that the "4-5" phyllaries are equal in length do not satisfactorily correspond. Under these circumstances, the slightly earlier specific epithet *alata*, unsubstantiated by authentic material, should scarcely be taken up to replace, especially in a group of such inherent difficulty, the definitely known *M. micrantha*.

As in *M. scandens*, the pubescence of *M. micrantha* varies much in extent, the more typical forms being smoothish. A hairy phase has been described as:

Forma *HIRSUTA* (Hieron.) Robinson. Stems, petioles and usually both surfaces of the leaves covered with sordid-white perceptibly jointed hairs.—Contrib. Gray Herb. lxiv. 43 (1922). *M. scandens* var. *hirsuta* Hieron. in Engl. Bot. Jahrb. xix. 47 (1894) and *M. scandens* var. *villosa* Hieron. l. c. xxxvi. 473 (1905).—Colombia to Peru.

M. CONGESTA DC. Heads shortly pedicelled or subsessile in somewhat corymbosely disposed rather dense subglobose glomerules; bractlets narrowly oblong to linear-oblong, herbaceous, spreading-puberulent, equalling or somewhat exceeding the involucre; phyllaries oval to oblong, abruptly but sharply mucronate, greenish-white to yellowish-green, dorsally puberulent, about 4.5 mm. long; corollas white, the proper tube about 1.6 mm. long; pappus-bristles 33-37, white. Leaves deltoid-ovate to ovate-oblong, cordate, acumi-

nate, varying from coarsely and somewhat hastately toothed to crenate, undulate or subentire, mostly 5–9 cm. long.—Prod. v. 197 (1836). *M. Sieberiana* DC. l. c. 196 (1836). *M. Parkeriana* DC. l. c. 199 (1836). *M. variabilis* Gardn. in Hook. Lond. Jour. Bot. v. 486 (1846). *M. atriplicifolia* Sch.-Bip. in Miq. Stirp. Surinam. Sel. 189 (1850). *M. scandens* var. *congesta* Bak. in Mart. Fl. Bras. vi. pt. 2, 249 (1876). *M. scandens* var. *cynanchifolia* as incorrectly applied by Hieron. in Engl. Bot. Jahrb. xix. 46 (1894), though not of Bak. (as to name-bringing synonym.). *M. micrantha* forma *congesta* Robinson, Contrib. Gray Herb. lxiv. 43 (1922). *M. micrantha* var. *cynanchifolia* as interpreted by Robinson, l. c. 67 (1922), but not of Bak. (as to name-bringing synonym.).—In the lowlands of southeastern Mexico (Tuxpeña, Campeche, *Lundell*, no. 1364), Porto Rico, Santa Domingo, the Lesser Antilles, Trinidad, the Guianas and Brazil; also in the cordilleran countries of South America from Colombia to Peru and Bolivia.

To the southward, as for instance in southern Brazil, Paraguay, Uruguay and the Argentine Republic, this species, at least in its more typical and smoothish form, is scarcely found, though in habit sometimes rather puzzlingly simulated by the smaller-headed *M. periplocifolia*.

M. PERIPLOCIFOLIA Hook. & Arn. Heads smaller than in any of the foregoing, about 5–5.5 mm. high, in somewhat corymbously disposed and usually crowded subspherical glomerules; bractlets subfiliform to narrowly lanceolate or more rarely rhombic- or spatulate-obovate, herbaceous, puberulent; phyllaries narrowly oblong to oval-elliptic, abruptly pointed or often rounded at the slightly erose summit, 2.2–2.5 mm. long; corollas white, slightly smaller than in *M. micrantha* and *M. congesta*; pappus-bristles 35–40, white or at length caraceous; leaves prevailing deltoid-ovate and tending to be saliently and hastately toothed, averaging smaller than in the preceding species.—Comp. Bot. Mag. i. 243 (1836). *M. scandens* var. *periplocifolia* Bak. in Mart. Fl. Bras. vi. pt. 1, 249 (1876), only as to the typical Argentine material. Here also may be provisionally placed the Chilean *M. araucana* Phil. Anal. Univ. Chil. lxxxvii. 330 (1894) and *M. humilis* Kunze ex Hieron. in Engl. Bot. Jahrb. xxii. 792 (1897), plants in nearly every respect closely similar, but having the phyllaries abruptly short-pointed instead of rounded at the summit as is more usual in the species. In similar manner, the Paraguayan *M. scandens* var. *sagittifolia* Hassl. in Fedde Rep. Spec. Nov. xii. 368 (1913) appears to be merely a smoothish and narrow-leaved form of *M. periplocifolia*.—Southern Brazil, Paraguay, Uruguay, central and northern Argentina and northern Chile.

