NOTES ON CERTAIN TYPE SPECIMENS OF AMERICAN ASTERACEAE IN EUROPEAN HERBARIA

By S. F. Blake

In the course of the writer's work at several of the larger European herbaria in the summer of 1925, special effort was made to determine the identity of various American species of Asteraceae which were imperfectly described by early authors and have since been unrecognized or misinterpreted. In this paper four generic names (*Parastrephia, Philactis, Anaitis*, and *Aschenbornia*) and about 115 specific names which have been misunderstood or regarded as doubtful since the time of their original publication are first given their rightful status as valid names or synonyms. A few identifications here included have already been published.[1] The genera are arranged in the systematic order of the accepted names, the species alphabetically under the genera.

Special attention was given to the investigation of the Heliantheae, particularly in the Prodromus Herbarium of the DeCandolles, now forming a unit in the Delessert Herbarium, Geneva, and in the Schultz Bipontinus Herbarium, which includes Sprengel's types and forms a part of the Cosson Herbarium at the Muséum d'Histoire Naturelle at Paris. Schultz's herbarium includes, besides his own types and those of Sprengel, a wealth of fragments of types and authentic specimens from other authors, and the Prodromus Herbarium is rich in authentic specimens of earlier writers in addition to De Candolle's own types. A rather hurried examination was made of all the Asteraceae of the Humboldt and Bonpland Herbarium at Paris. Notes, photographs, and in many cases small fragments of types or significant specimens were obtained of hundreds of species of American Asteraceae, of which those discussed in this paper represent only the comparatively small part in which some change of interpretation has been found necessary. All photographs and fragments obtained are deposited in the United States National Herbarium.

[1] In the writer's treatment of Asteraceae in "Trees and shrubs of Mexico," by Paul C. Standley, Contr. U. S. Nat. Herb. **23**: 1401–1641, 1681. 1926, in a short paper in Proc. Biol. Soc. Washington **39**: 144. 1926, and elsewhere. Identifications of the Asteraceae described by Bertoloni in his "Florula Guatimalensis" have been given in a separate paper, "Bertoloni's Guatemalan Asteraceae," Bull. Torrey Club **53**: 215–218. 1926, and are not repeated here.

For assistance in the course of his work abroad, including the opportunity to take photographs and in many cases to obtain small fragments of types or authentic specimens, the writer wishes to express his thanks to the following botanists: Prof. H. Lecomte, Mr. F. Gagnepain, Mr. P. Danguy, and Mr. Réné Metman of the Muséum d'Histoire Naturelle, Paris; Dr. John Briquet of the Herbier Delessert, Geneva; Dr. G. Beauverd of the Herbier Boissier, now at the Université de Genève; Dr. A. W. Hill and Mr. J. Hutchinson of the Royal Botanic Gardens, Kew; Dr. A. B. Rendle of the British Museum of Natural History; and the late Dr. B. Daydon Jackson of the Linnaean Society of London.

Amaranthus spinosus L. Sp. Pl. 991. 1753.

Xanthium parvifolium DC. Prodr. **5**: 524. 1836.

DeCandolle's description of a specimen of *Amaranthus spinosus* as a new species of *Xanthium* must surely be the most remarkable aberration of that gifted and industrious botanist. The specimen in the Prodromus Herbarium, a mere scrap about 4 inches long, densely crowded with young flowers and bearing abundant spines and reduced rameal leaves, is marked on the original label "Xanthium. B. Delessert 1810." It agrees entirely with DeCandolle's description, and is unquestionably the specimen he had before him when writing it. The most likely explanation of his action seems to be that, having kept the unfortunate scrap next to *Xanthium spinosum* in his herbarium for a quarter of a century without closely examining it, and misled by its spines and general appearance—the clustered young flowers being not so very different superficially from the clusters of staminate heads of *Xanthium spinosum*—he proceeded to describe it as new for the Prodromus without more than a casual examination.

Vernonia deppeana Less. Linnaea **6**: 398. 1831.

Conyza tomentosis (*tomentosa* in errata) Mill. Gard. Dict. ed. 8. *Conyza* no. 5. 1768. Not *Vernonia tomentosa* Ell. 1821.

Miller's type of *Conyza tomentosa* is preserved in the British Museum and is a characteristic example of *Vernonia deppeana*. The identification of this and Miller's other new species of "*Conyza*" has already been the subject of an interesting article by James Britten,[2] but as his paper has apparently been overlooked by American botanists, it is well to call attention again to the identity of certain of Miller's species. Gleason[3] has recently taken up for *V. deppeana* the earlier name *V. stellaris* Llave.[4] Llave's description, although probably referring to *V. deppeana*, might also apply to *V. aschenborniana* Schauer, which occurs in the same region, and it seems inadvisable to adopt his name in the absence of a type specimen.

Vernonia stellata (Spreng.) Blake, Contr. U. S. Nat. Herb. **22**: 587. 1924.

Conyza stellata Spreng. Neu. Entd. **2**: 142. 1821.

Vernonia oppositifolia Less. Linnaea **4**: 273. 1829.

Sprengel's type, collected by "Otto" (i. e., Sellow) in Brazil, is no. 1009 in the Sprengel Herbarium, now incorporated in the Cosson Herbarium, and is the plant usually known as *Vernonia oppositifolia*.

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[2] Journ. Bot. Brit. & For. **36**: 51–55. 1898.

[3] N. Amer. Fl. **33**: 78. 1922.

[4] In Llave & Lex. Nov. Veg. Descr. **1**: 23. 1824.

Vernonia tarchonanthifolia (DC.) Schultz Bip. Linnaea **20**: 507. 1847.
Monosis tarchonanthifolia DC. Prodr. **5**: 77. 1836.
Vernonia purpurascens Schultz Bip. in Walp. Repert. Bot. **2**: 945. 1843.
Oliganthes karwinskii Schultz Bip. Linnaea **20**: 505. 1847.
Eremosis tarchonanthifolia Gleason, Bull. N. Y. Bot. Gard. **4**: 230. 1906.
Eremosis purpurascens Gleason, Bull. N. Y. Bot. Gard. **4**: 233. 1906.
Vernonia tarchonanthifolia (DC.) Schultz Bip., originally based on a specimen collected by Karwinski in Mexico without definite locality, is represented in the United States National Herbarium by three sheets from Oaxaca (*Pringle* 6166, *Conzatti & González* 554, and *C. L. Smith* 314). All were originally identified as *V. monosis* Schultz Bip., but are referred by Dr. Gleason to *V. tarchonanthifolia*, and well agree with DeCandolle's comparatively ample description of that species. In all the heads are 2-flowered, although described by DeCandolle as 1-flowered; the species evidently varies in this respect. *Vernonia purpurascens* Schultz Bip. is now referred by Gleason[5] to the synonymy of *Eremosis tomentosa* (Lex.) Gleason (=*Vernonia monosis* Schultz Bip.), but examination of the type in Schultz's herbarium, collected by Karwinski at San Pedro Nolasco, Oaxaca, shows definitely that it is a synonym of *V. tarchonanthifolia*. The heads were described by Schultz as 3-flowered, and the achenes as hirtous. Heads examined by the writer were 2-flowered, and the achenes rather densely glandular and sparsely pilose, as in *V. tarchonanthifolia*. *Oliganthes karwinskii* Schultz Bip., based on material collected by Karwinski at Capalalpan, Mexico, is, from description, correctly referred by Gleason to *V. tarchonanthifolia*.

Vernonia tortuosa (L.) Blake, Proc. Biol. Soc. Washington **39**: 144. 1926.
Conyza tortuosa L. Sp. Pl. 862. 1753.
Conyza scandens Mill. Gard. Dict. ed. 8. *Conyza* no. 11. 1768. Not *Vernonia scandens* DC. 1836.
Vernonia schiedeana Less. Linnaea **6**: 399. 1831.

The status of these names has already been discussed by the writer,[6] as well as by Britten.[7] Although Linnaeus mentioned a now unidentifiable Madagascan plant both in the Species Plantarum and in his earlier and fuller treatment in the Hortus Cliffortianus,[8] his description was based on a specimen of *Vernonia schiedeana* collected at Veracruz by Houstoun, sent to Linnaeus by Philip Miller, and now preserved in the "Hortus Cliffortianus" at the British Museum. Miller's type of *Conyza scandens*, also in the British Museum, is a specimen of the same species also collected by Houstoun or grown from seed sent by him.

Vernonia sp.
Viguiera angustifolia Glaz. Mém. Soc. Bot. France **3**: 412. 1910, nomen nudum.

Glaziou 21603, from "Corrego do Brejo, au campement, Goyaz," in the Paris Herbarium, type collection of this undescribed species, is a *Vernonia* apparently closely related to if not identical with *Vernonia compactiflora* Mart., a species known to the writer only from description.

Elephantopus carolinianus Raeuschel, Nom. Bot. ed. 3. 256. 1797.
Elephantopus carolinianus Willd. Sp. Pl. **3**: 2390. 1803.

The third edition of Raeuschel's Nomenclator, which the writer had opportunity of examining in the Kew library in 1925, is in the main a mere list of generic

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[5] N. Amer. Fl. **33**: 100. 1922.
[6] Proc. Biol. Soc. Washington **39**: 144. 1926.
[7] Journ. Bot. Brit. & For. **36**: 52. 1898.
[8] Hort. Cliff. 405. 1737.

and specific names arranged by the Linnaean system, with the habitat and duration added. The only new species in the Syngenesia is *Elephantopus carolinianus* which is described as follows: "1604. Elephantopvs carolinianus*) Carolina. ♃." * "E. foliis radicalibus caulinisque oblongis, basi angustatis, subpilosis, caule subsimplici piloso." This is the earliest description of the plant universally known as *E. carolinianus* Willd., and fortunately necessitates no change in its designation beyond that of the authority. Willdenow's description agrees with that of Raeuschel except for a single word: "E. foliis radicalibus caulinisque oblongis basi angustatis subpilosis, caule simplici piloso. W." Whether this remarkable identity in description is due to coincidence only seems questionable. Raeuschel's name appears to have been overlooked by all later authors, and is not listed in "Index Kewensis."

Adenostemma viscosum triangulare (DC.) Benth.; Baker in Mart. Fl. Bras. **6** [2]: 186. 1876.

Adenostemma triangulare DC. Prodr. **5**: 113. 1836.

Polymnia corcovadensis Glaz. Mém. Soc. Bot. France **3**: 409. 1910, nomen nudum.

Fragments of the type number of Glaziou's name (*Glaziou* 5918, from Corcovado, near Carioca brook, Rio Janeiro, Brazil) are in the United States National Herbarium, obtained from the Paris Museum.

Stevia salicifolia Cav. Icon. Pl. **4**: 32. *pl. 354*. 1797.

Stevia angustifolia H. B. K. Nov. Gen. & Sp. **4**: 149. 1820.

The type of *Stevia angustifolia* in the Humboldt and Bonpland Herbarium, labelled as from "Mexico," is *Stevia salicifolia*. The leaves are narrowly lanceolate, 7 to 8 cm. long, 7 to 9 mm. wide, entire, and loosely sordid-pilosulous on the costa beneath.

Selloa glutinosa Spreng. Nov. Prov. Hal. 36. 1819.

Molina viscosa Hort. Berol.; Spreng. Nov. Prov. Hal. 37. 1819, as synonym. Not *Molina viscosa* Ruiz & Pav. 1798.

Gymnosperma glutinosum Less. Syn. Gen. Comp. 194. 1832.

Gymnosperma corymbosum DC. Prodr. **5**: 312. 1836.

Gymnosperma multiflorum DC. Prodr. **5**: 312. 1836.

Gymnosperma scoparium DC. Prodr. **5**: 312. 1836.

Selloa corymbosa Kuntze, Rev. Gen. Pl. **1**: 362. 1891.

Selloa multiflora Kuntze, Rev. Gen. Pl. **1**: 362. 1891.

Selloa scoparia Kuntze, Rev. Gen. Pl. **1**: 362. 1891.

The generic name *Selloa* has been independently published for two different genera of Asteraceae. The earlier genus of this name, published by Sprengel [9] in 1819, was based on *Selloa glutinosa*, supposed to be from Brazil, to which Sprengel later added [10] *Selloa capensis* Spreng., based on *Denekia capensis* Thunb. The latter species is the monotype of *Denekia* Thunb. (1800),[11] an unpreoccupied name, and Sprengel's action in displacing it by *Selloa* was of course unjustified even by the easy nomenclatorial practices of his time. Whether Lessing's course in giving the new name *Gymnosperma* [12] to *Selloa* Spreng. was a similar act of piracy, or whether it was due to ignorance of the 1819 publication of *Selloa* and the belief that it was published in 1826 and so antedated by *Selloa* H. B. K., is now impossible to ascertain. At any rate, the name *Gymnosperma* was adopted by DeCandolle in 1836 and has been used by all subsequent authors except

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[9] Nov. Prov. Hal. 36. 1819.

[10] Syst. Veg. **3**: 496. 1826.

[11] Prodr. Pl. Cap. (no. LVI of introd., also p.) 153. 1800 (brief generic diagnosis, with specific name but no specific description); Nov. Gen. Pl. 177. 1801.

[12] Syn. Gen. Comp. 194. 1832.

Kuntze [13] and the present writer,[14] who have restored *Selloa* Spreng. to the position to which it is entitled by the law of priority. In 1925 the writer was able to examine the type of *Selloa glutinosa* Spreng. in the Schultz Bipontinus Herbarium and the types of *Gymnosperma corymbosum*, *G. multiflorum*, and *G. scoparium* DC. in the Prodromus Herbarium and found them all to belong to a single species, for which the name *Selloa glutinosa* Spreng. must be used on the basis of priority. Sprengel's ascription of a Brazilian habitat to the plant was evidently based on an error originating in the garden at Berlin, whence he described the species.

The second *Selloa*, described from Mexico by Humboldt, Bonpland, and Kunth in 1820 and belonging to the Heliantheae, was likewise monotypic. In 1826 Sprengel published for it and for a second species (*F. linearis*), which he described from Monte Video, the new name *Feaea*. This second species, *Feaea linearis* Spreng.,[15] was referred by Baker[16] to the synonymy of *Spilanthes arnicoides* DC. var. *macropoda* (DC.) Baker. A. H. Moore, in his revision of *Spilanthes*, used[17] for the latter the name *S. decumbens* (J. E. Smith) A. H. Moore var. *macropoda* (DC.) A. H. Moore, and placed *Feaea linearis* among his doubtful species. Sprengel's type, which the writer examined and photographed in 1925, is a *Spilanthes* of the *S. decumbens* group and appears to be somewhat intermediate between *S. decumbens* var. *macropoda* (DC.) A. H. Moore and var. *leptophylla* (DC.) A. H. Moore of Moore's revision. Sprengel's diagnosis of *Feaea* is very clearly based on that of *Selloa* H. B. K. and his first species is *F. plantaginea* (*Selloa plantaginea* H. B. K.), so that there can be no question that this species is to be taken as the type of his genus. Unfortunately the name is preoccupied by the earlier *Feea* Bory,[18] now considered a synonym of *Trichomanes* but regarded as valid by earlier authors (Gaudichaud in 1826, Presl in 1843, Brongniart in 1849). Both genera were named for the same botanist, A. L. A. Fée, and the difference in spelling is so slight that the names must be regarded as homonyms. Sprengel's name has, in fact, been "corrected" by Kuntze to *Féea*. Inasmuch as no other generic name has been proposed for *Selloa* H. B. K., a new one must be provided. The synonymy of this genus and species will then be as follows:

Feaella Blake, nom. nov.

Selloa H. B. K. Nov. Gen. & Sp. **4**: 265. 1820. Not *Selloa* Spreng. 1819.
Feaea Spreng. Syst. Veg. **3**: 362, 581. 1826. Not *Feea* Bory, 1824.
Feea Kuntze, Rev. Gen. Pl. **1**: 338. 1891.

Feaella plantaginea (H. B. K.) Blake.

Selloa plantaginea H. B. K. Nov. Gen. & Sp. **4**: 266. *pl. 395*. 1820.
Feaea plantaginea Spreng. Syst. Veg. **3**: 581. 1826.
Feea plantaginea Kuntze, Rev. Gen. Pl. **1**: 338. 1891.
Sabazia subnuda Robins. & Seat. Proc. Amer. Acad. **28**: 108. 1893.

Gutierrezia neaeana (DC.) Schultz Bip.

Brachyris neaeana DC. Prodr. **5**: 313. 1836.

This species, described by DeCandolle from material collected by Née without definite locality but "verisim. ex Mexico aut ex Chili," has apparently not been collected again. At any rate, the writer has been unable to match the plant, on the basis of an examination of the type, with any species known from the

[13] Rev. Gen. Pl. **1**: 361. 1891.

[14] In Standley, "Trees and shrubs of Mexico," Contr. U. S. Nat. Herb. **23**: 1484. 1926.

[15] Syst. Veg. **3**: 581. 1826.

[16] In Mart. Fl. Bras. **6**[3]: 234. 1884.

[17] Proc. Amer. Acad. **42**: 550. 1907.

