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I. NOTES ON THE SYSTEMATIC POSITION OF CLIBADIUM, WITH DESCRIPTIONS OF SOME NEW SPECIES.

BY S. F. BLAKE.

THE genus Clibadium L. of the helianthoid Compositae is placed by Bentham & Hooker and by Hoffmann at the end of the subtribe *Millerinae*, separated only by the not at all closely related *Sheareria* from the genus *Ichthyothere* Mart. of the *Melampodinae*. A recent investigation of the species of *Clibadium* has made the writer very doubtful of the propriety of this arrangement. When all the characters of the two genera are taken into consideration, there seems no room for doubt that *Clibadium* and *Ichthyothere* are much too closely related for reference to different subtribes, as was indeed long ago indicated by Bentham's hesitation (Gen. Pl. ii. 346) in fixing on the affinity of a still unpublished plant of Spruce's, finally referred by him to *Clibadium*, where there can be no doubt that it properly belongs (see *C. Sprucei* below).

The subtribe Millerinae differs from the Melampodinae in but two definite characters — the absence of pales on the disk, and the few(less than 10)-flowered heads — in both of which features Clibadium forms, at least as to some of its species, an exception to all the other genera of the Millerinae, and agrees with the Melampodinae. In the recent revision by O. E. Schulz (Bot. Jahrb. xlvi. 613-629 (1912)) Clibadium is divided into two sections — Euclibadium DC., with receptacle naked in the middle and sterile ovaries villous throughout, and Trixidium DC., with receptacle paleaceous throughout and sterile ovaries pilose only at apex. It might at first appear that the genus could be divided into two on these characters, the one genus (De Candolle's sect. Euclibadium) being referred to the Millerinae, where its many-flowered heads would still render it exceptional, the other (De Candolle's sect. Trixidium) referred to the Melampodinae next to Ichthyothere. But the very

close relationship existing between all the species now referred to Clibadium, as well as the gradations observable in these two features themselves, renders such a course as artificial as it would be unsatisfactory. In all the species the outer (female and fertile) florets, 3-37 in number, are subtended by chaff which may be considered either as receptacular pales (as they are taken by writers generally) or as inner scales of the 1-5-scaled genuine involucre, to which they are very similar in every character; the difference is after all one of words only and of no great consequence. In the five species of the section Trixidium now known the inner (hermaphrodite and sterile) florets of the disk are also subtended by pales, considerably reduced it is true but easily found; but in the twenty species of Euclibadium they vary greatly, being sometimes entirely absent, sometimes present only at the base of a few florets and as it were sporadically, and sometimes at the base of all but the innermost disk-florets. The gap between such species as C. strigillosum, with 16-flowered heads, only the five female florets provided with pales, and C. Eggersii, with 47-flowered heads paleaceous throughout, is bridged by such species as C. polygynum with 37-flowered heads of which only the innermost of the disk are without pales. The amount of pubescence on the sterile achenes of the disk is also not without variation in some of the species of each section and is of much less importance as a possible generic character.

Of the some twenty-five species of *Clibadium* now known (including six here first published) only three are in agreement with the other genera referred to the *Millerinae* in the possession of less than ten flowers in the head. Hoffmann's statement in 1890 (Nat. Pfl. iv. pt. 4, 214) of the number of female florets as "1-2" was very incorrect even for the species then known, no species having less than 3, while *C. erosum* has about 18 and *C. fragiferum* about 28. Hoffmann's error may have derived from Bentham's description of the female florets as "1-2-seriati," but surely never from dissection of a specimen.

From what has been written above it seems beyond dispute that *Clibadium* should be removed from the *Millerinae* and referred to the *Melampodinae* next to *Ichthyothere*, from which it differs chiefly in habit and in the more or less complete reduction of the receptacular pales. The typical or original group would seem to be *Trixidium*, with many-flowered heads and a receptacle paleaceous

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throughout, from which by reduction of the receptacular chaff the species of *Euclibadium* have been derived.

In O. E. Schulz's monograph of 1912 nineteen species and two varieties were recognized of the thirty or more which have been described by authors. In the present paper five new species are described, one published by Hieronymus as a *Desmanthodium* is transferred to *Clibadium*, and the name of one species is changed as the result of an examination of two of Aublet's types in the British Museum. In this as in so many other cases I have to express my thanks to Dr. A. B. Rendle of the British Museum and Dr. Otto Stapf of the Kew Herbarium for the opportunity to study the collections under their charge, and to secure fragments of types for the Gray Herbarium. The order of Schulz's monograph is followed in the arrangement of the species.

CLIBADIUM SURINAMENSE L. To this species may be referred Hayes 401, from Paraiso Station, Panama Railway, August 1862, which has been included by Hemsley (Biol. Centr.-Am. Bot. ii. 143) under C. leiocarpum Steetz.

C. SYLVESTRE (Aubl.) Baill., referred by Schulz to C. surinamense, is identical with C. Vargasii DC. and should replace it (see beyond).