This species can almost always be distinguished from any of the foregoing by its very small heads and mostly oval-elliptic and very blunt phyllaries. The leaves, however, are so variable as to be at times very misleading. Though in its more typical forms they seem pretty characteristic in their prominent and hastate tothing, they sometimes (especially in mesophytic habitats) rather closely simulate those common in the more northern species.

As to indument, it may be said that the typical form of *M. periplocifolia* is finely pubescent. It passes on the one hand to a nearly glabrous form and on the other to a form with slightly more copious soft and grayish puberulence, the latter having been described first as *M. scandens* * *paraguayensis* Malme, Kgl. Sv. Vet. Akad. Handl. xxxii. no. 5, p. 36, t. 4, f. 10 (1899) and later as *M. scandens* var. *periplocifolia* subvar. *mollis* Chod. Bull. Herb. Boiss. ser. 2, iii. 712 (1903).

To the synonymy of *M. periplocifolia* there must be provisionally added also *M. Niederleinii* Hieron. in Engl. Bot. Jahrb. xxii. 792 (1897) from Santa Ana in the Argentine Misiones. This is a plant known to the writer merely from its type-specimen at the Botanical Museum in Berlin, and even there the material is scanty, showing but a single leafy stem, terminated by a small rather dense and glomerate inflorescence. In all technical characters of bractlet, phyllaries, corollas, achenes, etc., the plant corresponds closely with *M. periplocifolia*. It is true the leaves seem a little thicker, harsher in texture and on the lower surface more prominently netted-veined than is usual in *M. periplocifolia*, but these are matters quite likely to result from differing edaphic factors.

M. MENDOCINA Phil. This species is known solely from the type-material. It is certainly very nearly related to but is not to be satisfactorily merged with *M. periplocifolia* for it is an essentially glabrous plant with even smaller heads, scarcely 5 mm. in length. The ultimate bractlets, which as in *M. periplocifolia* closely subtend the heads, are not merely smaller, being for the most part shorter than the involucre, but are neither herbaceous in texture nor puberulent as in *M. periplocifolia*. Furthermore, the phyllaries instead of being obtuse or rounded at the summit and puberulent on the dorsal surface are acuminate, essentially glabrous and conspicuously dotted (as are also the upper parts of the corollas) with brownish-orange globular glands.—Sert. Mendoc. Alt. 20, Anal. Univ. Chile, xxxvi. 178 (1870).—Marshes near Mendoza, Argentina. It is probable that this little plant will prove a distinct species, as believed by Philippi, but it will have to be studied from far more copious material before there can be any assurance regarding its proper status.

M. minima (Bak.), stat. nov. Heads even smaller than in two preceding species, 3–3.6 mm. long, pedicellate and often tending to be racemose; bractlets subfiliform, about 2 mm. long, borne near the middle or even at the very base of the pedicel; phyllaries elliptic-oblong, abruptly short-pointed, about 2.3 mm. long, dorsally puberulent especially toward the apex; corollas white, glandular-atomiferous; proper tube slender; throat turbinate-campanulate; teeth very short (0.2–0.3 mm. long), pointed, usually recurved; mature achenes 1–1.2 mm. long; pappus-bristles about 25, whitish. Branches and branchlets 6-angled, finely incurved- or crisped-puberulent; leaves deltoid-ovate, entire, acute to often rounded at apex, openly cordate to subtruncate at base, mostly 2.5–3.5 cm. long.—*M. scandens* var. *minima* Bak. in Mart. Fl. Bras. vi. pt. 2, 250 (1876).—Argentina: Province of Tucumán, *Tweedie*, no. 1188 (TYPE, in hb. Royal Bot. Gard. Kew, phot. Gr.); Dept. Trancas on Rio Tipamaya, alt. 1400 m., Apr. 1926, *Venturi*, no. 4178 (Arn. Arb., phot. Gr.).

This small-headed plant, known only from the Province of Tucumán in northern Argentina, seems to be one of the best marked species in the perplexing *M. scandens* group. Its branches are as definitely hexagonal as in the well known *M. cordifolia*. Its heads are the smallest in the group. They also tend perceptibly to be racemose toward the tips of the panicle-branchlets. It is noteworthy also that the bractlet, instead of being at the summit of the pedicel and appearing like a fifth phyllary as it does in the other members of the group, is in *M. minima* borne near the middle or even at the very base of the pedicel.

M. TRACHYPLEURA Robinson (See p. 46). Heads (when fully mature) 6–7 mm. long, pedicellate in round-topped rather dense corymbs; bractlet closely subtending the involucre, lanceolate, attenuate, subherbaceous, grayish-pilose, about half the length of the involucre; phyllaries linear to narrowly lanceolate, mostly attenuate, 4–5 mm. long, at least the outer ones loosely villulose; corollas white, the slender tube 1.7 mm. long, the narrowly campanulate throat about 1.2 mm. high, the teeth deltoid, acute, 0.7 mm. long; achenes 1.5 mm. long, upwardly scabrid-ciliolate or serrulate on the angles as well as sparingly glandular-atomiferous on the faces; pappus-bristles about 40, white or slightly carneous.—*M. scandens* var. *cynanchifolia* Bak. in Mart. Fl. Bras. vi. pt. 2, 249 (1876), in small part but not as to name-bringing synonym *M. cynanchifolia* Hook. & Arn.—A vigorous softly pilose nearly or quite herbaceous twiner of central and southern Brazil, northern and central Paraguay and adjacent part of the Argentine Government of Chaco.