[18] Dict. Class. Hist. Nat. **6**: 446. 1824. (Genus and two species described.)

west coast of South America; it is not one of the Mexican species. The following description will facilitate its recognition: Suffruticulose, about 4-stemmed, 6 cm. high, glabrous and glutinous; leaves linear-oblanceolate. obtuse or acutish, the lower up to 22 mm. long, 2 mm. wide; heads 1 to 4, on pedicels up to 1.3 cm. long; involucre subcampanulate, 6 mm. high, 5 mm. thick, few-seriate, the phyllaries few, appressed, triangular to oblong, acuminate to an obtusish apex or the inner obtusish, scarious-margined, not ciliate, the herbaceous tip shorter than the indurate base, much shorter in the innermost; rays 6 or more (8 to 10, according to DeCandolle), the lamina oval, 4 mm. long; receptacle fimbrillate; young disk achenes hispidulous, the pappus of about 10 oblong-linear obtuse squamellae, alternately unequal, 1.5 and 1.2 mm. long.

The name *Gutierrezia neaeana*, used by Schultz Bipontinus[19] in 1855 without very definite citation of synonym, is here given proper standing. Schultz's entire treatment was as follows: "Zu *Gutierrezia* müssen ausser den von A. Gray gezogenen Arten noch gerechnet werden:

" *Gutierrezia* (Brachyris) *paniculata* Sch. Bip.
" — — *Neaeana* Sch. Bip.
" — (Hemiachyris Schauer) *glutinosa* Sch. Bip."

Gutierrezia resinosa (Hook. & Arn.) Blake.

Galinsogea ? resinosa Hook. & Arn. Bot. Beechey Voy. 32. 1830.
Odontocarpha poeppigii DC. Prodr. **5**: 72. 1836.
Brachyris paniculata DC. Prodr. **5**: 313. 1836.
Gutierrezia paniculata A. Gray, Pl. Wright. **2**: 78. 1853, in text.
Bahia resinosa DC.; Hook. & Jacks. Ind. Kew. **1**: 264. 1893, as synonym of *Galinsoga resinosa*.

The types of *Galinsogea? resinosa* Hook. & Arn., *Odontocarpha poeppigii* DC., and *Brachyris paniculata* DC. belong to the same species. *Gutierrezia linearifolia* Lag., type species of the genus, described as from Mexico, is perhaps identical, as has been suggested by Gray,[20] but in view of the insufficiency of the original description it would be unwise to take up this name for it at the present time.

Lepidophyllum phylicaeforme (Meyen) Hieron.; R. E. Fries, Nov. Act. Soc. Sci. Upsal. IV. **1**: 77. 1905.

Baccharis phylicaeformis Meyen, Reis. Erd. **2**: 31. 1835.
Parastrephia ericoides Nutt. Trans. Amer. Phil. Soc. n. ser. **7**: 450. 1841.
Vernonia phylicaeformis Walp. Nov.Act. Acad. Caes. Leop. Carol. **19**: Suppl. **1**: 252. 1843.

The genus *Parastrephia* Nutt.,[21] with the single species *P. ericoides*, was described from fragmentary specimens brought from near Arequipa by Cursons. It was said to have heterogamous heads with the outer flowers tubular, 5-toothed, and staminate, and the inner filiform, obliquely 2-toothed, and pistillate. The generic name (from παραστρέφω, to divert; "to invert," Nuttall) was given in allusion to this supposed inversion of the arrangement (pistillate flowers outside, hermaphrodite inside) which is universal in heterogamous heads of Asteraceae. As indicated by Bentham,[22] Nuttall's description must have been based on abnormal specimens or more probably on erroneous observation. The genus was retained by Bentham and Hooker, and placed in the Baccharideae next to *Baccharis*, Nuttall's species being equated with *Baccharis phylicaeformis* Meyen.

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[19] Flora **38**: 115. 1855.
[20] Syn. Fl. **1**[2]: 115. 1884.
[21] Trans. Amer. Phil. Soc. n. ser. **7**: 449. 1841.
[22] Benth. & Hook. Gen. Pl. **2**: 286. 1873.

O. Hoffmann [23] also retained the genus in the same position, with the suggestion that it might be a *Lepidophyllum*. When Hieronymus' herbarium transfer of Meyen's name was published by R. E. Fries, no reference was made to Nuttall's name. An examination of Nuttall's fragmentary type in the British Museum shows that his plant is a *Lepidophyllum* apparently identical in all features but one with a collection (*R. E. Fries* 675, from Argentina) distributed as *L. phylicaeforme* (Meyen) Hieron. In Nuttall's plant the stem is densely white-tomentose, as it is described in Meyen's original, which also came from Arequipa. *Fries* 675 has the stem and even the young branchlets glabrous and glutinous, and evidently represents Walpers' var. *lucida* of "*Vernonia phylicaeformis*." This plant, differing so far as is known only in its lack of tomentum, may prove to represent a distinct species, but the material at hand is entirely inadequate for decision. The generic name *Parastrephia* Nutt. (1841) can now be referred definitely to the synonymy of *Lepidophyllum* Cass. (1816).

Distasis heterophylla Hemsl. Biol. Centr. Amer. Bot. **2**: 119. 1881.

This little plant continues to be known only from the scanty original collection by Thomas Coulter (no. 406) from "Xalapa" (i. e. Jalapa, Veracruz). Gray considered that it "is hardly of this genus [*Chaetopappa*], probably not of the tribe." [24] Before its description by Hemsley, it was given critical mention by Bentham and Hooker,[25] who stated that the disk corollas were at least sometimes 4-merous and the pappus of 4 or 5 short lacerate paleae and 1 to 3 slender caducous awns. Hemsley described the disk corollas as 4 or 5-merous and the pappus as of 4 or 5 lacerate paleae with no seta or 1 (or 1 to 3 according to Bentham and Hooker). The writer's dissections of flowers from a fragment of a head of the type presented from Kew do not entirely agree with either of these accounts. In all flowers in place in the head, as well as in most of the loose ones, the pappus in both ray and disk consisted of several squamellae, about 0.4 mm. long, united into a cup and lacerate-fimbriate for nearly or quite their whole free length (about one-fifth to one-half the total length). In one ray flower a single hispidulous bristle about 1.5 mm. long was present. The achenes, none of which seemed perfectly mature, were 2 to 4-nerved and sparsely hirsute. The rays were tiny, about 2 or 3-seriate, the short erect ligule varying from oblong, 3-denticulate, and much shorter than the style to linear, entire, and subequal to the style. The style branches in the disk were oblong, with strong stigmatic lines and short obtuse depressed-triangular papillate appendages. The disk corollas were nearly always 5-merous, only a single 4-merous corolla being found. Among the loose flowers in the pocket was a little cluster of very young disk flowers with a pappus of 5 slender awns 2.4 mm. long alternating with 5 oblong fimbriate free squamellae about 0.4 mm. long. These agree very well with those of *Chaetopappa asteroides* DC. and apparently belong to that species and were accidently introduced into the pocket.

Distasis heterophylla differs from the three better known species of *Chaetopappa* in its numerous, 2 or 3-seriate, tiny rays with erect ligules (of unknown color, but probably white), and its trifid or pinnatifid leaves, as well as in its perennial duration. *Chaetopappa asteroides* var. *imberbis* A. Gray, a rare form, is described as lacking awns and having the pappus paleae sometimes coroniform-concreted. *D. heterophylla*, consequently, seems properly regarded as a member of the genus *Chaetopappa*, aberrant in the character of its rays but not meriting generic distinction.

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[23] In Engl. & Prantl, Pflanzenfam. **4**[5]: 172. 1890.

[24] Syn. Fl. **1**[2]: 165. 1884.

[25] Gen. Pl. **2**: 268. 1873, under *Distasis*.

The synonymy of this genus is involved. The first name given it, *Chaetanthera* Nutt.,[26] based on *C. asteroides* Nutt., had already been used by Ruiz and Pavon for a valid genus of Compositae. In an erratum slip bound in the copy of this volume in the library of the United States Department of Agriculture the name is corrected to *Chaetaphora* (sic), and the latter name is given in the index to the volume (p. 409), where *Chaetanthera* does not appear. This name also was preoccupied, having been used by Schrank (or Agardh), and also by Bridel (in the forms *Chaetophora* and *Chaetephora*). DeCandolle consequently renamed[27] the genus *Chaetopappa*, citing "Chaetophora Nutt. in litt. 1825" as a synonym. On a previous page DeCandolle[28] had published the genus *Distasis*, based on *D. modesta*. Soon afterward Rafinesque[29] published the genus *Diplostelma*, with three "species," all of which are reducible to *Chaetopappa asteroides*. In 1849 Gray[30] published "Diplostelma, Nov. Gen. (non Raf.)", based on *D. bellioides*, which he somewhat doubtfully regarded as a new genus closely allied to *Chaetopappa* but distinguished by various minor characters. His explanation of his use of a name, already employed by Rafinesque for a genus Gray regarded as a synonym of *Chaetopappa*, is of interest: "To avoid an increase of synonymy in case the discovery of intermediate forms should invalidate these distinctions, I have taken up for the name of this genus a superseded synonyme of Chaetopappa." The genera *Distasis* and *Chaetopappa* were regarded as distinct by Bentham and Hooker, who were followed by Hemsley, but were rightly united by Gray[31] in 1880. Gray unfortunately adopted the posterior name *Chaetopappa*. The use of the prior name *Distasis* is required by the American Rules, and the two following species should be referred to it.

Distasis asteroides (Nutt.) Kuntze, Rev. Gen Pl. 1: 334. 1891, as *D. asterodes*.
Chaetanthera asteroides Nutt. Journ. Acad. Phila. 7: 111. 1834.
Chaetopappa asteroides DC. Prodr. 5: 301. 1836.
Chaetaphora asteroides Nutt. Journ. Acad. Phila. 7: 409 (index). 1837.

Distasis parryi (A. Gray) Kuntze, Rev. Gen. Pl. 1: 334. 1891.
Chaetopappa parryi A. Gray, Proc. Amer. Acad. 16: 82. 1880.

Aster moranensis H. B. K. Nov. Gen. & Sp. 4: 93. 1820.
Aster lima Lindl. in DC. Prodr. 5: 230. 1836.
Aster lindenii Schultz Bip. in Seem. Bot. Voy. Herald 302. 1856.
Aster ehrenbergii Schultz Bip. in Seem. Bot. Voy. Herald 302. 1856.
Aster purpurascens Schultz Bip. in Seem. Bot. Voy. Herald 303. 1856.

The type of *Aster moranensis* H. B. K. (*Bonpland* 4113, from Moran) proves to be identical with the characteristic Mexican species almost universally known as *A. lima* Lindl. The types of *Aster lindenii* (*Linden* 1170), *A. ehrenbergii* (*C. Ehrenberg* 791b and 747, from "prope Regle"), and *A. purpurascens* Schultz Bip. (*C. Ehrenberg* 474), all in the Schultz Bipontinus Herbarium, belong to the same species. Schultz's three species were described as "species vel varieties" allied to *A. lima*. The color of the rays in this species is not definitely known, and may be variable. Lindley says they are purple, but Kunth and Schultz describe them as white. Not improbably they are normally white at first, turning purplish in age, as in some other species of *Aster*.

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[26] Journ. Acad. Phila. 7: 111. 1834.
[27] Prodr. 5: 301. 1836.
[28] Prodr. 5: 279. 1836.
[29] New Fl. N. Amer. 2: 44. "1836" (1837).
[30] Mem. Amer. Acad. n. ser. 4: 72, footnote. 1849.
[31] Proc. Amer. Acad. 16: 82. 1880.

Bentham and Hooker [32] referred *A. "limae," A. lindenii,* and *A. ehrenbergii* Schultz Bip. to *A. riparius* H. B. K., but apparently incorrectly. Gray [33] treats *A. riparius* as a species of southern Arizona and Mexico, with the synonym *A. sonorae* A. Gray.

Erigeron spathulatus Vahl in West, Bidr. Beskr. St. Croix 303. 1793.

Erigeron chinensis Jacq. Pl. Hort. Schönbr. **3**: 30. *pl. 303.* 1798.

Conyza apurensis H. B. K. Nov. Gen. & Sp. **4**: 73. 1820.

Erigeron apurensis Griseb. Fl. Brit. W. Ind. 365. 1861.

The type (*Bonpland*, from Rio Apure, in humidis) of *Conyza apurensis* H. B. K. proves to be identical with the common tropical American *Erigeron spathulatus* Vahl, and the name can now be referred to the synonymy of that species. Grisebach, who transferred *Conyza apurensis* to *Erigeron*, recorded it from St. Vincent, Trinidad, and Mexico to Venezuela. *Erigeron spathulatus* Vahl he listed only from Antigua and the Virgin Islands. His descriptions of the two species agree closely in practically every feature, the only difference of any apparent consequence being the key character of pappus (1-serial in *E. spathulatus*, 2-serial, with outer series minute, in *E. apurensis*). Study of material of the plant commonly called *Erigeron spathulatus* from various localities, including the island of St. Croix (the type locality), shows that the long bristles of the essentially 1-seriate pappus are interspersed with a few very short ones, and that in addition there are often overlapping hairs from the apex of the achene which suggest a minute setaceous exterior pappus as described by Grisebach for *E. apurensis*. There seems no reason to doubt that the distinction attempted by Grisebach had no basis in fact, and that his *E. spathulatus* and *E. apurensis* are to be united under the earlier name, *E. spathulatus* Vahl.

Hauman-Merck [34] has adopted for this species the name *Erigeron chinensis* Jacq., considering *E. spathulatus* as a "synonyme de *E. chinensis*, d'après Hieronymus (Herb. de Berlín)." Jacquin's species, based on plants grown from seed sent from the Cape of Good Hope and said to be originally from China, certainly agrees well enough both as to description and plate with *E. spathulatus*. As his name is several years later than Vahl's, it is fortunately not necessary to adopt it. It was used by Baker,[35] who gave *Conyza apurensis* and *Erigeron apurensis* as synonyms, but did not mention *E. spathulatus*.

Baccharis glutinosa Pers. Syn. Pl. **2**: 425. 1807.

Molina viscosa Ruiz & Pav. Syst. Veg. Peruv. Chil. 207. 1798. Not *Baccharis viscosa* Lam. 1783.

Baccharis coerulescens DC. Prodr. **5**: 402. 1836.

Baccharis alamani DC. Prodr. **5**: 402. 1836.

Baccharis longifolia DC. Prodr. **5**: 402. 1836.

The types of *Baccharis coerulescens* (*Berlandier* 2343), *B. alamani* (*Alamán*), and *B. longifolia* DC. (*Berlandier* 624 and 653) have been examined by the writer and found to be referable to the common *Baccharis glutinosa*. The first two have commonly been so referred, but the last was apparently first placed in the synonymy of *B. glutinosa* by the writer [36] in 1926.

Bacccharis pilularis DC. Prodr. **5**: 407. 1836.

Baccharis consanguinea DC. Prodr. **5**: 408. 1836.

Baccharis congesta DC. Prodr. **5**: 410. 1836.

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[32] Gen. Pl. **2**: 272. 1873.

[33] Syn. Fl. 1^2: 202. 1884.

[34] Anal. Mus. Nac. Buenos Aires **24**: 423. 1913.

[35] In Mart. Fl. Bras. 6^3: 31. 1884.

[36] Blake in Standl. Contr. U. S. Nat. Herb. **23**: 1506. 1926.

Examination of the type of *Baccharis congesta* DC. ("Mexico ad Real del Monte," *Haenke*) shows that it is to be referred to the Californian *B. pilularis* DC., and that, like so many of Haenke's plants, it was mislabelled as to locality. A similar error has been shown by Gray in the case of *B. haenkei* DC., also described from "Real del Monte," when in fact it is *B. douglasii* DC. and was undoubtedly collected in California. The descriptions indicate that *B. pilularis* was based on the procumbent form of the species, *B. consanguinea* and *B. congesta* on the erect one.

Baccharis squarrosa H. B. K. Nov. Gen. & Sp. **4**: 67. 1820.

Baccharis seemanni A. Gray, Proc. Amer. Acad. **15**: 33. 1879.

The type of *Baccharis squarrosa*, from Guanajuato, is the same species as *B. seemanni* A. Gray. It bears an annotative label written by Dr. Gray in May, 1887, on his last voyage to Europe, suggesting that it be compared with that species. The equation of the two names was made by the writer, without discussion, in Standley's "Trees and shrubs of Mexico."[37]

Baccharis thesioides H. B. K. Nov. Gen. & Sp. **4**: 61. 1820.

Baccharis ptarmicaefolia DC. Prodr. **5**: 419. 1836.

Baccharis sulcata DC. Prodr. **5**: 419. 1836.

Examination of the types of *Baccharis ptarmicaefolia* (*Berlandier* 572) and *B. sulcata* DC. (*Mendez*) shows that both are properly placed in the synonymy of *B. thesioides* H. B. K. *Baccharis ptarmicaefolia* was so referred by Gray in the Synoptical Flora, and *B. sulcata* by the writer.[38] The type of the latter is the narrowest-leaved form of the species, with linear or barely linear-oblanceolate leaves up to 3.7 cm. long and 3 mm. wide, bearing 3 to 6 pairs of sharp teeth above the middle.

Archibaccharis serratifolia (H. B. K.) Blake.

Baccharis serratifolia H. B. K. Nov. Gen. & Sp. **4**: 59. 1820.

Baccharis mucronata H. B. K. Nov. Gen. & Sp. **4**: 60. 1820.

Baccharis micrantha H. B. K. Nov. Gen. & Sp. **4**: 60. 1820.

Pluchea floribunda Hemsl. Diag. Pl. Mex. **2**: 32. 1879.

Hemibaccharis mucronata Blake, Contr. U. S. Nat. Herb. **20**: 550. 1924.

Archibaccharis mucronata Blake in Standl. Contr. U. S. Nat. Herb. **23**: 1508. 1926.

The name *Baccharis mucronata* H. B. K. has been in current use for a common Mexican species now referred to the closely related genus *Archibaccharis* Heering (*Hemibaccharis* Blake), while the identity of *B. serratifolia* and *B. micrantha* has apparently never been ascertained. Examination of the types in the Paris Herbarium, all of which are staminate, shows that all three are conspecific. Owing to priority of position, the name to be adopted for the species is unfortunately *Baccharis serratifolia*, rather than the well known *B. mucronata*. The types of the first two came from the State of Guanajuato, between Santa Rosa and Los Ioares, and that of the third from near the city of Guanajuato.

Pluchea odorata (L.) Cass. Dict. Sci. Nat. **42**: 3. 1826.

Conyza odorata L. Syst. Nat. ed. 10. **2**: 1213. 1759.

Conyza cortesii H. B. K. Nov. Gen. & Sp. **4**: 75. 1820.

Pluchea cortesii DC. Prodr. **5**: 452. 1836.

The writer's doubtful reference [39] of *Conyza cortesii* H. B. K. to the synonymy of *Pluchea odorata* has been confirmed by examination of the type (*Bonpland*

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[37] Contr. U. S. Nat. Herb. **23**: 1505. 1926.

[38] In Standl. Contr. U. S. Nat. Herb. **23**: 1506. 1926.

[39] In Standl. Contr. U. S. Nat. Herb. **23**: 1510. 1926.

3982, from Cuernavaca) in the Humboldt and Bonpland Herbarium at Paris. Hemsley [40] listed the species in full both as *Conyza cortesii* and as *Pluchea cortesii*.

Pluchea salicifolia (Mill.) Blake.

Conyza salicifolius (*salicifolia* in errata) Mill. Gard. Dict. ed. 8. *Conyza* no. 6. 1768.

Baccharis adnata Humb. & Bonpl.; Willd. Enum. Pl. 2: 870. 1809.

Conyza adnata H. B. K. Nov. Gen. & Sp. 4: 74. 1820.

Pluchea subdecurrens Cass. Dict. Sci. Nat. 42: 4. 1826.

Pluchea adnata Mohr, Contr. U. S. Nat. Herb. 6: 790. 1901.

Conyza salicifolia was described by Miller from Veracruz, with the citation of a polynomial name from Houstoun's manuscript. The specimen from Houstoun in the Banksian Herbarium mentioned by Britten [41] was not found by the writer, but the other specimen of the species from Houstoun in the Sloane Herbarium (vol. 292, folio 67) was found to be a good match for *Purpus* 3121, a characteristic example of the plant usually known as *Pluchea subdecurrens*. Miller's name, which is sufficiently defined by his description, must consequently be adopted for the species.

Delilia biflora (L.) Kuntze, Rev. Gen. Pl. 1: 333. 1891, as *Delilea*.

Milleria biflora L. Sp. Pl. 919. 1753.

Milleria triflora Mill. Gard. Dict. ed. 8. *Milleria* no. 4. 1768.

Delilia berterii Spreng. Bull. Soc. Philom. 1823: 54. *pl. 1* [=*2*]. 1823.

Meratia sprengelii Cass. Dict. Sci. Nat. 30: 66. 1824.

Elvira martyni Cass. Dict. Sci. Nat. 30: 68. 1824.

Elvira biflora DC. Prodr. 5: 503. 1836.

Milleria trifolia Hook. & Jacks. Ind. Kew. 2: 238. 1894, sphalm.

The name *Elvira* Cass., in general use for a century for a small genus of the tribe Millerinae, must give way to *Delilia* Spreng., proposed a year earlier. Sprengel's type, grown from seed collected by Bertero on the Río Magdalena, Colombia, has been examined by the writer in the Schultz Bipontinus Herbarium. Through some error of observation Sprengel described the single achene in the 3-flowered head as bearing at its apex one pistillate and two hermaphrodite corollas, on which account he suggested the group name Synanthae for the "tribus seu ordo singularis" which he took it to represent among the Compositae. Cassini, who knew the plant only from Sprengel's description and plate, a year later corrected Sprengel's remarkable error and recognized the true affinity of the plant, but was led to retain the genus as distinct from *Elvira*, which he proposed at the same time for *Milleria biflora* L. There being already a genus *Lilaea* dedicated to the same botanist that Sprengel sought to honor, Cassini deemed it proper to rename the genus and species, but his own choice of name was unfortunate, there being an earlier *Meratia* of Loiseleur (1818). Kuntze, without examining Sprengel's publication, took up his name for the genus (misspelling it *Delilea*) on the basis of Cassini's discussion.

Miller's type of *Milleria triflora*, collected at "Campeachy" by Robert Millar and now in the British Museum, is also referable to *Delilia biflora*. His name apparently has not previously been referred to synonymy. In the Index Kewensis it is given as *Milleria trifolia*.

Milleria quinqueflora L. Sp. Pl. 919. 1753.

Milleria glandulosa DC. Prodr. 5: 503. 1836.

The type of *Milleria glandulosa* DC. (*Berlandier* 955, collected at Cuernavaca, Morelos, Mexico, October 20, 1827), examined by the writer in the Prodromus Herbarium, is ordinary *M. quinqueflora* L.

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[40] Biol. Centr. Amer. Bot. 2: 126, 133. 1881.

[41] Journ. Bot. Brit. & For. 36: 52. 1898.

Clibadium sylvestre (Aubl.) Baill. Hist. Pl. **8**: 307. 1882.

Baillieria sylvestris Aubl. Pl. Guian. **2**: 807. 1775.

Baillieria barbasco H. B. K. Nov. Gen. & Sp. **4**: 288. 1820.

Clibadium vargasii DC. Prodr. **5**: 506. 1836.

The types of *Clibadium vargasii* DC. (*Vargas* 13, Caracas) and *Baillieria barbasco* H. B. K. (*Humboldt & Bonpland*, "in umbrosis Javitae,") belong to *C. sylvestre*. The name *B. barbasco* was omitted from O. E. Schulz's revision of the genus *Clibadium*.[42] The identification of Aublet's type of *Baillieria sylvestris* has been discussed by the writer.[43]

Ichthyothere linearis (Benth.) Baker in Mart. Fl. Bras. **6**[3]: 154. 1884.

Latreillea linearis Benth. Ann. Nat. Hist. **2**: 110. 1839.

Ichthyothere angustifolia Glaz. Mém. Soc. Bot. France **3**: 408. 1910, nomen nudum.

Examination of the type number of *Ichthyothere angustifolia* Glaz. (*Glaziou* 21572, from "Guabiroba, au Morro Cubatao, Goyaz," in the Paris Herbarium), a name published without description, shows it to be referable to *I. linearis* (Benth.) Baker, the type of which (*Pohl* 472) has also been examined.

Ichthyothere terminalis (Spreng.) Blake, Journ. Washington Acad. Sci. **11**: 301. 1921.

Rolandra terminalis Spreng. Syst. Veg. **3**: 673. 1826.

Broteroa trinervata DC. Prodr. **5**: 636. 1836, as to specimens cited, not as to description.

Sprengel's type (Brazil, "*Otto*"), no. 1932 in his herbarium, has been examined in the Schultz Bipontinus Herbarium. Although DeCandolle's description of *Broteroa trinervata* (*Nauenbergia trinervata* Willd.,[44] *Brotera trinervata* Pers.[45]) agrees with *Flaveria trinervia* (Spreng.) Mohr, to which it is usually referred, the specimens so labeled in the Prodromus Herbarium (*Vargas* 239, evidently the principal basis of DeCandolle's citation of specimens; also *Schomburgk* 247 of 1838 and two other sheets, one numbered 238, without collector's name [collected by Vargas?], the other unlabeled) are all *Ichthyothere terminalis*.

Polymnia connata (Spreng.) Blake.

Gymnolomia connatum Spreng. Syst. Veg. **3**: 610. 1826.

Polymnia silphioides DC. Prodr. **5**: 516. 1836.

Sprengel's *Gymnolomia connatum*, like many others of his briefly described new species of Compositae, has remained unidentified. It was described as from "Brasil. Sello," but the type, now in the Schultz Bipontinus Herbarium, is labeled "Monte Video." Its identity with *Polymnia siliphioides* DC. is noted by Schultz on the label of the type.

Baltimora recta L. Mant. Pl. 288. 1771.

Wedelia populifolia Hook. & Arn. Bot. Beechey Voy. 435. 1841.

Baltimora scolospermum Steetz in Seem. Bot. Voy. Herald. 154. 1853.

Baltimora scolospermum var. *panamensis* Steetz in Seem. Bot. Voy. Herald 154. 1853.

Melampodium bonairense Boldingh, Fl. Dutch W. Ind. **2**: 107. *pl. 9*. 1914.

Baltimora ovata Rusby, Descr. New S. Amer. Pl. 151. 1920.

Examination of the types or authentic specimens of *Wedelia populifolia* (Realejo, Nicaragua, *Sinclair*, in Kew Herbarium), *Baltimora scolospermum* var. *panamensis* Steetz (*Seemann* 59, Panama, British Museum), *Melampodium bonairense*

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[42] Bot. Jahrb. Engler **46**: 613–628. 1912.

[43] Contr. Gray Herb. **52**: 4. 1917.

[44] Sp. Pl. **3**: 2393. 1803.

[45] Syn. Pl. **2**: 498. 1807.

Boldingh (*Boldingh* 7401, a cited specimen but not the type collection, in Kew Herbarium and Paris Museum), and *Baltimora ovata* Rusby (*Herbert H. Smith* 536, near Santa Marta, Colombia, N. Y. Bot. Gard.) has shown that all are referable to the synonymy of the widespread and weedy *Baltimora recta* L., described by Linnaeus from specimens grown at the Upsala garden and supposed to have originated in "Marilandia, ad urbem Baltimore." This species, which ranges from Mexico to the West Indies and south to Brazil, but has never been recorded with certainty from the United States, is somewhat variable in size of head and decidedly so in respect to the presence or absence of tubercles or wings on the fruit, but the differences seem purely individual and not correlated with geographic areas. Plukenet's figure (Mantissa, pl. 342, sixth figure) cited by Linnaeus for this plant, certainly belongs to *Verbesina occidentalis* (L.) Walt., to which (as *Sigesbeckia occidentalis*) it was referred by Linnaeus in the second edition of the Species Plantarum. Numerous other synonyms, long known to belong to this species, are here omitted. Some years ago the U. S. National Herbarium received specimens collected in eastern Java in 1920 by C. A. Backe, accompanied by the statement that the plant has run wild in that region.

Franseria artemisioides Willd. Sp. Pl. 4: 378. 1805.

Ambrosia arborescens Mill. Gard. Dict. ed. 8. *Ambrosia* no. 5. 1768. Not *Franseria arborescens* T. S. Brandeg. 1903.

Xanthium fruticosum L. f. Suppl. Pl. 418. 1781. Not *Franseria fruticosa* Phil. 1891.

Ambrosia frutescens Lam. Encycl. 1: 128. 1783, as synonym.

Miller's *Ambrosia arborescens* was grown at Chelsea from seed, originally from "Peru," sent him by Bernard de Jussieu. His specimen in the British Museum, labeled "Hort.," is of the present species, as is the specimen of *Xanthium fruticosum* L. f. in the Linnaean Herbarium. In the Index Kewensis Miller's name is left as a valid species, while *Ambrosia arborescens* of Lamarck[46] is referred to *Franseria artemisioides*. Lamarck attributes the name to Miller's Gardeners Dictionary, however, and his plant is identical with that of Miller. The Paris Royal Gardens name, *Ambrosia frutescens*, cited by Lamarck as a synonym, is omitted from the Index Kewensis.

Laxmannia arborea J. & G. Forst. Char. Gen. Pl. 94. *pl. 47*. 1776.

Petrobium arboreum R. Br.; DC. Prodr. 5: 502. 1836.

Pharetranthus ferrugineus Klatt, Flora 68: 204. 1885.

The uncertainty attaching to the locality where Cuming collected his no. 2454, on which Klatt based his genus *Pharetranthus*, has been discussed by Dr. B. L. Robinson.[47] The plant in question has been known almost universally as *Petrobium arboreum* R. Br., but its correct name, as Dr. Robinson has shown, is *Laxmannia arborea*. Klatt attributed the plant to the Philippine Islands, whereas it is definitely known only from St. Helena. The sheet in the Schultz Bipontinus Herbarium is accompanied by a handwritten label, "Cuming 2454 Pl. Ins. Philippin."; but another label, in an unrecognized hand, bears the correction: "Petrobium arboreum. Ins. St. Helena nec Philippin." A specimen of the same number at Kew is marked "Petrobium arboreum. St. Helena–Cuming 1841" in Bentham's hand on the original label. Any possible doubt remaining as to the locality of *Cuming* 2454 is removed by the list of his collecting localities given in Merrill's excellent account[48] of his life, where it is shown that the general

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[46] Encycl. 1: 128. 1783.

[47] Proc. Amer. Acad. 47: 207–208. 1911.

[48] E. D. Merrill, "Hugh Cuming's letters to Sir William J. Hooker," Philippine Journ. Sci. 30: 153–185. *pl. 1*. 1926.—List of localities, p. 175.

label "Ins. Philippinae 1841" was used for all his plants, including those from the Philippines, Malay Peninsula, Singapore, Sumatra, and St. Helena, and that Nos. 2444 to 2464 were collected on St. Helena.

Tragoceros americanum (Mill.) Blake.

Calendula americana Mill. Gard. Dict. ed. 8. *Calendula* no. 10. 1768.

Tragoceras microglossum DC. Prodr. **5**: 533. 1836.

The type of Miller's *Calendula americana* in the British Museum, collected at "Vera Cruz" by William Houstoun or grown by Miller from seed sent by him, is identical with *Pringle* 2450 and *Rose* 3672, both from Jalisco. The second specimen mentioned has also been compared by the writer with the type of *Tragoceras microglossum* DC. (*Mendez*, "prov. Leonina ultra Guanaxato") and found identical. It is doubtful whether *T. schiedeanum* Less. be not a form of the same species with slender-pediceled heads.

Philactis zinnioides Schrad. "Ind. Sem. Hort. Goett. 1831;" Linnaea **8**: Litt. 24. 1833.

Grypocarpha hebeclada Blake, Contr. Gray Herb. **52**: 35. 1917.

The identity of the genus *Philactis* Schrad.,[49] based on the single species *Philactis zinnioides* (from Mexico, *Spangenberg*), has remained a puzzle to subsequent students of Asteraceae. In Bentham and Hooker's Genera Plantarum, and in Engler and Prantl's Naturlichen Pflanzenfamilien, it is associated with *Tragoceros* and *Zinnia*, and is distinguished by its combination of elongate receptacle, sterile disk, and aristate achenes. The examination of an authentic specimen (*Schrader*, Hort.Gotting., 1832) in the Prodromus Herbarium, together with a copy of the excellent unpublished plate referred to by DeCandolle,[50] has revealed its identity with *Grypocarpha hebeclada* Blake. The description of the disk flowers as sterile, which has helped to conceal its identity, was due to their failure to produce fruit under conditions of cultivation. The young achenes in Schrader's specimen have every appearance of being fertile, as they are in wild specimens. A specimen of *Galeotti* 2468 (Oaxaca, altitude 1525 to 2135 meters), in the general collection of the Delessert Herbarium, belongs to the same species.

The only other species that has been referred to *Philactis* is *P. longipes* A. Gray, which is properly a *Heliopsis* and to be known as *Heliopsis longipes* (A. Gray) Blake.[51]

Philactis consists of three closely related species, which are keyed and briefly described [52] under *Grypocarpha* in the writer's treatment of the Asteraceae in Standley's "Trees and shrubs of Mexico". The generic names *Sanvitaliopsis* Schultz Bip.[53] and *Grypocarpha* Greenm.[54] must now be referred to the synonymy of *Philactis*, and the two species following transferred to it.

Philactis liebmannii (Klatt) Blake.

Zinnia liebmannii Klatt, Leopoldina **23**: 89. 1887.

Sanvitaliopsis liebmannii Schultz Bip.; Klatt, Leopoldina **23**: 89. 1887, as synonym.

Grypocarpha liebmannii Blake, Contr. Gray Herb. **52**: 35. 1917.

Melanthera fruticosa T. S. Brandeg. Univ. Calif. Publ. Bot. **10**: 421. 1924.