In connection with *M. trachypleura* it is needful to examine the nomenclatural claims of the name *cynanchifolia*, which has been vaguely employed for several plants of this affinity. *M. cynanchifolia* Hook. & Arn. was first published in synonymy by Baker, who in the *Flora Brasiliensis*, vi. pt. 2, 249 (1876), made it the nomenclatural basis of his *M. scandens* var. *cynanchifolia*. Unfortunately Baker's diagnosis was brief, comparative and not very illuminating. He was not even comparing his variety with the nearly related tropical American relatives, but was merely putting forward, as an exceptionally pubescent variety of the North American *M. scandens*, some four specimens of central and southern Brazil, together with a Tweedie specimen from Tucumán in Argentina.

The writer, desiring more precise information regarding the identity of the unpublished *M. cynanchifolia* Hook. & Arn., commissioned Dr. I. M. Johnston during a recent visit to the Royal Botanic Gardens at Kew to look the matter up. Finding difficulty in interpreting the material there at hand, Dr. Johnston kindly arranged that three sheets illustrating Baker's *M. scandens* var. *cynanchifolia* should be lent to the writer for study. These were as follows:

1) Burchell's no. 8922 from Goyaz, a plant with densely glomerulate nearly sessile heads, obtusish to abruptly pointed phyllaries and relatively long bractlets, which exceed the involucre. This element proves to be only a rather pubescent form of *M. congesta* DC.

2) The Warming specimen collected at Lagoa Santa in Minas Geraes, a plant with looser inflorescence, acuminate phyllaries, much shorter bractlets (only half to two-thirds the length of the involucre) and achenes distinctly ciliolate on the angles. This element is conspecific if not precisely identical with the plant, now known from Paraguay and the Argentine Chaco, which has been treated above as *M. trachypleura*.

3) Tweedie's no. 1091, said by the label to be "a firmly rooted climber in all the marshes of the country of Bs. Ays. & R. Grand." that is to say, Buenos Ayres and Rio Grande do Sul. Near the single specimen on this sheet is written in hand of Sir William Hooker the name *M. cynanchifolia* H. & A., the specific epithet being misspelled, doubtless by mere clerical error. The plant, while in most respects closely simulating *M. trachypleura*, has somewhat smaller heads (about 5.5 mm. instead of 6.5 mm. long) and achenes quite destitute of serrulation or ciliolation on the angles.

Sir Arthur Hill informs me that this is the only sheet in the representation of *Mikania cynanchifolia* Hook. & Arn. at Kew which bears the original labelling in hand of Hooker or Arnott, and that no specimen of Tweedie no. 1287 has been found there.

Before deciding upon the degree to which the name *cynanchifolia*, first published in varietal rank by Baker in 1876, is available in specific rank, it will be best to trace its subsequent use. In 1894, Hieronymus in Engl. Bot. Jahrb. xix. 46 applied it (as Baker's variety) to a plant of Ecuador, which seems to be only a rather pubescent form of *M. congesta* DC. Next, Malme in Kgl. Sv. Vetensk.-Akad. Handl. xxxii. no. 5, 35 (1899) stated that the plant he was there characterizing as *M. scandens* * *periplocifolia* var. *intermedia* somewhat approached *M. scandens* * *cynanchifolia* (Bak.). Later, Robinson, Contrib. Gray Herb. lxiv. 67 (1922), following Hieronymus, employed the name *cynanchifolia* for a rather pubescent plant of Ecuador with glomerulate heads and long bractlets, but transferred it as a variety from the North American *M. scandens* to the tropical American *M. micrantha* HBK. More recent study leads to the belief that this plant of Ecuador is merely an unusually pubescent and rather small-headed form of *M. congesta* DC. In 1931, Malme, Ark. f. Bot. xxiv. no. 6, 39, employs as his own the binomial *Mikania cynanchifolia* but fails to give the plant further definition. Somewhat later, Malme, l. c. xxiv. no. 8, 33 (1932), realizing that his *intermedia* differed decidedly from the smaller-headed and much blunter-phyllaried *M. periplocifolia*, republished it as *M. cynanchifolia* forma *intermedia*, again making no attempt to give *M. cynanchifolia* correct nomenclatural status by providing it with specific diagnosis, which, as already pointed out, it has never had. Finally in 1933, Malme, Kgl. Sv. Vetensk.-Akad. Handl. ser. 3, xii. no. 2, 58, in determining Dusén's admirable collection of Paraná plants makes use of the name "*M. cynanchifolia* (Hook. & Arn. ms.) Malme."

On what, it may be asked, does *M. cynanchifolia* as a published name really rest? Undefined by its original authors, it appeared first in the synonymy of Baker's *M. scandens* var. *cynanchifolia*, but according to the International Rules of Botanical Nomenclature citation in synonymy does not constitute valid publication.

Of course, Malme has subsequently treated *M. cynanchifolia* as a good species with parenthetical references to Baker and to Hooker & Arnott and may therefore be thought to have validated the binomial in specific rank. However, there remains the question whether it is in fact a described species.

The only attempt ever made to give it diagnosis is Baker's scant three lines of description, drawn up, as we now see, from a confused group of five specimens belonging to three different species. These he was grouping together merely as a very hairy variety of the North American *M. scandens*, with which they clearly have nothing to do.

It would be natural to suppose that the type of *M. cynanchifolia* would automatically be the Tweedie element from Tucumán, this being the only specimen mentioned by Baker which had been studied by Hooker & Arnott; but unfortunately the only Tweedie sheet now in the Kew Harbarium, labelled by Sir William Hooker as *M. cynanchifolia* and by Baker subsequently as his *M. scandens* var. *cynanchifolia*, is not from Tucumán but from "Buenos Ayres and Rio Grande do Sul." Furthermore, this last specimen does not in all respects agree with Baker's description, for it has leaves equally hairy on both sides, while Baker states that the leaves of his var. *cynanchifolia* were obsoletely puberulent above and densely grayish-puberulent beneath.

When these facts are taken into account, it becomes evident that *M. cynanchifolia* Hook. & Arn. has at no time received intelligible definition. The name, originally misspelled by its senior author and used subsequently by Baker to cover chiefly if not wholly non pertinent material of several kinds, has fallen into a status so vague that it seems best in the interests of sound nomenclature to attach the concept by arbitrary typification to Tweedie's no. 1091. When thus anchored, the species may be defined as follows:

M. cynanchifolia Hook. & Arn. in herb., herbacea gracilis volubilis fere ubique incurvo-puberula; caule 6-costato-angulato flexuoso; foliis oppositis graciliter petiolatis ovatis acuminatis lateraliter paullo undulatis basi sinu profundo sagittatis textura herbaceis subconcoloribus utrinque aequaliter subdense breviterque incurvo-puberulis 2.4–3.3 cm. longis 1.2–1.6 cm. latis; petiolo ca. 1.2 cm. longo; corymbis parvis subglobosis plerisque 2–3 cm. diametro ramos breves adscendentes terminantibus; capitulis breviter pedicellatis ca. 5.5 mm. longis; bracteola capitulum arcte suffulciente lanceolata vel anguste ovata dorso dense griseo-hirsutula 2.5 mm. longa; involucri squamis oblongo-lanceolatis plerisque acutis ca. 4 mm. longis et 1 mm. latis, exterioribus dorso hirsutulis; corollis glabris; tubo proprio gracili 1.6 mm. longo; faucibus campanulatis 1 mm. altis; dentibus limbi deltoideis 0.6 mm. longis; achaeniis 1.5 mm. longis in faciebus glandulis sessilibus adspersis in costis laevibus; pappi setis ca. 33 albis.—The Tweedie label accompanying this material in the herbarium of the Kew Gardens reads as follows: "1091 This a firmly rooted climber in all marshes of the country of Bs. Ays. & R. Grand. -92 & -93 in marshes near Lagoa De Los Pattos." From this it is inferred that the specimen actually with the label is no. 1091 and comes from the region of Buenos Ayres, Argentina, but that Tweedie regarded as identical two specimens which he subsequently added to his series under the numbers 1092 and 1093 and which came from the marshes about Lagoa dos Patos in Rio Grande do Sul, Brazil.

Of course, the species of this technical group are habitually similar and were at the time little understood. Therefore Tweedie's inference that his 1091 from eastern Argentina was precisely identical with material later collected in southernmost Brazil, though by no means improbable, carries little conviction.

Very closely related to *M. cynanchifolia* Hook. & Arn., as thus typified and defined, is the still problematic plant of the Paraguay River drainage called

M. CYNANCHIFOLIA forma *INTERMEDIA* Malme, Ark. f. Bot. xxiv. no. 8, 33 (1832). This plant, of which Professor Malme has most amiably given to the Gray Herbarium a portion of the type-material, simulates the typical form in pubescence and most of its floral characters. It appears, however, to be a much more luxuriant plant, has much longer internodes and petioles and much larger relatively broader leaves, which are provided at base with spreading and sometimes sharp angles, almost in the manner of *M. periplocifolia*. Its phyllaries are thinner, whiter, broader and less pubescent than those of the typical form of *M. cynanchifolia*.—The plant was originally described as *M. scandens* * *periplocifolia* var. *intermedia* Malme, Kgl. Sv. Vidensk.-Akad. Handl. xxxii. no. 5, 35 (1899). Here appears to belong also *M. scandens* var. *periplocifolia* subvar. *mollis* Chodat, Bull. Herb. Boiss. ser. 2, iii. 712 (1903).