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[49] "Ind. Sem. Hort. Goett. 1831;" Linnaea **8**: Litt. 24. 1833.

[50] Prodr. **5**: 534. 1836.

[51] Contr. U. S. Nat. Herb. **22**: 608. 1924.

[52] Contr. U. S. Nat. Herb. **23**: 1527. 1926.

[53] *Sanvitaliopsis* Schultz Bip.; Benth. & Hook. Gen. Pl. **2**: 357. 1873, hyponym; Greenm. Proc. Amer. Acad. **41**: 261. 1905.

[54] *Grypocarpha* Greenm. in Sarg. Trees & Shrubs **1**: 145. *pl. 73*. 1903.

Philactis nelsoniii (Greenm.) Blake.

Grypocarpha nelsonii Greenm. in Sarg. Trees & Shrubs **1**: 145. *pl. 73*. 1903.
Sanvitaliopsis nelsonii Greenm. Proc. Amer. Acad. **41**: 261. 1905.

Zinnia maritima H. B. K. Nov. Gen. & Sp. **4**: 251. 1820.

Anaitis acapulcensis DC. Prodr. **5**: 629. 1836.

In Bentham and Hooker's Genera Plantarum [55] the monotypic genus *Anaitis* DC.[56] is referred to *Sanvitalia*, on the basis of De Candolle's description and of the examination of an authentic specimen in the Cosson Herbarium. This disposition of the genus is followed by O. Hoffmann in the Pflanzenfamilien. Examination of the type (*Haenke*, Acapulco) in the Prodromus Herbarium and of the better duplicate in the Schultz Bipontinus Herbarium, which is evidently the specimen referred to by Bentham and Hooker, shows that Bentham's identification was incorrect, and that *Anaitis acapulcensis* DC. is in fact a synonym of *Zinnia maritima* H. B. K., the type of which likewise came from Acapulco. The name *Anaitis* DC. must consequently take its place in the synonymy of *Zinnia*, not *Sanvitalia*.

Sigesbeckia flosculosa L'Hér. Stirp. Nov. 37. *pl. 19*. 1784.

Melampodium? dombeyanum DC. Prodr. **5**: 521. 1836.

Melampodium dombeyanum, based on a specimen in the Prodromus Herbarium collected by Dombey in Peru, was placed by DeCandolle among the "Species non satis notae" and has retained the same position to this day. Examination of the type, which is in very young flower, has shown its identity with *Sigesbeckia flosculosa*. The latter also was described from a Peruvian collection by Dombey.

Jaegeria hirta (Lag.) Less. Syn. Gen. Comp. 223. 1832.

Acmella hirta Lag. Gen. & Sp. Nov. 31. 1816.
Jaegeria mnioides H. B. K. Nov. Gen. & Sp. **4**: 278. *pl. 400*. 1820.
Spilanthes mariannae DC. Prodr. **5**: 623. 1836.
Jaegeria discoidea Klatt, Jahrb. Hamb. Wiss. Anst. **10**[2]: 126. 1893.

Jaegeria mnioides H. B. K. proves on examination of the type at Paris to be merely a dwarfed state of the common *Jaegeria hirta*, as already suggested by Dr. B. L. Robinson [57] in his revision of the genus. *Vauthier* 332 in the Prodromus Herbarium, type of *Spilanthes mariannae* DC., is *Jaegeria hirta*, although the name was referred by Baker [58] to *Spilanthes acmella* var. *uliginosa* (Swartz) Baker, and by A. H. Moore [59] to *Spilanthes ciliata* H. B. K. *Jaegeria discoidea* Klatt, based on *Pringle* 4279 and retained as a species by Dr. Robinson, is merely a dwarf state of *J. hirta*, with subsessile heads.

Eclipta alba (L.) Hassk. Pl. Jav. Rar. 528. 1848.

Verbesina alba L. Sp. Pl. 901. 1753.
Verbesina conyzoides Trew, Pl. Rar. 8. *pl. 6*. 1763.
Eclipta erecta L. Mant. Pl. 286. 1771.
Wiborgia ? oblongifolia Hook. Bot. Misc. **2**: 226. 1831.
Galinsoga ? oblongifolia DC. Prodr. **5**: 677. 1836.

In Robinson and Greenman's revision of *Verbesina*, the name *Verbesina conyzoides* Trew was placed [60] among the doubtful species, the authors not having had opportunity to consult a copy of Trew's work. His plate, examined at Kew in 1925, is a good representation of *Eclipta alba*, and his name may now take its

[55] Gen. Pl. **2**: 358. 1873.
[56] Prodr. **5**: 628. 1836.
[57] Proc. Amer. Acad. **35**: 317. 1900.
[58] In Mart. Fl. Bras. **6**[3]: 233. 1884.
[59] Proc. Amer. Acad. **42**: 539. 1907.
[60] Proc. Amer. Acad. **34**: 564. 1899.

place in the extensive synonymy of that species. The plant is said to have been grown from unnamed seed from an unknown source. The type of *Wiborgia ? oblongifolia* Hook. at Kew, collected by Cruckshanks at Lurin, near Lima, Peru, belongs to the same species.

Eclipta bellidioides (Spreng.) Schultz Bip.

Jaegeria bellidioides Spreng. Syst. Veg. **3**: 591. 1826.
Eclipta elliptica DC. Prodr. **5**: 491. 1836.
Wollastonia prostrata DC. Prodr. **5**: 549. 1836.

The types of *Jaegeria bellidioides* (*Sellow*, Montevideo), *Eclipta elliptica* (*Herb. Imp. Bras.* 1024, Province Rio Grande, Brazil), and *Wollastonia prostrata* (*Herb. Imp. Bras.* 1073, from the same locality) are all conspecific. The identity of Sprengel's type was recognized by Schultz Bipontinus in 1857, but his name has remained unpublished.

Eclipta megapotamica (Spreng.) Schultz Bip.

Verbesina megapotamica Spreng. Syst. Veg. **3**: 578. 1826.
Eclipta lanceolata DC. Prodr. **5**: 491. 1836.

Sprengel's type, collected by Sellow "ad fl. magnum Amer. austr. (Rio Grande)," is identical with *Eclipta lanceolata* DC., which was based on a sheet of *Herb. Imp. Bras.* 1007 in the Paris Herbarium. Both have been examined by the writer. The identity of Sprengel's type, in this case as in that of the preceding species, was recognized by Schultz long ago, but his names ("in litt. ad cl. Asa Gray 1857") have remained unpublished.

Sclerocarpus baranguillae (Spreng.) Blake.

Melampodium baranguillae Spreng. Syst. Veg. **3**: 619. 1826.
Melampodium baranquillae DC. Prodr. **5**: 566. 1836, in synonymy.
Sclerocarpus columbianus Rusby & Blake in Blake, Contr. U. S. Nat. Herb. **22**: 609. 1924.

Examination of the type of *Melampodium baranguillae* Spreng., in the Schultz Bipontinus Herbarium, shows it to be identical with *Sclerocarpus columbianus* Rusby & Blake. Sprengel's type was collected by Bertero "ad fl. Magdalenae," and the type of *S. columbianus* came from Cienaga, near Santa Marta, Colombia, in the same region. The species is so closely similar to *S. africanus* Jacq. that DeCandolle's reference of *Melampodium baranquillae* to the synonymy of that plant is easily understood when specimens are compared. The material now at hand is scanty, consisting of one collection of *S. baranguillae* (*S. columbianus*) and two of *S. africanus*, but is sufficient to indicate the apparent distinctness of the two plants. There is no obvious difference in pubescence, foliage, or corollas, but the fruiting bracts and achenes of *S. africanus* are distinctly larger. In *S. africanus* the fruiting pales are 9 to 10 mm. long and the achenes 6.5 to 7 mm.; in *S. baranguillae* the pales are only 5 to 7 mm. long and the achenes 4 to 5.5 mm. For the present, then, the species may be recognized as distinct on the basis of these characters of the fruit. Their likeness in all other respects is so great, however, as to suggest that the apparent differences may be due only to lack of sufficient material, and that the two will be found indistinguishable when more specimens are brought together.

The occurrence in Columbia and in Africa of two plants so closely related, whether they eventually prove identical or not, raises an interesting question of plant distribution. *S. africanus* is recorded by Oliver and Hiern [61] from Upper Guinea, Cordofan (Kordofan), Abyssinia, Gallabat (Galabat), Mozambique District, and "perhaps introduced" in cornfields in India. In the "Flora o

[61] Fl. Trop. Afr. **3**: 374. 1877.

British India" it is recorded [62] from northern and central India and from both coasts of the Peninsula, reaching an altitude of about 1,675 meters in fields in the western Himalaya. It was originally described by Jacquin from plants cultivated at Vienna from Africa, without definite locality. DeCandolle suggested that the species was probably introduced from Africa into India and also into Colombia.[63] At the time he wrote the only definitely known species of the genus was *S. africanus*. Some 14 species are now known, all confined to North America and northern South America except *S. africanus* Jacq. and *S. discoideus* Vatke, the latter described from Abyssinia.

The propriety of referring *S. discoideus* Vatke to *Sclerocarpus* has been questioned by Bentham and Hooker and by Oliver and Hiern. It was named but not characterized by Schultz Bipontinus as a member of the genus *Guizotia*. Examination of *Schimper* 529 (the type collection) in the U. S. National Herbarium shows that the species can not be placed either in *Sclerocarpus* or in *Guizotia*. The plump, bluntly quadrangular, distinctly compressed achenes are at maturity nearly or completely enclosed in the boat-shaped pales, but these are open and not indurated even in age. The disk corollas and styles, moreover, are different from those of *Sclerocarpus*. The corollas are similar to those of *Guizotia*, but the style branches are very different, and the compressed (not obcompressed) achene excludes it from that genus. Comparison with various allied genera shows that the species can be placed in *Sigesbeckia* without requiring any change in the character of that genus beyond the admission of discoid heads, and it is accordingly here so referred.[64] It is most closely allied to *Sigesbeckia orientalis* (Schultz Bip.) Oliver & Hiern, in which the outer phyllaries are scarcely different in shape although very much smaller, shorter than or only slightly surpassing the disk. *Sclerocarpus africanus* remains the only presumably native Old World species of its genus.

Nearly all systematic works citing the name *Sclerocarpus* Jacq. base it on a double reference—Jacquin's Icones Plantarum Rariorum (1782) and his paper "Tria genera plantarum nova," published in 1787, usually quoted as from "Acta Helvetica vol. 9." DeCandolle attributes the genus to the latter work (the date of which he gives as 1786), and the species *S. africanus* to the former. The treatment in the first of these works [65] does not constitute publication of the genus or species under either the American or the International Rules of Nomenclature. The colored plate is merely a good habit figure, without details or dissections, and bears the name *Sclerocarpus africanus* and the reference "Act. helv. vol. 9." The text referring to the plate consists only of the following: "176 SCLEROCARPUS AFRICANUS. *Linn. syst. Act. helv. vol. 9.* Pars caulis florentis."

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[62] Hook. f. Fl. Brit. Ind. 3: 305. 1880.

[63] O. Hoffmann, in Engl. & Prantl, Pflanzenfam. 4[5]: 232. 1890, attributed to *S. africanus* the range: "Im östlichen und westlichen tropischen Afrika einheimisch und auch in Ostindien and Westindien gefunden, dort vermutlich eingeschleppt." I have found no evidence that the species occurs in either the East or West Indies, and Hoffmann's range as quoted is apparently a very incorrect rendering of that given by DeCandolle.

[64] **Sigesbeckia discoidea** (Vatke) Blake. *Guizotia discoidea* Schultz Bip. in Schweinf. Beitr. Fl. Aethiop. 150. 1867, nomen nudum. *Sclerocarpus discoideus* Vatke, Linnaea 39: 495. 1875.—Schultz mentioned only a collection made by Schimper at Debra-Eski, altitude 9,300 feet, in 1850. This collection was not referred to by Vatke, who based his description on *Schimper* 529, from Mount Arba Tensesa, collected in 1862, but he cited Schultz's name in synonymy.

[65] Jacq. Icon. Pl. Rar. 1: 17. *pl. 176.* 1782.—The title page is dated 1781–1786. The date of *Sclerocarpus* is given by Pfeiffer and others as 1782.

Under Canons 10 and 9 of the American Rules (1906), and Articles 37 and 38 of the Vienna Rules, neither the genus nor the species is effectively published at this place, both references given by Jacquin being to works at that time unpublished. In the second reference mentioned [66] a full description of *Sclerocarpus africanus* is given, accompanied by rather good figures of the head and floral parts. An earlier publication of the genus and species is found in Murray's edition [67] of the Systema Vegetabilium in 1784, and it is from this place that the genus *Sclerocarpus* and the species *Sclerocarpus africanus* must be cited, according to modern rules of nomenclature. DeCandolle, Bentham and Hooker, Gray, the Index Kewensis, and Dalla Torre and Harms cite *Sclerocarpus* from p. 34 of the Acta Helvetica, where the description begins, but the name first appears on p. 36 ("Habetur in horto sub titulo *Sclerocarpi africani*, nomine imposito a duritate calycis fructescentis, & a loco natali"), and should be cited from that place.

Murray attributes the authorship of *Sclerocarpus* to "Jacq. jun. in act. helv. v. 9. tab. . . . . fig. 1." *S. africanus* he cites from Jacq. Icon. Pl. Rar. The attribution of the genus to Jacquin filius is based on error. At the head of the title of the article in which *Sclerocarpus* is published stands the word "ejusdem," referring to the previous article. This bears the title "Lacerta vivipara, observatio Jos. Francisci de Jacquin, Nicol. Jos. fil.," and a footnote informs the reader that the observations on a vivaparous lizard which form its subject were made by the younger Jacquin at the tender age of 11, and are printed as an example to youthful minds. It is sufficiently evident from the substance of the following article ("Tria genera plantarum nova") and the fact that it was communicated in 1780 that it was the work of Jacquin père and not of the son (who was born in 1766), and Murray's attribution of the genus to Jacquin filius, at the time of its first effective publication, may be disregarded as a self-evident error. It is plain from the incomplete citations given by Jacquin and Murray that they were informed of each other's unpublished works, but is is clear that Murray's edition of the Systema appeared before the paper in the Nova Acta Helvetica.

Montanoa arborescens (DC.) Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7:** 406. 1864.

Montagnaea arborescens DC. Prodr. **5**: 565. 1836.

Eriocoma arborescens Alamán; DC. Prodr. **5**: 566. 1836, as synonym.

Montanoa floribunda Cerv.; DC. Prodr. **5**: 566. 1836, as synonym. Not *M. floribunda* (H. B. K.) Schultz Bip. 1864.

Montanoa uncinata Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 406. 1864.

Eriocoma uncinata Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

In Robinson and Greenman's revision of *Montanoa*, *M. arborescens* (DC.) Schultz Bip. was placed [68] next to *M. frutescens* (Mair.) Hemsl., on the basis of the original description, and distinguished from the latter chiefly by the inflexed tips of the pales. Later, after examination of the type, Dr. Robinson [69] stated that the tips of the pales were actually reflexed, and that he had not been able to match the plant among recent Mexican collections. The species is represented in the Prodromus Herbarium by specimens from Alamán, Mairet, and Berlandier (no. 1006, a mere fragment), all of which are cited in the original description. The writer can find no characters to distinguish *M. arborescens* from *M. uncinata*

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[66] Nov. Act. Helv. **1**: 36. *pl. 2, f. 1.* 1787.—This took the place of the unpublished "Act. helv. vol. 9" cited by Jacquin and by most subsequent authors. Jacquin's paper is accompanied by an editorial footnote stating that it was communicated in 1780 for insertion in the ninth volume of the Acta.

[67] Murr. Syst. Veg. ed. 14. 783. 1784.

[68] Proc. Amer. Acad. **34**: 515. 1899.

[69] Proc. Amer. Acad. **36**: 487. 1901.

Schultz Bip. (the type collection of which, *Liebmann* 484, has been available for examination in a loan from the herbarium at Copenhagen), a species well represented from southern Mexico in the U. S. National Herbarium. In Schultz's herbarium the sheet of *M. uncinata* is in a cover labeled *M. arborescens* DC., an indication that he himself had later come to the conclusion that the two were identical.

Montanoa frutescens (Mair.) Hemsl. Biol. Centr. Amer. Bot. **2**: 165. 1881.

Montagnaea frutescens Mair.; DC. Prodr. **5**: 565. 1836.

Aldama montanoa Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 406, footnote. 1864.

The curious statement by Koch that *M. frutescens* Mair. had been found on careful investigation to be not a *Montanoa*, but an *Aldama* (i. e. *Sclerocarpus*), is explained by the material in Schultz's herbarium. This consists of five specimens from Virlet d'Aoust collected in San Luis Potosi about 1851, and one collected by Karwinski at Toliman in 1827, accompanied by a note affirming its identity with *Montagnaea frutescens* DC. on the basis of a specimen in the Munich herbarium collected by Karwinski. All these specimens belong to the species long afterward described as *Sclerocarpus frutescens* by T. S. Brandegee. The real *Montanoa frutescens* (Mair.) Hemsl. is a valid species of *Montanoa*. As Schultz's new name was published without direct reference to these specimens, it must take its place as a straight synonym of *M. frutescens*.

Montanoa hibiscifolia (Benth.) Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 407. 1864.

Montagnaea hibiscifolia Benth. in Oerst. Naturhist. For. Kjöbenhavn Vid. Medd. **1852**: 89. 1852.

Eriocoma hibiscifolia Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

Montanoa wercklei Berger, Gard. Chron. III. **50**: 122. 1911.

Montanoa wercklei Berger, described from specimens grown at Sir Thomas Hanbury's garden at La Mortola from Costa Rican seed received from Wercklé, is represented in the Kew Herbarium by three sheets from La Mortola collected in 1908, 1910, and 1912. It is merely a garden form of *M. hibiscifolia* with flowers somewhat larger than usual, although they can be matched by wild Costa Rican specimens, for instance *J. D. Smith* 7072 (*Tonduz* 8478) in the United States National Herbarium. On account of its comparatively large flowers, the species was wrongly associated in the original description with *Montanoa grandiflora* (DC.) Schultz Bip. The vernacular name of *M. wercklei* is given as "toona quirita."

Montanoa leucantha (Lag.) Blake.

Rudbeckia leucantha Lag. Gen. & Sp. Nov. 32. 1816.

Montanoa crenata Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 407. 1864.

Eriocoma crenata Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

Montanoa purpurascens Robins. & Greenm. Proc. Amer. Acad. **34**: 515. 1899.

Rudbeckia leucantha Lag. was very briefly described from specimens cultivated at the Madrid garden from seeds introduced in 1804 by Sessé, and its generic identity has remained a mystery. It is represented in the Schultz Bipontinus Herbarium by a flowering branch collected in the Madrid garden in 1820, which agrees perfectly with Lagasca's short description and may unquestionably be taken as authentic for the species. Though immature, this specimen clearly represents the species later described as *Montanoa purpurascens* Robins. & Greenm. The type of *Montanoa crenata* Schultz Bip. (*De Berghes*, Mexico), a somewhat more satisfactory specimen, belongs to the same species. In both specimens the young pales are ciliate below, subglabrous or glandular on back, and provided with a rather abrupt, erect, spinescent tip, precisely as in young pales of *M. purpurascens*.

Montanoa mollissima Brongn.; J. Groenland, Revue Hort. IV. **6**: 543. *f. 165.* 1857.

Eriocoma mollissima Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

Montanoa tehuacana Robinson, Proc. Amer. Acad. **47**: 209. 1911.

Montanoa mollissima Brongn. is represented in the Schultz Bipontinus Herbarium by two sheets labeled "Montagnea mollissima Ad. Brongn. in H. P./H. P. 1851. Seminibus/mexicanis./d. Spach 1855." There are also two sheets in the general herbarium at Paris collected in the Garden and dated 1865. All these are identical with the strongly marked species *Montanoa tehuacana* Robinson, which is definitely known only from the State of Puebla. The original description, which is accompanied by a characteristic figure, states that seeds were sent from Mexico by Ghiesbreght ("Giesbreght") in 1843, and that the plant first flowered in the Garden in the following year. It was considered an important addition to horticulture. The plant is still grown as a garden ornamental in southern Europe, and also at Kew, where it is treated as a greenhouse shrub. It was figured in the Botanical Magazine in 1907 and redescribed by Mr. J. Hutchinson.[70]

Montanoa olivae Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 406. 1864.

?*Montagnaea karvinskii* DC. Prodr. **5**: 565. 1836.

?*Montanoa karwinskyi* Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 407. 1864.

Montanoa gracilis Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 407. 1864.

Montanoa subtruncata A. Gray in S. Wats. Proc. Amer. Acad. **22**: 424. 1887.

Eriocoma gracilis Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

?*Eriocoma karwinskyi* Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

Eriocoma olivae Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

On account of the characterization of the pales as completely glabrous in the very brief and incomplete original description of *Montanoa olivae*, Robinson and Greenman suggested that it might really belong to some other genus. The type (*Oliva* 347, from near Guadalajara, Sept. 1855) proves, however, to have slightly pubescent pales and to be identical with *M. subtruncata* A. Gray, being an excellent match for *Pringle* 11550. The pales in this species are often so nearly glabrous that they might easily be so described.

Montanoa gracilis Schultz Bip. was more fully described by Klatt,[71] who gave the type locality as "S. Miguel, La Grabra," which has been copied by subsequent authors. The species is represented in the Schultz Herbarium by a leaf and a couple of flowering heads, labeled "San Miguel, La Gabra." In the Copenhagen Herbarium is a sheet of the type collection (*Liebmann* 633, from S. Miguel, La Galera, Oct. 1842), which proves that the long doubtful species is identical with *M. olivae*.

It is probable that *Montanoa karvinskii* (DC.) Schultz Bip. is also identical with *M. olivae* (*M. subtruncata*). The type, collected by Karwinski in Mexico without definite locality, is in young flower with no pales visible. The larger leaves are all broken or eaten on the margin, and there is no proof that they were sinuate or obtusely lobed as described. In all observable characters it agrees with *M. olivae*. Schultz, in whose herbarium are fragments of Karwinski's plant, described the pales as short and ending in a straight point, which applies well enough to those of *M. olivae* in the flowering state. It would be inadvisable to adopt DeCandolle's name, however, without a further examination of his type.

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[70] Curtis' Bot. Mag. **133**: *pl. 8143*. 1907.

[71] Leopoldina **23**: 91. 1887.

Montagnaea clematidea Walp.,[72] also based on a specimen collected by Karwinski in Mexico, without definite locality, is referred by Schultz Bipontinus [73] to the synonymy of *Montanoa karvinskii*. This reference is supported by Walpers' description, which contains nothing contrary to the characters of the species.

Montanoa quadrangularis Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 407. 1864.

Montagnaea excelsa Ernst, Vargasia **1**: 186. 1870.

Eriocoma moritziana Kuntze, Rev. Gen. Pl. **1**: 336. 1891, nomen nudum.

Montanoa moritziana Schultz Bip.; Dur. & Jacks. Ind. Kew. Suppl. **1**: 282. 1901–06, nomen nudum.

Montanoa quadrangularis was based, as shown by specimens in Schultz's herbarium, on specimens collected by Funck and Schlim (no. 131, Galipan, Prov. Caracas, Venezuela, altitude 1,525 meters, Jan. 1846), Moritz (no. 1386, "in rad. pr. [?] Sierra Nevada, Merida, Columbien, Jan. 1844–45"), and Karsten (Susumuco, Colombia, altitude 1,500 meters). Only the first two, in the order named, were mentioned by Koch in describing the species. *Moritz* 1386, chirotype of the name *moritziana*, was later labeled by Schultz as a variety of *M. quadrangularis*. An authentic specimen of *Montagnaea excelsa* Ernst, described from Galipan, is in the Kew Herbarium with a manuscript description by Ernst. All these plants represent the same species, for which the proper name is *Montanoa quadrangularis* Schultz Bip.

Montanoa triloba Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 406. 1864.

Eriocoma triloba Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

This species, very imperfectly described, was necessarily placed by Robinson and Greenman among the doubtful species in their revision. The type in the Schultz Herbarium (*De Berghes* 123) is a wretched scrap, consisting of a piece of stem with a terminal inflorescence pressed into a cluster of compacted leaves, a detached leaf, and pocket fragments. The original data are not decipherable with certainty, but appear to read "Iapacle [presumably the locality]. Arbol frutali." In spite of its condition, it has been possible to identify it by direct comparison with an excellent specimen in the Kew Herbarium, collected by Galeotti (no. 2374) at Real del Monte, Hidalgo, altitude 1,525 meters, in 1840.

The species is exceedingly close to *Montanoa myriocephala* Robins. & Greenm., and the two may not be separable. The only obvious distinctive character is the somewhat longer involucre of *M. triloba* (4 to 5 mm. in anthesis in *Galeotti* 2374; in *M. myriocephala* 2 to 3.5 mm.). Inasmuch as this feature is one of considerable importance in this immediate group, the two species may for the present be distinguished by its means, although their correspondence in all other features is so close that their identity is probable. It is interesting to note that Dr. Gray long ago suggested [74] that *Palmer* 714 (the type collection of *M. myriocephala*) might be identical with *M. triloba*.

Montanoa xanthiifolia Schultz Bip.; K. Koch, Wochenschr. Gärtn. **7**: 406. 1864.

Eriocoma xanthiifolia Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

Montanoa subglabra Blake, Contr. U. S. Nat. Herb. **22**: 611. 1924.

Comparison of the type collection of *Montanoa xanthiifolia* (*Liebmann* 265, Chacalapa Estate, in Herb. Copenhagen and Schultz Bip.) and the type of *M.*

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[72] *Montagnaea clematidea* Walp. Linnaea **14**: 308. 1840. *Montanoa clematidea* Hemsl. Biol. Centr. Amer. Bot. **2**: 165. 1881. *Eriocoma clematidea* Kuntze, Rev. Gen. Pl. **1**: 336. 1891.

[73] K. Koch, Wochenschr. Gärtn. **7**: 307. 1864.

[74] In S. Wats. Proc. Amer. Acad. **22**: 425. 1887.

subglabra (*E. W. Nelson* 3536, near Neutón, Guatemala) shows that the latter is not separable, differing mainly in its less conspicuously lobed leaves, an inconstant feature. A specimen of this species has also been examined in the herbarium of the British Museum, collected by Barclay (no. 2685) in forest, Sierra de Conchagua, Salvador, in December, 1838. It is described as a shrub 6 feet high, and is the earliest known collection of the species.

In Standley's "Trees and shrubs of Mexico" the writer recorded [75] this species from Costa Rica; the basis of this record is not apparent.

Isocarpha microcephala (DC.) Blake, Proc. Biol. Soc. Washington **39:** 144. 1926.

Dunantia microcephala DC. Prodr. **5:** 627. 1836.

Isocarpha divaricata Benth. Bot. Voy. Sulph. 110. *pl. 41.* 1844.

Isocarpha blepharolepis Greenm. Field Mus. Bot. **2:** 347. 1912.

The type in the Prodromus Herbarium, collected by Haenke, was ascribed to Mexico by DeCandolle but without doubt came from Peru. A duplicate in the Schultz Bipontinus Herbarium, received from Nees in 1854, is also labeled Mexico. The species has been found only in Ecuador and Peru, and the confusion in the labeling of Haenke's plants is well known.

Axiniphyllum scabrum (Zucc.) Blake.

Polymnia scabra Zucc. Abh. Akad. Wiss. München **1:** 313. 1832.

Polymnia aspera Mart.; DC. Prodr. **5:** 515. 1836.

Axiniphyllum tomentosum Benth. in Hook. Icon. Pl. **12:** 17. 1872.

In Martius' herbarium at the Botanic Garden, Brussels, are two specimens of this species, one grown at the Munich garden in 1829, the other in 1832, both from seed collected in Mexico by Keerl. The first is labeled "*Polymnia aspera* Mart. eodem nomine descripsit Zuccarini e seminibus mexicanis Karwinski." There can be no doubt that Martius' reference to the use of the name *Polymnia aspera* by Zuccarini was owing to a slip of memory, and that the latter's *Polymnia scabra* was the name intended. No specimen of Zuccarini's plant has been seen by the writer, but his lengthy description well agrees with *Axiniphyllum tomentosum*. It is probable, moreover, that Martius had other and weightier grounds for identifying the plants than the mere similarity or assumed identity of the names given them by Zuccarini and himself. An excellent but sterile specimen of Martius' plant is in the Prodromus Herbarium, and is probably, as the basis of DeCandolle's description, to be considered the actual type of Martius' species.

Rudbeckia laciniata L. Sp. Pl. 906. 1753.

Tithonia laciniata Raeuschel, Nom. Bot. ed. 3. 251. 1797, nomen nudum.

In 1925 the writer was able to examine at the Kew Herbarium a copy of Raeuschel's rare Nomenclator Botanicus. The name [*Tithonia*] *laciniata* (without authority or synonym) occurs in it, as cited in the Index Kewensis, but it is evident that the combination had its origin in a type-setter's error, and that the specific name *laciniata* was brought up by mistake under *Tithonia* from the following genus, *Rudbeckia*. The habitat "Virginia. Canada" appended to the specific name, the same as given by Linnaeus, makes this certain.

Wulffia maculata (Ker) DC. Prodr. **5:** 563. 1836.

Gymnoloma maculatum Ker, Bot. Reg. **8:** *pl. 662.* 1822.

?*Euxenia radiata* Nees. & Mart. Nov. Act. Acad. Caes. Leop. Carol. Nat. Cur. **12:** 7. 1824.

?*Gymnopsis? euxenioides* DC. Prodr. **5:** 562. 1836.

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[75] Contr. U. S. Nat. Herb. **23:** 1532. 1926.

Euxenia radiata Nees & Mart., doubtfully transferred to *Gymnopsis* under a new name by DeCandolle on the basis of the original description, and omitted from the Flora Brasiliensis, is represented in the Schultz Bipontinus Herbarium by an authentic specimen received from Nees and labelled "Brasilia Pr. Max. d. Nees 1854." It agrees well with an authentic specimen of *Wulffia salzmanni* DC. in the same herbarium. The latter is referred by O. E. Schulz [76] to *Wulffia maculata* (Ker) DC., which Schulz considers closely related to the commoner and more northern species, *W. baccata* (L. f.) Kuntze, but distinct. The distinctive characters relied upon by Schulz to separate *W. maculata* are not apparent in the specimen of Nees and Martius' species, and the writer is doubtful whether it should not be referred to *W. baccata* (L. f.) Kuntze, which Schulz does not admit in Brazil.

Iostephane heterophylla (Cav.) Benth.; Hemsl. Biol. Centr. Amer. Bot. **2**: 168. 1881.

Coreopsis heterophylla Cav. Icon. Pl. **3**: 34. *pl. 268*. 1795.

Rudbeckia napifolia H. B. K. Nov. Gen. & Sp. **4**: 244. 1820.

Echinacea dicksoni Lindl. Bot. Reg. **24**: *pl. 27*. 1838.

The type of *Rudbeckia napifolia* H. B. K. in the Paris Herbarium, collected near Santa Rosa de la Sierra, Guanajuato, altitude about 2,280 meters, is *Iostephane heterophylla*. No specimen of *Echinacea dicksoni* Lindl. has been seen, but the description and plate leave no doubt as to its identity. The species was described by Lindley from specimens grown in the garden of the Horticultural Society from seed from the *tierra fria* of Mexico, presented by G. F. Dickson. Both names are omitted from the Botany of the Biologia Centrali-Americana.

Sabazia humilis (H. B. K.) Cass. Dict. Sci. Nat. **46**: 481. 1827.

Eclipta humilis H. B. K. Nov. Gen. & Sp. **4**: 264. *pl. 394*. 1820.

Aganippea dentata DC. Prodr. **6**: 3. 1837.

The genus *Aganippea* DC. was based on two species, *A. bellidiflora*, which is to be taken as type, and *A. dentata*, both being described as new. No new species have since been described and neither of the original ones has been removed. DeCandolle's second species, *A. dentata*, based on *Berlandier* 901, collected near the City of Mexico, proves to be a synonym of *Sabazia humilis* (H. B. K.) Cass., so that the genus is properly a monotypic one.

Zaluzania cinerascens Schultz Bip. Flora **47**: 219. 1864.

Zaluzania coulteri Hemsl. Biol. Centr. Amer. Bot. **2**: 159. *pl. 46*. 1881.

Gymnolomia cinerascens Benth. & Hook.; Hemsl. Biol. Centr. Amer. Bot. **2**: 161. 1881.

Zaluzania cinerascens Schultz Bip. was not mentioned in Robinson and Greenman's revision [77] of the genus, having been treated by them [78] as a species of *Gymnolomia* on the basis of Bentham and Hooker's disposition of it. The type, *Ehrenberg* 346 in the Schultz Herbarium, from Mineral del Monte (=Real del Monte, Hidalgo), is identical with the type of *Z. coulteri* Hemsl., *Coulter* 350 from the same locality, in the Kew Herbarium. Bentham and Hooker referred the species to *Gymnolomia* on the basis of Schultz's description of the rays as neutral. So they are, not only in Schultz's type, but also in a head of Hemsley's dissected by the writer (although figured by Hemsley as pistillate), and in *Pringle* 7923. In *Pringle* 6956, 9997, and 13784 the rays bear styles about equaling the tube of the corolla and very shortly and unequally 2-parted, and the embryos are abortive.

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[76] In Urban, Symb. Antill. **7**: 93. 1911.

[77] Proc. Amer. Acad. **34**: 530. 1899.

[78] Proc. Bost. Soc. Nat. Hist. **29**: 90. 1899.

The species is thus not typical of *Zaluzania*, not having the fertile rays of that genus; but it agrees in all other essentials, including the short bluntish style tips, and is best retained in the genus.

Wedelia brasiliensis (Spreng.) Blake.

Buphthalmum strigosum Spreng. Neu. Entd. **2**: 140. 1821. Not *Wedelia strigosa* Hook. & Arn. 1840–41.