It is probable that this Forma *intermedia* of the Paraguay drainage will prove specifically separable from the true *M. cynanchifolia* of Argentina, Uruguay and southernmost Brazil. But until the latter is much better known, trustworthy diagnostic characters will be difficult to discover.

M. pilcomayensis (Hassl.), stat. nov. Inflorescence at length ovoid, the secondary corymbs borne on widely divergent pedicels (2–3 cm. in length); phyllaries obtusish, puberulent, 5 mm. long; pappus white. Leaves shallowly 3-lobed or even somewhat pentagonal in general contour, coarsely and bluntly toothed, the openly cordate base of the blade attached to the petiole by a conspicuous acumination.—*M. scandens* var. *pilcomayensis* Hassl. in Fedde Rep. Spec. Nov. xii. 368 (1913).—Paraguay: edge of woods, Onebrahachal on the lower reaches of the Pilcomayo River, *Rojas*, no. 268 (TYPE, in hb. of Dr. E. Hassler, phot. Gr.).

When visiting the Botanical Conservatory at Geneva in 1927, the writer was kindly permitted to examine and photograph this interesting plant, which seems fully to confirm Dr. Hassler's implied suspicion that it might prove a distinct species. It certainly shows no close relationship to the North American *M. scandens*, nor can it be

convincingly placed in any of the other here recognized segregates from this all too widely interpreted species. In inflorescence *M. pilcomayensis* shows a transition from § *Corymbosae* to § *Thyrsigerae*; while in leaf-contour, as Dr. Hassler well remarks, it suggests DeCandolle's Series *Angulatae*. As a readily recognizable Paraguayan endemic, thus far not known to intergrade with any other *Mikania*, it is certainly best treated as an independent species.

M. cordata (Burm. f.), comb. nov. Inflorescence at maturity an open corymbose panicle; pedicels mostly 3–5 mm. long; branchlets of the inflorescence angled or slightly winged at base; heads 7–7.5 mm. long; bractlets linear-filiform, about 3 mm. long; phyllaries linear, 6 mm. long, abruptly contracted to a short sharp point; corollas white; pappus-bristles 40–45, carneous to deeply rufous.—*Eupatorium cordatum* Burm. f. Fl. Ind. 176, t. 58 fig. 2 (1768). *E. volubile* Vahl, Symb. iii. 93 (1794). *Mikania volubilis* Willd. Sp. Pl. iii. 1743 (1804).—Eastern tropical Africa, the East Indies, Formosa, Philippines, Java, Borneo, etc.

When compared with the North American *M. scandens*, this wide-ranging plant of the Old World differs rather strikingly on account of its more open inflorescence, slightly larger heads, more abruptly pointed phyllaries and brownish pappus of which the bristles are perceptibly more numerous. There can be no reasonable doubt that this was the plant described by the younger Burman as *Eupatorium cordatum*. Hence the need for the new binomial here proposed.

To the synonymy of *M. cordata* there may be doubtfully referred the little known *M. scandens* var. *rhodotricha* Bak. in Mart. Fl. Bras. vi. pt. 2, 250 (1876). Interpreted from the Kew material of Gardner's no. 60, this plant has heads about 8 mm. in length, that is, slightly longer than those usually found in the *M. scandens* group. Furthermore, its pappus is not only a rather deep reddish brown as in *M. cordata* but is likewise composed of exceptionally numerous bristles (51–59). While Brazilian specimens of undoubted *M. micrantha* HBK. sometimes have a distinctly erubescens pappus, their heads are smaller, the pappus-bristles are less numerous, and the phyllaries are narrower and of slightly firmer texture than in the Gardener specimen in question. Finally the branchlets of the inflorescence in *M. micrantha* are nearly always perceptibly angled or winged on the outer side as they fork, which is not the case in Baker's var. *rhodotricha*. Until better known this seems best placed provisionally in the synonymy of *M. cordata*, with which it agrees in essentials.

There may here be indicated a series of plants, chiefly of the Greater Antilles but with outlying members in tropical Florida, at Panama, and in tropical Africa. They are manifestly related rather closely to *M. scandens*, but have for the most part smaller, more saliently angled, deeply toothed, lobed or even divided leaves. Though resting upon minor and to some extent variable characters and consequently difficult to key, these organisms are fairly recognizable plant-entities, no one of which can be satisfactorily merged either with the North American *M. scandens* or with any of the species treated above.