Acmella brasiliensis Spreng. Syst. Veg. **3**: 592. 1826.

Buphthalmum heterophyllum Willd.; Spreng. Syst. Veg. **3**: 592. 1826, as synonym.

Wedelia pedunculosa DC. Prodr. **5**: 485. 1836, sphalm.

Wedelia paludosa DC. Prodr. **5**: 538. 1836.

The type of *Acmella brasiliensis* Spreng. in the Schultz Bipontinus Herbarium belongs to the Brazilian species, closely related to *W. trilobata* (L.) Hitchc., which for nearly a century has been known as *Wedelia paludosa* DC. The earlier name, *Buphthalmum strigosum* Spreng., equated with *A. brasiliensis* by Sprengel himself, is unavailable for use, owing to the existence of *W. strigosa* Hook. & Arn. In the Prodromus, in the list of excluded species of *Buphthalmum*, *B. strigosum* was referred to "*Wedelia pedunculosa*?," the latter name being obviously a clerical error for *W. paludosa*. Under var. *latifolia* of the latter species De Candolle remarks: "Huc forte pertinet Acmella Brasiliensis Spreng. syst 3. p. 592, sive Buphthalmum strigosum Spreng. neu. entd. 2. p. 140, sed nihil asserere quec cum Acmella Spreng. septem speciebus ad septem genera diversa referendis constet." In his revision of *Spilanthes*, A. H. Moore [79] incorrectly refers *B. strigosum*, *A. brasiliensis*, and *B. heterophyllum* to the synonymy of *Spilanthes oleracea* L., evidently by confusion with *Spilanthes brasiliensis* Spreng. (properly so referred), a name published quite independently of *Acmella brasiliensis*.

In the type of *Acmella brasiliensis* in Sprengel's herbarium, collected in Brazil by Sellow, the largest leaf is oblong-lanceolate, about 5 cm. long and 1.8 cm. wide, and bears a small tooth on each side near the middle.

Wedelia brasiliensis (*W. paludosa*) is certainly very closely related to the common *W. trilobata* (L.) Hitchc. (*W. carnosa* L. Rich.), but appears separable on the basis of the rather scanty material examined. O. E. Schulz,[80] in his monograph of the West Indian species of *Wedelia*, considers it distinct and assigns to it a range from Brazil to Central America. The writer has seen no specimens certainly referable to it from outside Brazil. DeCandolle's var. *latifolia* of *W. paludosa*, of which the types from Bahia (*Blanchet* 19, 74, and *Lhostky*) have been examined, seems better referred to *W. trilobata* (L.) Hitchc., which is not generally recognized from Brazil. The U. S. National Herbarium possesses a sheet collected at Bahia in 1887 by L. A. Lee on the cruise of the "Albatross" which is not distinguishable from ordinary Central American or West Indian specimens of *W. trilobata*. Thus it seems likely that this species extends around the coast of eastern South America from the Guianas, where it is common, to Bahia.

Wedelia glauca (Orteg.) O. Hoffm.; Hicken, Chlor. Plat. Argent. (Apuntes Hist. Nat. **2**:) 254. 1910.

Pascalia glauca Orteg. Hort. Matr. Dec. 39. *pl. 4.* 1797.

Leighia ? ecliptaefolia DC. Prodr. **5**: 583. 1836.

Lorentzia pascalioides Griseb. Abh. Ges. Wiss. Göttingen **19**: 182. 1874.

Aspilia ? ecliptaefolia Baker in Mart. Fl. Bras. **6**[3]: 197. 1884.

The type of *Leighia ? ecliptaefolia* DC. in the Paris Herbarium (*Herb. Imp. Bras.* 882) is *Wedelia glauca*. It is represented also by scraps in the Prodromus

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[79] Proc. Amer. Acad. **42**: 530. 1907.

[80] In Urban, Symb. Antill. **7**: 99. 1911.

Herbarium. Baker's transfer of the species to *Aspilia* was based on assumption only, no specimen having been examined. The invalidity of the generally maintained genus *Pascalia* has been shown by the writer.[81]

Wedelia subvaginata N. E. Brown, Trans. Bot. Soc. Edinburgh **20**: 61. 1894.

Wedelia crassiuscula Blake, Contr. Gray Herb. **52**: 38. 1917.

Examination of the type of *Wedelia subvaginata* N. E. Brown in the Kew Herbarium, collected by J. Graham Kerr on the Rio Pilcomayo in the Gran Chaco, has shown its identity with *W. crassiuscula* Blake, based on *Hassler* 2741 (type in British Museum) from Santa Elisa, Gran Chaco, Paraguay, lat. S. 23° 10′.

Wedelia trilobata (L.) Hitchc. Ann. Rep. Mo. Bot. Gard. **4**: 99. 1893.

Silphium trilobatum L. Syst. Nat. ed. 10. **2**: 1233. 1759.

Verbesina tridentata Spreng. Syst. Veg. **3**: 577. 1826.

Sprengel's *Verbesina tridentata* is retained by De Candolle as a doubtful species, and by Robinson and Greenman[82] is referred to *Aspilia buphthalmiflora* (DC.) Griseb., apparently through confusion with *V. montevidensis* Spreng., which is so referred by Baker. Sprengel's type in the Schultz Bipontinus Herbarium is an ordinary specimen of *Wedelia trilobata* (L.) Hitchc. The specimen bears no data. In the original description the habitat given was "Martinica. Amer. austr.," the "Amer. austr." being apparently based on the synonym "*V. fruticosa* W. excl. syn. L." cited by Sprengel. Willdenow[83] listed several synonyms under his *Verbesina fruticosa*, the one excluded by Sprengel representing as to type *Zexmenia frutescens* (Mill.) Blake, the others, as well as his description, relating to *Narvalina domingensis* (Cass.) Less. The identity of Willdenow's plant, however, is of no great importance, since Sprengel's name must be typified by the specimen, presumably from Martinique, in his herbarium.

Aspilia kunthiana (Gardn.) Blake.

Gymnopsis kunthiana Gardn. Lond. Journ. Bot. **7**: 292. 1848.

Gymnolomia kunthiana Baker in Mart. Fl. Bras. **6**[3]: 172. 1884.

Copious material of *Gardner* 3846, the type collection, from near Conceiçâo, Goyaz, Brazil, has been examined in the Kew Herbarium, the British Museum, and the herbarium of Schultz Bipontinus, and a photograph and fragments are now in the U. S. National Herbarium. The species has hitherto passed as the only Brazilian representative of *Gymnolomia* H. B. K., a genus which as to its type is to be reduced to *Aspilia*,[84] although most of the numerous species that have been referred to it belong to *Viguiera*, *Tithonia*, and *Hymenostephium*.

Gymnopsis kunthiana Gardn. is an *Aspilia*, with neutral rays and pappus reduced to a minute denticulate crown. It is clearly distinct from any of the species described under *Aspilia* in the Flora Brasiliensis.

Aspilia montevidensis (Spreng.) Kuntze, Rev. Gen. Pl. **3**[2]: 129. 1898.

Verbesina montevidensis Spreng. Syst. Veg. **3**: 578. 1826.

Leighia buphthalmiflora DC. Prodr. **5**: 582. 1836.

Leighia debilis Nutt. Trans. Amer. Phil. Soc. n. ser. **7**: 365, footnote. 1841.

Aspilia buphthalmiflora Griseb. Abh. Ges. Wiss. Göttingen **19**: 183. 1874.

Examination of the types of *Verbesina montevidensis* Spreng. (Montevideo, *Sellow*, in the Schultz Bipontinus Herbarium) and *Leighia debilis* Nutt. (Mal-

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[81] Contr. Gray Herb. **52**: 39. 1917.

[82] Proc. Amer. Acad. **34**: 566. 1899.

[83] Sp. Pl. **3**: 2227. 1803.

[84] Blake, Contr. Gray Herb. **54**: 13–19. 1918; Contr. U. S. Nat. Herb. **22**: 619. 1924.

donado, Uruguay, *Baldwin*, in the British Museum) shows that both are referable to the species generally known as *Aspilia buphthalmiflora* (DC.) Griseb. This must now take the name *Aspilia montevidensis* (Spreng.) Kuntze.

Aspilia wedelioides (DC.) Blake.

Gymnopsis wedelioides DC. Prodr. **5**: 562. 1836.

The type of *Gymnopsis wedelioides* DC. in the Prodromus Herbarium ("Antilles," collector not given) represents a species of *Aspilia* related to *A. verbesinoides* (DC.) Blake and *A. nigropunctata* Blake, but apparently distinct from either. The locality given in the Prodromus is "in ins. Caribaeis, forte in Tobago (h. L'Her.)." The species is apparently a local one which has not again been collected.

Viguiera cornifolia (H. B. K.) Blake, Contr. Gray Herb. **54**: 184. 1918.

Helianthus cornifolius H. B. K. Nov. Gen. & Sp. **4**: 223. 1820.

Leighia urticiformis DC. Prodr. **5**: 582. 1836.

Viguiera urticiformis Hemsl. Biol. Centr. Amer. Bot. **2**: 179. 1881.

The type specimen of *Helianthus cornifolius* in the Humboldt and Bonpland Herbarium at Paris is in poor condition, but a better specimen of the same collection (*Bonpland* 4237) in the general herbarium at Paris shows that the species is identical with the later *Leighia urticiformis* DC., the type of which has been examined in the Prodromus Herbarium. In the writer's revision of the genus, *V. cornifolia* was placed among the doubtful species, its true identity not having been recognized.

Viguiera dentata helianthoides (H. B. K.) Blake, Contr. Gray Herb. **54**: 86. 1918.

Viguiera helianthoides H. B. K. Nov. Gen. & Sp. **4**: 226. *pl. 379*. 1820.

Rudbekia (sic) canescens Poepp.; Spreng. Syst. Veg. **3**: 612. 1826.

The type of *Rudbekia canescens* Poepp. in the Schultz Bipontinus Herbarium (no. 1798 in herb. Sprengel) is *Viguiera dentata* var. *helianthoides*. It is labeled "Rudbekia canescens En. pl. Cub. MSS. Ad vias Cubae. Jan." The name is omitted from the Index Kewensis and from DeCandolle's Prodromus.

Viguiera incana (Pers.) Blake.

Helianthus incanus Pers. Syn. Pl. **2**: 475. 1807.

Helianthus canescens Juss.; Pers. Syn. Pl. **2**: 475. 1807, as synonym.

Helianthus aureus H. B. K. Nov. Gen. & Sp. **4**: 224. 1820.

Harpalium aureum Cass. Dict. Sci. Nat. **25**: 438. 1822.

Viguiera aurea Hieron. Bot. Jahrb. Engler **28**: 608. 1901.

Helianthus incanus Pers., briefly described from "R. Peruviano" with the cited synonym "*H. canescens*. Herb. Juss.," has remained unidentified. It is represented in the Jussieu Herbarium at Paris by an excellent specimen (no. 9443) labeled "Helianthus canescens Vahl mss. Perou - Jos. de Jussieu." Although said to be from Peru,[85] it is a typical example of the species generally known as *Viguiera aurea* (H. B. K.) Hieron., which is known only from Ecuador, and is now represented in the U. S. National Herbarium by a good series of specimens. There is also a sheet of the same species in the general collecton of the Paris Herbarium labeled "Helianthus canescens Vahl mss. Sic in herb. Juss. Helianthus incanus Pers. Perou. Dombey." Whether Persoon examined the specimen now in the Jussieu Herbarium or whether he had a duplicate of it seems now impossible to determine, but its entire correspondence with his description leaves no room for doubt that it may be taken as authentic for his species, and that his name must be adopted.

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[85] Ecuador formed a part of Peru until 1822. Joseph de Jussieu accompanied Bouguer and La Condamine on their expedition of 1735, which landed at Quito, and he remained in South America until 1771, traveling and collecting extensively.

Viguiera peruviana A. Gray, Proc. Amer. Acad. **5**: 124. 1861.

Helianthus rugosus Meyen, Reis. Erd. **2**: 45. 1835. Not *Viguiera rugosus* [sic] (Schauer) Benth. & Hook. 1881.

A photograph and tiny fragments of Meyen's type are in the Gray Herbarium, obtained by the writer in 1914 at the Berlin Herbarium. The type is a small and poorly developed, uncharacteristic specimen, but evidently belongs to *Viguiera peruviana*. The young achenes and pappus (of 2 awns and a pair of small lacerate squamellae at the base of each awn) are quite those of *V. peruviana*, and the other characters agree well enough. The following additional specimens have been studied in a loan from the Kew Herbarium:

PERU: Quebrada de la Cuesta, on way from Arequipa to Islay, Sept. 1854, *Lechler* 2760. "Cobija, Iquiqui, et Arica," *Cuming* 941 (2 sheets).

The leaves on the branchlets are often opposite. Lechler's plant was distributed as *Helianthus rugosus*. Meyen's type came from the coast cordillera back of Islay, and Gray's from the Andes between Culluay and Obrajillo.

Viguiera procumbens (Pers.) Blake.

Sanvitalia helianthoides L. Rich.; Willd. Sp. Pl. **3**: 2190. 1803. Not *Viguiera helianthoides* H. B. K. 1820.

Helianthus procumbens Pers. Syn. Pl. **2**: 475. 1807.

Helianthus prostratus (*prostratum*) Hort. Paris.; Pers. Syn. Pl. **2**: 475. 1807, as synonym. Not *H. prostratus* Willd. 1803.

Viguiera pflanzii Perkins, Bot. Jahrb. Engler **49**: 226. 1913.

Sanvitalia helianthoides L. Richard is represented by two sheets of good specimens in the Cosson Herbarium at Paris, from the DeFranqueville Herbarium. They are labeled simply "Perou." In the Jussieu Herbarium is a sheet (no. 9445) bearing two garden specimens of the same species, collected respectively in 1788 and 1791, and labeled "Helianthus. Perou. Domb. Helianthus procumbens Persoon. Enchir. Will. Syn. H. prostratus Poir. Encyl. Suppl. Desf." In the general herbarium at Paris is another sheet labeled by Desfontaines "Helianthus prostratus Persoon," and by Spach "Ex horto Par.?" All these specimens belong to the somewhat variable species called *Viguiera pflanzii* Perkins in the writer's revision of the genus,[86] and may safely be taken as authenticating the names *Sanvitalia helianthoides* L. Rich., *Helianthus procumbens* Pers., and *H. prostratus* Hort. Par. (not Willd. 1803, a North American species of doubtful status). Persoon's name is the earliest available for use, and must be taken up for the species. Two sheets under *H. procumbens* Pers. in the Prodromus Herbarium, one labeled "Helianthus. Peru. Pavon," the other "Helianthus prostratus Cav. 22 fructidor an 8," represent the same species, considerably modified by cultivation.

Helianthus annuus L. Sp. Pl. 904. 1753.

Helianthus cirrhoides Lehm. Hamb. Gart. Zeit. **8**: 458. 1852.

The identity of *Helianthus cirrhoides* Lehm. does not appear to have been recorded. It is represented in the Schultz Bipontinus Herbarium by five sheets of authentic material received from Lehmann. The specimens, which agree perfectly with Lehmann's description, represent a coarse cultivated state of *Helianthus annuus* with unusually long caudate-cirrhate tips to the phyllaries. The rays were described by Lehmann as pale, the disk flowers as greenish. The description was drawn up from specimens grown at the Hamburg Botanical Garden from seed received under the name *Helianthus patens* Lehm. from the Utrecht Garden.

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[86] Contr. Gray Herb. **54**: 142. 1918.

Melanthera discoidea (Baker) Blake.

Echinocephalum discoideum Baker in Mart. Fl. Bras. 6³: 230. 1884.

Amellus discodeus (sic) Kuntze, Rev. Gen. Pl. 1: 306. 1891.

The writer did not find either at Kew or at Brussels any specimens of this species, based by Baker on material collected by Martius at Porto das Miranhas in the Rio Negro region, Province Alto Amazonas, Brazil. No species of the genus *Melanthera* was listed by Baker from Brazil, but *E. discoideum*, from description, evidently belongs to it. It is curious that Baker, after distinguishing *Echinocephalum* from *Melanthera* by its possession of sterile rays (the latter being discoid), should immediately proceed to describe under it this discoid species. The exact relationships of the species must remain in doubt until authentic material can be examined.

Spilanthes iodiscaea A. H. Moore, Proc. Amer. Acad. **42**: 536. 1907.

Verbesina pusilla Poir. in Lam. Encycl. **8**: 459. 1808.

Eclipta ? pusilla DC. Prodr. **5**: 491. 1836.

The type of *Verbesina pusilla* Poir. in the herbarium of the Muséum d'Histoire Naturelle, collected in Porto Rico, is identical with *Spilanthes iodiscaea* A. H. Moore. Poiret's name can not be taken up for this species owing to the existence of *Spilanthes pusilla* Hook. & Arn.,[87] a valid species of Argentina.

Zexmenia macrocephala (Hook. & Arn.) Hemsl. Biol. Centr. Amer. Bot. **2**: 173. 1881.

Lipochaeta macrocephala Hook. & Arn. Bot. Beechey Voy. 436. 1840–41.