M. BATATAEFOLIA DC. Heads, phyllaries, corollas and pappus much as in *M. micrantha*; corymbs small (mostly 2–6 cm. in diameter), lax or dense, loosely disposed, long-peduncled from the upper axils; leaves small (mostly 3–4 cm. long and broad) deltoid-ovate, openly cordate or subcordate, conspicuously and usually hastately few-toothed or somewhat lobed, the lobes mostly short, widely divergent, subdeltoid.—Prod. v. 197 (1836). *M. deltoides* Poepp. as to plant so named by Poeppig but not the one described by Sprengel. *M. tamoides* DC. l. c., only a state in which the heads are less mature and the inflorescence in consequence seemingly more glomerate. *Willoughbya heterophylla* Small, Fl. S. E. U. S. 1170, 1338 (1903).—Cuba and the Keys of Florida.

M. RANUNCULIFOLIA A. Rich. Close to the preceding, but covered with a looser longer spreading pubescence and having the leaves not only somewhat larger (mostly 4.5–8 cm. long) but cleft fully half way to the midrib or base, the lobes being ovate and rounded at tip.—A. Rich. in Sagra, Cuba, xi. 45 (1850). *Willoughbya ranunculifolia* Millsp. in Field Col. Mus. Bot. ii. 106 (1900).—Cuba and Isle of Pines.

This and the preceding species, though as yet pretty readily separable in the scanty material at hand, are in essentials so close that transition is to be expected.

M. PANAMENSIS Robinson (see p. 41), as yet imperfectly known from a single rather immature specimen gathered by Pittier in the vicinity of Culebra, is also in most respects very similar to the West Indian *M. batataefolia*. However, it differs in several respects not as yet connected by known intermediates. It is more densely puberulent. The leaves seem to be of a slightly firmer texture and are more conspicuously dark-punctate. Its phyllaries, instead of being smoothish and pointed or even acuminate, are rather closely grayish-puberulent and very obtuse or even rounded at the shortly fringed summit. The heads in bud are rounded or subtruncate at the top, while at a corresponding stage of development those of *M. batataefolia* are acute or

even shortly acuminate. The rediscovery of this as yet little known plant of the Canal Zone is much to be desired.

M. CARTERI Bak. The type of this tropical African species was examined and photographed at Kew nearly thirty years ago. It rather closely resembles *M. ranunculifolia*, but is said to be sarmen-tose. Its leaves are of smaller size (scarcely over 3 cm. in diameter) and are suborbicular in general contour, being cleft palmately about half way to the middle into 3-7 irregularly toothed lobes of subequal length, while in *M. ranunculifolia* the leaves are somewhat triangular-ovate, the terminal lobe being decidedly longer than the lateral.—Kew Bull. 1895, p. 106 (1895).—Tropical east Africa.

M. CORYDALIFOLIA Griseb. A delicate twiner with leaves 3-5-parted nearly or quite to the base, the lobes mostly lanceolate, entire or again 1-lobed on one or both sides; inflorescence of small fastigi-ately branched corymbs (2-3 cm. in diameter), heads about 6 mm. long; ultimate bractlets linear-subfiliform, nearly as long as the oblong short-pointed phyllaries; corollas and pappus white.—Mem. Am. Acad. viii. 512 (1863). *Willoughbya corydalifolia* Ktze. Rev. Gen. i. 372 (1891).—Cuba.

This slender, nearly herbaceous plant may be readily distinguished by its very deeply parted or actually divided leaves with relatively narrow lobes or divisions.

M. TROPAEOLIFOLIA O. Hoffm. If rightly interpreted from Dink-lage's no. 289, this plant of Cameroon in western tropical Africa is in habit and foliage very similar to the Cuban *M. corydalifolia*, but differs in having more shortly pedicelled or sessile heads disposed in looser few-headed cymes. Its bractlets are also shorter, being scarcely a third as long as the phyllaries.—O. Hoffm. in Engl. Bot. Jahrb. xxiv. 468 (1898).—Cameroon.

In *M. scandens* and such of its close relatives as have been indicated above, the leaves are prevailingly of an ovate, ovate-oblong, deltoid or elliptic form, being normally more than half as wide as long. It is true an exception to this has been noted in the Paraguayan plant called *M. scandens* var. *sagittifolia* by Hassler. This, as stated above, is pretty clearly only a narrow-leaved phase of *M. periplocifolia*. However, there are two other plants of the general *M. scandens* affinity which should be mentioned here and which have strikingly narrow, arrow-shaped leaves, only about a third as wide as long. These are:

M. DUSENII Robinson. A smooth twiner with leaves that are con-

spicuously attenuate to a very sharp apex and have a base which, though sagittate in general form, has at the attachment a small sub-orbicular bay nearly enclosed by the deflexed basal lobes.—Contrib. Gray Herb. xcvi. 24 (1931).—Southern Brazil and northeastern Argentina.