Zexmenia ghiesbreghtii A. Gray, Pl. Wright. **1**: 113, footnote. 1852, as *Z. ghiesbrechtii*.

Zexmenia macrocephala (Hook. & Arn.) Hemsl. has remained a doubtful species since its description, and no specimens except the original ones appear ever to have been assigned to it. There are two original specimens in the Kew Herbarium, both from Acapulco, one from the Hooker Herbarium, labeled as collected by Sinclair, the other, from the Bentham Herbarium, marked as collected by Hinds. Although somewhat different in habit and evidently derived from two different plants, they are conspecific and are identical in all essential characters with *Zexmenia ghiesbreghtii* A. Gray, which also has been collected at Acapulco. In W. W. Jones' revision [88] of *Zexmenia* both *Z. ghiesbreghtii* and *Z. macrocephala* were retained as distinct species, placed together, and distinguished by characters of no real consequence. The material from Kew on which Jones' notes were based was taken from the specimen in the Bentham Herbarium, which is less typical in appearance of *Z. ghiesbreghtii* than the other specimen (in the Hooker Herbarium). The latter is evidently the type, as the original description says "a solitary specimen of this is in the collection." Although the type locality is given as "between San Blas and Tepic," there is every reason to suppose that the specimen in the Hooker Herbarium mentioned above is the one referred to, particularly since Hemsley gives the locality as Acapulco. The description, in any case, applies definitely to the plant generally known as *Zexmenia ghiesbreghtii*.

In Jones' revision of *Zexmenia*, *Z. greggii* A. Gray and *Z. ghiesbreghtii* are placed some distance apart (nos. 6 and 14) through the use of the length of the squamellae as a principal key character. Although this character is often of importance in the genus, it shows considerable variability in the same species, and the extent to which it separates these two very closely allied species is evidence of its general unsatisfactory nature. In *Z. macrocephala* (*Z. ghiesbreghtii*), for instance, the squamellae, though usually minute, as described by Jones, not infrequently reach a length of 1 mm., which in his key would place

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[87] In Journ. Bot. Hook. **3**: 317. 1841.

[88] Proc. Amer. Acad. **41**: 152. 1905.

them in *Z. greggii*. In achenes from the type of *Lipochaeta macrocephala* they reach 1.8 mm. A much better distinctive character is afforded by the phyllaries. In *Z. macrocephala* the outer ones are suborbicular-ovate, blunt or rounded at tip; in *Z. greggii* they are triangular or triangular-ovate and acuminate.

Zexmenia serrata Llave in Llave & Lex. Nov. Veg. Descr. **1**: 13. 1824.
Zexmenia scandens Hemsl. Biol. Centr. Amer. Bot. **2**: 174. 1881.
Zexmenia trachylepis Hemsl. Biol. Centr. Amer. Bot. **2**: 175. 1881.
Zexmenia dulcis Coulter, Bot. Gaz. **16**: 99. 1891.
Verbesina sylvicola T. S. Brandeg. Univ. Calif. Publ. Bot. **10**: 419. 1924.

The identity of *Zexmenia serrata* Llave, the type species of the genus, has never been determined. There are in the Delessert Herbarium three sheets labeled with this name. One is *Zexmenia scandens* Hemsl., and has two labels—"Zexmenia serrata Llave" and "Mexico. Herb: La Llave." The other two are *Z. ceanothifolia* (Willd.) Schultz Bip., and are labeled "Mexico. Cervantes" in a handwriting quite different from that on the sheet of *Z. scandens*. In view of the definite label of the latter, and its excellent correspondence with the original description, there seem to be no reasonable grounds for doubt that it is authentic for Llave's species, and that the identity of this, the type species of the genus *Zexmenia*, has at last been ascertained.

Zexmenia verbenaefolia (DC.) Blake.
Calea verbenaefolia DC. Prodr. **5**: 673. 1836.
Lipochaeta umbellata β. conferta DC. Prodr. **5**: 610. 1836.
Zexmenia microcephala Hemsl. Biol. Centr. Amer. Bot. **2**: 173. 1881.
Zexmenia ceanothifolia var. *conferta* A. Gray; W. W. Jones, Proc. Amer. Acad. **41**: 155. 1905.

Examination of the types of *Calea verbenaefolia* DC. (*Née*, without locality), *Lipochaeta umbellata β. conferta* DC. (*Berlandier* 1053, Cuernavaca), and *Zexmenia microcephala* Hemsl. (*Sinclair*, San Blas to Tepic) has shown that they represent one species, for which the earliest specific name is *Calea verbenaefolia*. DeCandolle's type of this species is an excellent match for *Lamb* 519, from Acaponeta, Tepic, but has even shorter pedicels (mostly 1.5 to 5 mm. long). In fragments obtained from Hemsley's type of *Z. microcephala* the squamellae are not absent, as described by Hemsley and W. W. Jones, but at least sometimes are present (about 1 on each side of achene) and as much as 1.3 mm. long.

Otopappus imbricatus (Schultz Bip.) Blake.
Zexmenia imbricata Schultz Bip. in Seem. Bot. Voy. Herald 306. 1856.
Otopappus epaleaceus var. (?) *pringlei* Greenm. Proc. Amer. Acad. **40**: 42. 1904.
Otopappus pringlei Blake, Journ. Bot. Brit. & For. **53**: 232. 1915.

Schultz's type, a specimen collected by Haenke in Mexico without definite locality, has been available for study through the kindness of Prof. H. Lecomte.

Verbesina eggersii Hieron. Bot. Jahrb. Engler **28**: 611. 1901.
Silphium platypterum Spruce; Benth. & Hook. Gen. Pl. **2**: 350. 1873, nomen nudum.
Verbesina platyptera Benth. & Hook.; Hook. & Jacks. Ind. Kew. **2²**: 1181. 1895, nomen nudum. Not *Verbesina platyptera* Schultz Bip.; Klatt, Leopoldina **23**: 144. 1887.

Silphium platypterum Spruce, a name never published with description, was based on *Spruce* 6472 from near Chanduy, Ecuador. Through the kindness of Dr. A. W. Hill, the excellent specimen in the Kew Herbarium was lent the writer for study some time ago. It proves to be identical with *Verbesina eggersii* Hieron., based on *Eggers* 14941 from Hacienda El Recreo, Province Manabi, Ecuador (fragments of type in the U. S. National Herbarium). *Eggers* 15687

(U. S. National Herbarium), from the same locality as the type, is referable to this species also.

Verbesina elegans H. B. K. Nov. Gen. & Sp. **4**: 204. 1820.

Verbesina arthurii Blake, Contr. Gray Herb. **53**: 26. 1918.

Examination of the type of *Verbesina elegans* H. B. K., from "Regno Quitensi?", in the Paris Herbarium, has shown its identity with *V. arthurii* Blake, based on *Apollinaire & Arthur* 60, from Guadalupe, Colombia. In Robinson and Greenman's revision of the genus, *V. elegans* is wrongly placed in the section *Verbesinaria* under a group characterized in part by having "leaves canescent-tomentose beneath." In the type and other specimens of *V. elegans* the leaves are, as described by Humboldt, Bonpland, and Kunth, merely hirtous or hirsute and green beneath, and the species is better placed in the section *Saubinetia*, next to *V. sordescens* DC.

Verbesina humboldtii Spreng. Syst. Veg. **3**: 577. 1826.

Verbesina helianthoides H. B. K. Nov. Gen. & Sp. **4**: 204. 1820. Not *Verbesina helianthoides* Michx. 1803.

Verbesina lehmannii Hieron. Bot. Jahrb. Engler **28**: 612. 1901.

The identity of *Verbesina lehmannii* Hieron. with *V. humboldtii* Spreng., long a doubtful species of the genus, has been noted and discussed by the writer.[89] The species appears to be best referred to the section *Saubinetia*.

Verbesina lindenii (Schultz Bip.) Blake.

Silphium arborescens Mill. Gard. Dict. ed. 8. *Silphium* no. 4. 1768.

Zexmenia lindenii Schultz Bip. in Seem. Bot. Voy. Herald 306. 1856.

Lasianthaea lindenii Schultz Bip. in Seem. Bot. Voy. Herald 306. 1856, as synonym.

Verbesina olivacea Klatt, Leopoldina **20**: 93. 1884.

Otopappus olivaceus Klatt, Ann. Naturhist. Hofmus. Wien **9**: 362. 1894.

Verbesina arborescens Blake, Journ. Bot. Brit. & For. **53**: 57. 1915. Not *V. arborescens* (L.) Gomez, 1890.

Zexmenia lindenii Schultz Bip., based on *Linden* 1157 (from Mirador, Veracruz, altitude 3,000 ft., Oct. 1838, in the Schultz Herbarium) has remained a doubtful species since its description. The type specimen is referable to the species usually known as *Verbesina olivacea* Klatt, and Schultz's name must be taken up.

Verbesina parviflora (H. B. K.) Blake, Proc. Biol. Soc. Washington **39**: 144. 1926.

Helianthus parviflorus H. B. K. Nov. Gen. & Sp. **4**: 222. *pl. 378*. 1820.

Actinomeris stricta Hemsl. Biol. Centr. Amer. Bot. **2**: 186. 1881.

Verbesina stricta A. Gray, Proc. Amer. Acad. **19**: 13. 1883.

Despite the fact that it was represented by a plate, *Helianthus parviflorus* H. B. K. remained of uncertain identity until examination of the type by the writer in 1925 showed it to be identical with the rather common Mexican plant known as *Verbesina stricta* (Hemsl.) A. Gray. The type is a specimen which, after an injury to the main axis, has thrown out a couple of long 1-headed flowering branches. It was collected at "Santa Rosa Mexicanorum," which lies in Querétaro or Guanajuato.

Verbesina tetraptera (Orteg.) A. Gray, Proc. Amer. Acad. **19**: 13. 1883.

Coreopsis alata ("*allata*") Cav. Icon. Pl. **3**: 30. *pl. 260*. 1795. Not *Verbesina alata* L. 1753.

Helianthus tetrapterus Orteg. Hort. Matr. Dec. 74. 1798.

Verbesina scabra Benth. Pl. Hartw. 41. 1840.

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[89] Journ. Washington Acad. Sci. **16**: 226. 1926.

In Robinson and Greenman's revision [90] of *Verbesina*, *Verbesina scabra* Benth., which had been synonymized with *V. tetraptera* (or *Actinomeris tetraptera*) by Hemsley and Gray, was restored to independent standing on the basis of the original description and of a drawing by Klatt, and *Palmer* 377 (Jalisco, 1886) was referred to it. After examining Bentham's type (*Hartweg* 315, from Zitaquaro, Michoacán, in the Kew Herbarium), I find it impossible to distinguish it in any way from the ordinary form of *V. tetraptera*. The species is variable in the character of its involucre, as well as in leaf pubescence, but the differences do not seem to be of taxonomic value. *Palmer* 377 has a different involucre, partly or in some cases wholly wingless peduncles, and elliptic-oblong or obovate-oblong leaves which show no tendency toward the rhombic or deltoid and usually hastate type characteristic of *V. tetraptera*. It may represent a distinct species.

Verbesina tomentosa DC. Prodr. **5**: 614. 1836.

Verbesina hastifolia Blake, Bull. Torrey Club **51**: 426. 1924.

DeCandolle's *Verbesina tomentosa*, described from a fruiting specimen collected by Née, supposedly in South America, has remained dubious. It was doubtfully referred by Robinson and Greenman,[91] in their revision of the genus, to *V. sublobata* Benth., their action probably being based on Klatt's unfounded remarks[92] on the same point. Study of the writer's photograph and notes of the type specimen in the Prodromus Herbarium leave little doubt that it is identical with *Verbesina hastifolia* Blake, described from specimens collected by Macbride and Featherstone (no. 195) at Matucana, Department of Lima, Peru, in 1922. The species has since been collected by Pennell (no. 14441) along the Río Chillón, near Viscas, Department of Lima, Peru, altitude 2,000 to 2,300 meters, the specimen (Field Museum) representing a less densely pubescent form with the leaves at length merely pilosulous beneath.

Verbesina turbacensis H. B. K. Nov. Gen. & Sp. **4**: 203. 1820.

Verbesina pinnata Clark.; DC. Prodr. **5**: 615. 1836.

Verbesina pinnata was described by DeCandolle from the sterile leafy stem tip of a specimen of unknown origin, now in the Prodromus Herbarium, supplemented by notes on the inflorescence and flowers evidently derived from manuscript notes of L'Héritier. It has never been recognized with certainty among subsequent collections. Even the identity of its author (whose name is given by DeCandolle as "Clark.," as though it were an abbreviation for Clarke or Clarkson) is not obvious. The type specimen agrees so well, in all evident characters except its sometimes more numerous leaf-lobes (3 to 5 pairs), with such specimens of *Verbesina turbacensis* with deeply lobed leaves as *Heyde & Lux* (distr. *J. D. Smith*) 6178, *C. L. Smith* 313, and *Pringle* 4966, that there seems no reason for longer attempting to maintain it as a separate species.

The writer was not able to find a type specimen of *V. turbacensis* at the Paris Herbarium.

Calyptocarpus vialis Less. Syn. Gen. Comp. 221. 1832.

Calyptocarpus wendlandii Schultz Bip. Bot. Zeit. **24**: 165. 1866.

Wendland 1078, from San José, Costa Rica, July 17, 1851, the type of Schultz's species in the Schultz Herbarium, is a normal specimen of *C. vialis*, as is another specimen referred to the same species in the same herbarium, collected by Dr. Scherzer in the region of San José, at an altitude of 2,440 meters, in 1853. The generic name has been persistently emended to *Calyptrocarpus* by authors as though from *καλύπτρα, a veil*, but is evidently derived from *καλυπτός, covered*

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[90] Proc. Amer. Acad. **34**: 538. 1899.

[91] Proc. Amer. Acad. **34**: 566. 1899.

[92] Leopoldina **20**: 93. 1884.

(referring to the "corticate" achene), and should be retained as originally written by Lessing, who used the same spelling a few years later.[93]

Calea angusta Blake, nom. nov.

Galinsogea angustifolia Spreng. Neu. Entd. **2**: 138. 1821.
Ageratum angustifolium Spreng. Syst. Veg. **3**: 446. 1826.
Trichophyllum angustifolium Less. Linnaea **6**: 519. 1831.
Bahia angustifolia DC. Prodr. **5**: 656. 1836.
Calea angustifolia Schultz Bip.; Baker in Mart. Fl. Bras. **6**[3]: 256. 1884. Not
Calea angustifolia Gardn. Lond. Journ. Bot. **7**: 417. 1848.

The types of *Galinsogea angustifolia* and *Ageratum angustifolium*, described as independent species by Sprengel, are preserved in the Schultz Bipontinus Herbarium. Lessing's and DeCandolle's transfers were based on the latter name. The species requires a new name, owing to the publication by Gardner of another *Calea angustifolia*, retained by Baker as a variety of *C. multiplinervia*.

Calea coriacea DC. Prodr. **5**: 675. 1836.

Calea robusta Britton, Bull. Torrey Club **19**: 151. 1892.

The identity of these two species is shown by a comparison of DeCandolle's type, collected in "Peruvia" by Haenke, with *Bang* 1423, from Bolivia, which is *C. robusta* Britton. The species has been known definitely only from Bolivia (region of Yungas, and elsewhere). Haenke is known[94] to have visited Cochabamba, Bolivia, and undoubtedly collected this specimen on that trip.

Calea liebmannii Schultz Bip.; Klatt, Leopoldina **23**: 145. 1887.

Calea leptocephala Blake, Contr. U. S. Nat. Herb. **22**: 646. 1924.

In their revision of the Central American species of *Calea*, *Calea liebmannii* was doubtfully placed by Robinson and Greenman[95] in the *Calydermos* group on the basis of Klatt's inadequate and in some respects incorrect description, and was passed over by the present writer at the time *C. leptocephala* was published from Tonameca, Oaxaca (type *Reko* 3544). Examination of the excellent specimens of the type collection (*Liebmann* 411, from Gualulu, Mexico) in Schultz's herbarium has shown its identity with the latter.

Calea sessiliflora Less. Linnaea **5**: 153. 1830.

Calea brevipes Blake, Contr. U. S. Nat. Herb. **22**: 647. 1924.

Lessing's *Calea sessiliflora*, which has remained an unrecognized species, was very briefly described on the basis of material said to have been collected in Mexico by Humboldt, and preserved in Willdenow's herbarium (no. 15241), where it was labeled *Chrysosphaerium gnaphalioides*. Scraps of the same plant, apparently from Willdenow's herbarium, have been examined by the writer in the Schultz Bipontinus Herbarium. It is not one of the Mexican species, but agrees perfectly, so far as the material goes, with the plant recently described by the writer as *Calea brevipes* from the Department of Tolima, Colombia (*Pennell* 3463, type). This region was visited by Humboldt and Bonpland and the specimen in the Willdenow Herbarium was undoubtedly collected there by them, although for some reason it remained undescribed in their work.

Calea zacatechichi Schlecht. Linnaea **9**: 589. 1834.