In inflorescence, involuclral and floral characters, this rather striking plant is disturbingly close to *M. micrantha*, yet in leaf-form it is so exceedingly different that convincing evidence of intergradation must be observed before its reduction to varietal or formal rank would be justified.

M. sagittifera, spec. nov., gracilis volubilis ut videtur herbacea perennis breviter griseo-hirsutula; caule subtereti brunnescenti; foliis oppositis graciliter petiolatis anguste triangularibus gradatim ad apicem acutissimum attenuatis lateraliter breviter undulato-denticulatis vel (saltem supremis) subintegris basi sagittatis 5–9 cm. longis 1.5–3 cm. latis; petiolo 1–2 cm. longo; corymbis convexis plerisque 2–4 cm. diametro longe pedunculatis irregulariter ramosis; bracteis angustissimis integris attenuatis; pedicellis plerisque 2–3 mm. longis; bracteolis linearibus; capitulis ca. 8 mm. longis; involucri squamis lanceolato-oblongis acutis subherbaceis dorso griseo-hirsutulis ca. 5 mm. longis; corollis pallidis verisimiliter albis; achaeniis 2.6–2.8 mm. longis atrobrunneis in faciebus glandulari-atomiferis in angulis glabris; pappi setis carneis.—Kabulabula, on the Chobe River, Bechuana-land, July 1930, *van Son*, no. 28,729 (TYPE, in the Gray Herbarium), collected by the Vernay-Lang Kalahari Exped.

In all probability this is the same as the plant collected in water along the margin of the Longa River above the Lazingua in southeastern Angola by von Baum and named *M. scandens* forma *angustifolia* by O. Hoffmann in Warburg, Kunene-Sambesi Exped. 405 (1903) and later rediscovered in Rhodesia at Victoria Falls by the Swedish Rhodesia-Congo Exped. and raised to specific rank, as *M. angustifolia* by R. E. Fries in his admirable report on the botanical investigations of this expedition, i. pt. 2, 328–9, fig. 38 a & b (1916)—a name which would have been gladly taken up but for the fact that it has the earlier homonym *M. angustifolia* HBK. Nov. Gen. et Spec. iv. 138 (1820) and would therefore, according to the present International Rules of Botanical Nomenclature, be invalid.

As neither the plant of von Baum nor that of the Swedish Expedition has been available for study during the preparation of the present paper and as in any event the name *angustifolia* would have to be abandoned, it has seemed best to draw a new description from the material at hand, so that the species in question may have correct

nomenclatural status under its new name, which could scarcely have been the case, if it were based on unverified synonymy.

The primary object of this little series of notes is to provide a rational application for a dozen or more names now available to relieve the much overworked *M. scandens*. It may be thought that a key should have been furnished, but the group is one in which the plant-entities, though on study pretty readily recognizable, are to be interpreted each rather by the habitual association of minor and often variable traits than by the presence of any character sure to hold and therefore appropriate for use in a key.

Of the African species not as yet studied from sufficient material to determine satisfactorily their degrees of relationship to the other members of the *M. scandens* group, there may be mentioned *M. chenopodifolia* Willd. of Sierra Leon, *M. oxyota* DC. of southeastern Africa and *M. natalensis* DC. Of these the first two are described as nearly or quite glabrous, while *M. natalensis* has a short but almost velvety pubescence. All three are said to have rufescent pappus and, so far as examined by the writer, would appear to have white corollas. Certainly no one of these plants can be satisfactorily placed in the North American *M. scandens*, which as we have seen has normally white pappus and roseate or purplish corollas. The African members of this affinity, of which presumably some are still undescribed, are certainly in need of clearer delimitation among themselves and sharper definition on the side of the East Indian *M. cordata*, which in fact seems to be present also in tropical Africa.

Mikania deltoides Poepp. and *M. cissampelina* DC. are further names which have at times been associated with *M. scandens*, both of them in connection with plants of the Greater Antilles. Some comment on their application seems here desirable, since the writer fails to find himself in accord with their disposition by the late Professor Urban in the synonymy of his for the most part exceedingly helpful treatment of the West Indian Mikanias.

M. deltoides Poepp. ex Spreng. Syst. iii. 423 (1826). Urban, Symb. Ant. v. 233 (1907), asserts with marks of affirmation that this was *Eupatorium havanense* HBK. Nov. Gen. et Spec. iv. 128 (1820). This may well be true of the material described by Sprengel, who placed the plant in a series of erect and shrubby species and states that its leaves were paler beneath. However, though Sprengel in the hurried compilation of his Systema may have blunderingly placed in the genus *Mikania* a *Eupatorium* with many-flowered heads,

Poeppig certainly knew the difference between these genera. Therefore it is not surprising to find at the Natural History Museum in Vienna among the admirable series there representing Poeppig's plants a delicate twining *Mikania* with deltoid-ovate deeply cordate and coarsely toothed leaves and bearing the original label stating it to be "*Mikania deltoides* Pp. Cuba, 1823. Poeppig." As Poeppig never published the plant and as the species was mistakenly associated by Sprengel with a previously characterized *Eupatorium* and therefore given a wholly misleading description, the name *M. deltoides* Poepp. has no nomenclatural importance whatever.