Aschenbornia heteropoda Schauer, Linnaea **19**: 716. 1847.

The monotypic genus *Aschenbornia* Schauer,[96] described as a relative of *Coelestina* (=*Ageratum* L.), has been retained in essentially the same position by

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[93] Linnaea **9**: 269. 1834.
[94] Herzog, Veget. der Erde **15**: 1. 1923.
[95] Proc. Amer. Acad. **32**: 24. 1896.
[96] Linnaea **19**: 716. 1847.

Bentham and Hooker, O. Hoffmann, and Robinson,[97] none of whom was able to examine specimens. The single species, *A. heteropoda*, was based on *Aschenborn* 319 and 680, from near Tucabaya, Mexico. In the Schultz Bipontinus Herbarium are two small branches, together with detached leaves and a pocket of fragments, and with them two labels in Schultz's handwriting, pinned together. Both bear Schauer's name with a mark of affirmation, indicating that they are authentic material. One bears also the data "Mexico circa Tacubayam C. Ehrenberg! n. 680 Aschenborn;" the other "Mexico circa Tacubayam Aschenborn! n. 319 & 680." There is also on the sheet a single leaf of the same plant, labeled *Ehrenberg* 319, with the same locality as the others, and in addition a pocket of fragments from Willdenow's herbarium (no. 15301), with an unpublished name which it is not necessary to cite. The writer is not able to solve the problem presented by the attribution to both Aschenborn and Ehrenberg of the same number for the same plants, but in any case it is certain that this material can be taken as authentic, agreeing closely, as it does, with Schauer's description. All of it is *Calea zacatechichi* Schlecht., and Schauer's genus and species can at last be reduced to synonymy under that name. The generic identity was recognized by Schultz, but he failed to note the specific identity, and has an unpublished new combination based on Schauer's name.

A brief statement of the identity of *Aschenbornia heteropoda*, without discussion, was given by the writer in the addenda to Standley's "Trees and shrubs of Mexico."[98]

Tridax brachylepis Hemsl. Biol. Centr. Amer. Bot. **2:** 207. 1881.
Tridax galeottii Klatt, Leopoldina **23:** 145. 1887.
Ptilostephium galeottii Schultz Bip.; Klatt, Leopoldina **23:** 146. 1887, as synonym.
Tridax tuberosa Robins. & Greenm. Proc. Amer. Acad. **32:** 4. 1896.
Tridax pringlei Robins. & Greenm. Proc. Amer. Acad. **32:** 4. 1896.

In publishing *Tridax galeottii*, Klatt cited *Liebmann* 558 and 693 and *Galeotti* 2472, in the order given. Robinson and Greenman, in their revision of the genus, placed[99] the species between *T. bicolor* and *T. coronopifolia* on the basis of Klatt's unsatisfactory description, but later[1] considered it identical with their *T. tuberosa* of 1896 and adopted Klatt's name in place of the latter. They were led to this course by an examination of two drawings labeled *T. galeottii* in the Klatt Herbarium, one of which they considered to represent *T. tuberosa*, the other *T. brachylepis*. Klatt's description of the leaves as "irregularly lobate" was taken to indicate that the former species was the one principally intended in his diagnosis.

Through the kindness of Mr. C. A. Weatherby, there are available for study the two drawings from the Klatt Herbarium, as well as the types of *T. tuberosa* and *T. pringlei*. The material of *T. galeottii* in the Copenhagen Herbarium (*Liebmann* 558 and two sheets of 693) is also before the writer, as well as three sheets (*Pringle* 8372, *E. W. Nelson* 1423, and *Conzatti & González* 560) in the U. S. National Herbarium, which have been referred to *T. brachylepis*. In 1925 the material in the Schultz Herbarium (*Liebmann* 558 and 693, and *Galeotti* 2472) and the type of *T. brachylepis* (*Galeotti* 2024) at Kew were examined, and a photograph of the first and last of the specimens mentioned in the Schultz Herbarium and small fragments from the type of *T. brachylepis* were obtained.

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[97] Proc. Amer. Acad. **49:** 435. 1913.
[98] Contr. U. S. Nat. Herb. **23:** 1681. 1926.
[99] Proc. Amer. Acad. **32:** 8. 1896.
[1] Proc. Bost. Soc. Nat. Hist. **29:** 106. 1899.

The material in the Schultz Herbarium was later forwarded for more detailed comparison. All these specimens are from Oaxaca.

Careful examination of this assembled material has failed to bring to light any differences that may be considered specific or even varietal. In the tuberous-thickened root (when present in the specimens), the habit, the pubescence of stem, leaves, and peduncles, the involucre, and the details of head the plants are identical. There is a certain amount of variation in the density of the leaf-pubescence, but its character is the same in all. Hemsley described *T. brachylepis* as "herba annua, erecta," but his specimen lacks the base, and these characters must have been conjectural. *Pringle* 8372, which the writer considered on comparison an excellent match for his type, has a large tuberous root. The only differences of possible specific significance are shown by the leaves. Hemsley described his species as having ovate-lanceolate, obtuse, remotely callous-dentate or sometimes obscurely lobate leaves. Klatt described those of *T. galeottii* as cuneate and irregularly lobate. Robinson and Greenman distinguished their two new species mainly by foliage characters: In *T. tuberosa* the leaves were 3-cleft with sharply toothed, acute lobes, and in *T. pringlei* lanceolate, dentate or subentire, obtusish. Comparison of all this material leaves no doubt that it represents a single species, somewhat variable in leaf form (but no more so than some other species of *Tridax*), in which *T. pringlei* represents the extreme with smallest, narrowest, and most nearly entire leaves, and *T. tuberosa* that with most deeply divided leaves. Most of the specimens are intermediate.

The two drawings in the Klatt Herbarium are good sketches of two of the sheets in the Copenhagen Herbarium. One of them, drawn from *Liebmann* 558, represents the form with broad 3-lobed and repand-dentate leaves. The other, drawn from one of the sheets of *Liebmann* 693, shows a plant with shallowly repand-dentate leaves and another with them more deeply repand-dentate or even 5-lobed. Robinson and Greenman's identification of *T. galeottii* with their *T. tuberosa* was based on the drawings of the two specimens with more deeply lobed leaves.

Tridax coronopifolia (H. B. K.) Hemsl. Biol. Centr. Amer. Bot. **2:** 207. 1881.
Ptilostephium coronopifolium H. B. K. Nov. Gen. &. Sp. **4:** 255. *pl. 387.* 1820.
Ptilostephium trifidum H. B. K. Nov. Gen. & Sp. **4:** 255. *pl. 388.* 1820.
Tridax trifida A. Gray, Proc. Amer. Acad. **15:** 39. 1879.
Tridax lanceolata Klatt, Leopoldina **23:** 145. 1887.

Klatt's *Tridax lanceolata,* somewhat doubtfully retained as distinct from *T. coronopifolia* by Robinson and Greenman [2] in their revision of the genus, was based on *Liebmann* 205, from Tehuacan, Puebla, Mexico, and *Berlandier* 1063, from Cuernavaca, Morelos. Both numbers have been studied in the Schultz Bipontinus Herbarium. They represent a form with narrow entire leaves which can not be separated from *T. coronopifolia,* a species notable for the variability of its leaves. The pappus is about half as long as the achenes, as it is in the type of *Ptilostephium trifidum* H. B. K., rightly united by Robinson and Greenman with *T. coronopifolia.*

Tridax ehrenbergii Schultz. Bip.; Klatt, Leopoldina **23:** 145. 1887.

The sheet of *Tridax ehrenbergii* in the Schultz Herbarium contains two specimens, one a fairly good one, lacking the head but with a pocket containing achenes and corollas, of *Liebmann* 598 (Chinantla, Mexico, July 1841), the other a poor fragment of *Ehrenberg* 61 ("Mexico pr. Jucualtepam"). The ticket of the latter bears a diagnosis in Schultz's handwriting. Both specimens are Caleas of the little known *C. sabazioides* group, and although similar in most respects they have a different pappus and apparently represent different species. Although

[2] Proc. Amer. Acad. **32:** 9. 1896.

Schultz's name and unpublished diagnosis were evidently based on Ehrenberg's plant, which has a pappus considerably longer than the achene, the name as first published with description by Klatt refers to *Liebmann* 598, with pappus shorter than the achene, and the identification of the species must rest on this collection. As suggested by Robinson and Greenman,[3] the plant is a *Calea* and not a *Tridax*, and it appears to be identical with *Calea sabazioides* (Less.) Hemsl., if *Nelson* 3232, from near San Cristobal, Chiapas (U. S. Nat. Herb.) is properly referred to that still doubtful species, the type of which has not been critically examined by any author since its description.

Tridax palmeri A. Gray, Proc. Amer. Acad. **15**: 38. 1879.

Tridax imbricatus [sic] Schultz Bip.; Klatt, Flora **68**: 202. 1885.

Tridax imbricata Schultz Bip., poorly described by Klatt and compared with *T. coronopifolia*, was at first placed near that species by Robinson and Greenman [4] and regarded as doubtfully distinct. In a subsequent note, after examination of the very poor material (lacking heads) in the Klatt Herbarium, these authors adopted [5] Schultz's name for the species they had described [6] as new under the name *T. petrophila*. Study of the better material of the type collection (*Ehrenberg* 355) in the Schultz Bipontinus Herbarium shows that this course was incorrect. Schultz's type has large white or rosy rays about 1 cm. long, a strongly graduate, densely glandular-pilose involucre 9 mm. high, and pappus (3 mm. long) about equaling the achene, and is clearly identical with *Tridax palmeri* A. Gray. It must be referred to the synonymy of that species, and the name *Tridax petrophila* again adopted for Robinson and Greenman's species.

Tridax procumbens L. Sp. Pl. 900. 1753.

Balbisia canescens Pers. Syn. Pl. **2**: 470. 1807.

Tridax procumbens β. canescens DC. Prodr. **5**: 679. 1836.

The synonyms of Persoon and DeCandolle are omitted in Robinson and Greenman's revision of Tridax.[7] No authentic material of Persoon's species, collected by Richard at Santa Marta, Colombia, has been examined, but specimens from the same locality so labeled, collected by Bertero, presented by Balbis, and preserved in the Prodromus Herbarium as well as in the Schultz Bipontinus Herbarium are normal *Tridax procumbens L.*

Oxypappus seemannii (Schultz Bip.) Blake.

Chrysopsis scabra Hook. & Arn. Bot. Beechey Voy. 434. 1841. Not *Chrysopsis scabra* Ell. 1823 (?).

Oxypappus scaber Benth. Bot. Voy. Sulph. 118. *pl. 42*. 1844.

Pectis seemannii Schultz Bip. in Seem. Bot. Voy. Herald 309. 1856.

Pentachaeta gracilis Benth. in Hook. Icon. Pl. **12**: 1. *pl. 1101*. 1872.

Oxypappus gracilis A. Gray; O. Hoffm. in Engl. & Prantl, Pflanzenfam. **4⁵**: 257. 1890, without synonym.

The identity of all these specific names has long been recognized, but the preoccupation of the name *Chrysopsis scabra* has been passed over.

Vasquezia anemonifolia (H. B. K.) Blake.

Unxia anemonifolia H. B. K. Nov. Gen. & Sp. **4**: 279. *pl. 402*. 1820.

Villanova anemonefolia Less. Syn. Gen. Comp. 256. 1832.

This Colombian and Venezuelan species appears different from the forms occurring from Ecuador to Bolivia and Peru. The pedicels and involucre are not

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[3] Proc. Bost. Soc. Nat. Hist. **29**: 107. 1899.

[4] Proc. Amer. Acad. **32**: 9. 1896.

[5] Proc. Bost. Soc. Nat. Hist. **29**: 107. 1899.

[6] Proc. Amer. Acad. **32**: 5. 1896.

[7] Proc. Amer. Acad. **32**: 7. 1896.

glandular, and the former are densely pilose with mostly erect, not obviously jointed hairs; the rays are 5 to 7, the disk flowers 6 to 9; the leaves are densely pilose and with comparatively broad divisions. To it are referred *Rusby & Pennell* 1215, *Pennell* 2213, and *Pennell, Killip, and Hazen* 8753, all from the Departments of Caldas and Cundinamarca, Colombia, as well as *Jahn* 973 from Páramo de Canaguá, Province of Mérida, Venezuela, the last a coarser form with less divided leaves. *Rusby & Pennell* 1215 has been compared by the writer with the type of *Unxia anemonifolia* H. B. K., from "Nova Hispania?," in the Humboldt and Bonpland Herbarium at Paris.

The well known name *Villanova* Lag.[8] being preoccupied by *Villanova* Orteg.,[9] Rydberg [10] has taken up for the genus Philippi's name *Vasquezia* (so spelled by Philippi, but written *Vasquesia* by Rydberg). Ortega's name was based on his *Villanova bipinnatifida*, which is *Parthenium hysterophorus* L. There seems consequently no possibility that Ortega's name, which has not been used for over a century, will ever figure except in synonymy. *Villanova* Lag., however, is only a small genus of about half a dozen species, none of which are of any economic importance, and the change of name is a matter of no great significance. The South American species are poorly described and in a state of confusion that can be cleared only by examination of type material.

Blennosperma nanum (Hook.) Blake, Proc. Biol. Soc. Washington **39**: 144. 1926.

Chrysanthemum? nanum Hook. Fl. Bor. Amer. **1**: 320. 1834.

Coniothele californica DC. Prodr. **5**: 531. 1836.

Blennosperma californicum Torr. & Gray, Fl. N. Amer. **2**: 272. 1842.

Hooker's type of *Chrysanthemum ? nanum*, collected on the "North-West coast of America" by Menzies, is identical with *Coniothele californica* DC., as long ago noted by Asa Gray.[11] Gray's brief statement of its identity, at the beginning of his account of the genus *Chrysanthemum*, has been overlooked by later writers, and Hooker's name seems to be omitted from the "North American Flora."

Soliva sessilis Ruiz & Pav. Fl. Peruv. Chil. Prodr. 112. 1794.

Soliva barclayana DC. Prodr. **6**: 143. 1837.

Gymnostyles barcklayana Steud. Nom. Bot. ed. 2. **1**: 713. 1840.

Soliva sessilis var. *barclayana* Baker in Mart. Fl. Bras. **6**[3]: 294. 1884.

Soliva barclayana DC., based on specimens collected in Barclay's garden in England on July 18, 1830, by Alphonse DeCandolle, which had been grown from seed from "America merid." without definite locality, has not since been recognized. The type specimens in the DeCandolle Herbarium are *Soliva sessilis* Ruiz & Pav. and the name may now be placed in the synonymy of that species. The two upper lobes of the achene referred to in DeCandolle's description are the two spiny teeth at its apex which in the type are sometimes inflexed, as described by DeCandolle and as is frequent in *S. sessilis*, and sometimes erect.

Liabum hypoleucum (DC.) Blake, Proc. Biol. Soc. Washington **39**: 144. 1926.

Vernonia hypoleuca DC. Prodr. **5**: 27. 1836.

When transferring this species to *Liabum*, the writer suggested that it was probably a Peruvian species, although attributed by DeCandolle to Mexico. However, having since carried out in another connection a review of the South

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[8] Gen. & Sp. Nov. 31. 1816.

[9] Hort. Matr. Dec. 47. 1797.

[10] N. Amer. Fl. **34**: 41. 1914.

[11] Syn. Fl. **1**[2]: 364. 1884.

American species without finding any group to which it may be referred, the writer has now no doubt that it is really a Mexican or Central American plant. It is clearly a member of the group distinguished generically by Rydberg [12] under the name *Sinclairia* Hook. & Arn., but appears not to agree entirely with any species described by him, although it comes near *S. brachypus* Rydb.

Centaurea melitensis L. Sp. Pl. 917. 1753.

Calcitrapa patibilcensis H. B. K. Nov. Gen. & Sp. **4**: 23. 1820.

Centaurea americana Spreng. Syst. Veg. **3**: 407. 1826. Not *Centaurea americana* Nutt. 1821.

Centaurea patibilcensis DC. Prodr. **6**: 593. 1837.

In the Index Kewensis *Calcitrapa patibilcensis* is referred to *Centaurea americana* and its synonym, *Centaurea patibilcensis*, to *Centaurea melitensis*. The latter reference, as shown by an examination of the type (*Bonpland* 3768, Patibilca, Peru, in the Paris Herbarium), is the correct one, and the former is probably owing to confusion between *Centaurea americana* Spreng. (a renaming of *C. patibilcensis*) and *Centaurea americana* Nutt.

Moquinia blanchetiana (DC.) Blake.

Baccharis blanchetiana DC. Prodr. **7**: 281. 1838.

Moquinia flavescens Gardn. Lond. Journ. Bot. Hook. **6**: 458. 1847.

These names have already been equated by Baker,[13] who examined the type collections of both species. The writer has examined the type specimen of *Baccharis blanchetiana* and the type collection of *Moquinia flavescens*, but without an opportunity to compare them. The specific identification of DeCandolle's name rests on the authority of Baker.

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[12] N. Amer. Fl. **34**: 295. 1927.

[13] In Mart. Fl. Bras. **6**[3]: 347. 1884.