M. cissampelina DC. Prod. v. 195 (1836) has remained a problematic plant. DeCandolle's diagnosis is brief and calls for a glabrous plant with obtuse entire leaves and with heads 5 lines (i. e. 1 cm.) in length. Though the species is said to have come from Santo Domingo, no collector, date, number or more precise locality is mentioned.

The only published comment on the identity of *M. cissampelina* seems to be the one found in Urban's treatment of the West Indian Mikanias, where in his Symb. Ant. v. 230 (1907) it is referred to *M. scandens* L. but said to be a form with floral parts and achenes larger than those of the common form.

Feeling certain that no entirely glabrous plant with heads 1 cm. long could be satisfactorily included in *M. scandens* L., the writer has endeavored to gain further light on the type-material of *M. cissampelina*, and through the very kind and effective assistance of Dr. Hochreutiner, Director of the Conservatory of Botany at Geneva, who has sent detailed information, and of Mr. J. Francis Macbride, who most obligingly prepared and forwarded several exceedingly clear photographs of the type-sheet, it is now possible to record the following facts.

On the type-sheet of *M. cissampelina*, labelled in hand of DeCandolle, there are mounted about ten pieces, of which most show a bit of stem, a leaf or two, and a partial inflorescence. Of these pieces, the one at the upper right and another at the lower left of the sheet doubtless represent the plant from which DeCandolle drew his description; for in fact they show a plant with cordate obtuse leaves and with heads fully 1 cm. long. It may be remarked, however, that the plant is not wholly glabrous, being on the contrary finely pubescent. Nor are the leaves quite entire, since the margins are shallowly crenate-undulate.

This plant on the type-sheet, which may be styled Element A and must be regarded as the source of the description, is unquestionably *M. CORDIFOLIA* (L. f.) Willd.

The other scraps of material mounted on the same sheet have deltoid-ovate acuminate somewhat hastately toothed leaves and bear heads about 8 mm. long. They also are somewhat pubescent and seem uniform with each other. This part of the material, which may be styled Element B, clearly belongs to the *M. scandens* group but certainly not to the real *M. scandens* L. of North America. From the rather deeply tawny pappus and from the form, size and position of the bractlet, the writer would infer that these scraps of Element B came possibly from Brazil but more probably from some part of the Old World and were referable to *M. CORDATA* (Burm. f.) Robinson rather than to any of the other segregates of *M. scandens* here described.

Therefore, it is probable that this Element B, which happily does not have any nomenclatural significance in the interpretation of *M. cissampelina*, is merely some non-pertinent material by oversight subsequently mixed during the mounting with the original plant stated by the label to have been collected in Santo Domingo by Coulon in 1802, and referable, as we have seen, to *M. cordifolia*.

IV. STUDIES IN THE BROMELIACEAE,—V.

BY LYMAN B. SMITH.

(Plates I–III.)

THE present paper is chiefly the result of studies made in the summer of 1933 in the herbaria of the Royal Botanic Gardens at Kew (K), the British Museum of Natural History (BM), and Cambridge University (Cam). I am also indebted to the following institutions and individuals for lending me important material or procuring photographs or duplicates for me: the United States National Museum (US), the New York Botanical Garden (NY), the Field Museum of Natural History (FM), the Missouri Botanical Garden (Mo), the University of California (Cal), the Berlin Herbarium (B), the National Museum of Prague, the Rijks Herbarium of Leiden, the Botanical Museum of Munich (Mun), the National Museum of Natural History of Buenos Aires (BA), and Don Cornelio Osten of Montevideo, Uruguay (Ost).

I am obliged to Mr. J. E. Dandy of the British Museum and to Dr. T. A. Sprague of the Kew Herbarium for important suggestions on nomenclatorial points. Dr. Castellanos of the National Museum of Buenos Aires and Don Cornelio Osten have given me much helpful



Robinson, Benjamin Lincoln. 1934. "Mikania scandens and its near relatives." *Contributions from the Gray Herbarium of Harvard University* (104), 55–71.
<https://doi.org/10.5962/p.336157>.

View This Item Online: <https://www.biodiversitylibrary.org/item/122330>

DOI: <https://doi.org/10.5962/p.336157>

Permalink: <https://www.biodiversitylibrary.org/partpdf/336157>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

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

Rights Holder: Harvard University Herbaria

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

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

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