C. heterotrichum, sp. nov. Frutex sect. Euclibadii. Caulis subteres striatus purpurascens dense appresseque strigosus pilis deciduis basibus tuberculatis persistentibus. Folia ovata vel oblongo-ovata vel ovato-lanceolata acuminata basi cuneata vel cuneato-rotundata irregulariter serrata (dentibus 16-22-jugis acute mucronatis subpatentibus vel appressis) trinervia subtus reticulata supra viridia dense aspereque hispida et hispidula pilis basi tuberculatis aetate lepidota subtus pallidiora juventate canescentia ad venas densissime inter venas subdense et subaspere pilosulohispidula pilis adscendentibus et plus minusve glandulosa 6.5-10 cm. longa 2-4.6 cm. lata, in petiolis immarginatis tuberculatohispido-strigosis et -strigillosis 5-14 mm. longis. Paniculae terminales et ex axillis supremis orientes densissime strigosae ca. 25cephalae ad 2.5 cm. latae. Capitula ovoideo-subglobosa subdense aggregata 5 mm. alta 4 mm. diametro. Involucri phyllaria 3 ovata distincte acuta pallide lutescenti-albida 7-nervia subdense strigillosa et ciliolata submembranaceo-siccata 5 mm. longa 3.2 mm. lata. Receptaculum nudum, paleis flor. fem. subtendentibus

squamis similibus sed minoribus exceptis. Flor. fem. 5, hermaph. 19. Flor. fem.: corolla apice pilosa 2 mm. longa; ovarium apice pilosum. Flor. hermaph.: corolla 2 mm. longa sursum pilosa; ovarium (immaturum) oblongum dense pilosum 1 mm. longum. Achenia non visa. — BOLIVIA: Polo-Polo, near Coroico, Distr. La Paz, 1100 m., Oct.-Nov. 1912, Buchtien sine num. (TYPE in Brit. Mus.). — This species finds its closest relative in *C. peruvianum* Poeppig, which has a harsh spreading stem-pubescence and larger heads. The type collection was distributed as *C. asperum* DC. (= *C. surinamense* L.), an unrelated species.

C. SYLVESTRE (Aubl.) Baill. Hist. Pl. viii. 307 (1886). - In Schulz's monograph (p.622) this species is called C. Vargasii DC., and C. sylvestre is synonymized with C. surinamense L. There are in the British Museum two sheets of Chibadium from Aublet, one of which has been marked by Dryander as Bailleria aspera Aubl. (Hist. ii. 804, t. 317 (1775)), the other being labelled Bailleria sylvestris Aubl. (l.c. 807) in an unidentified hand. The first of these is identical with C. Vargasii DC., the second with C. surinamense L. But when careful comparison is made with the descriptions and plate of Aublet, the conclusion seems unavoidable that the names written on the sheets have in some way been transposed, and that the type of B. sylvestris Aubl. is in reality the plant labelled B. aspera by Dryander. The leaves of the specimen labelled B. sylvestris agree much better with those shown in plate 317 (B. aspera) of the Histoire in shape and toothing, and are distinctly scabrous as contrasted with the nearly smooth leaves of the other specimens (i. e., those labelled B. aspera), which is one of the chief diagnostic features attributed to B. aspera by Aublet. It seems necessary to disregard the labels on the sheets, not written by Aublet himself, and follow the characters considered essential by him, which leads to the consideration of the sheet marked Bailleria aspera by Dryander as the type of B. sylvestris, and the adoption of the name Clibadium sylvestre (Aubl.) Baill. for the well-marked species called C. Vargasii DC. in Schulz's revision.

C. strigillosum, sp. nov. Frutex sect. *Euclibadii*. Caulis subquadrangularis dense canescenter strigillosus. Folia ovata tenuiter acuminata basi cuneata irregulariter subrepando-dentata (dentibus 20-30-jugis plus minusve depressis mucronatis) trinervia utrinque non aspera supra obscure viridia subdense strigillosa

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aetate sublepidota basibus pilorum persistentibus infra paullo pallidiora dense appresse hispidulo-strigillosa 10-11.8 cm. longa 4.8-5.3 cm. lata, in petiolis dense minuteque canescenterque strigillosis immarginatis 1.2-2 cm. longis. Paniculae axillares et terminales ca. 50-cephalae pyramidatae ad 3 cm. latae foliis multo breviores dense strigillosae. Capitula globosa 5 mm. alta 3.5-4.5 mm. diametro sessilia vel brevissime pedicellata irregulariter aggregata. Involucri phyllaria 3 ovalia acutiuscula 8-13-nervia vix subherbacea supra dense strigillosa 3-3.8 mm. longa 2.1-2.8 mm. lata. Receptaculum nudum, paleis flor. fem. subtendentibus squamis similibus paullo angustioribus exceptis. Flor. fem. 5, hermaph. 11. Flor. fem .: corolla 2.5 mm. longa, dentibus 4 dorso sparse pilosis. Flor. hermaph.: corolla 3 mm. longa, dentibus 5 pilosis; ovarium sterile oblongum ad apicem villosum 1.3 mm. longum. Achenia suborbicularia nigrescentia vix marginata sparse pilosa 2.1 mm. longa 2 mm. lata. - PERU: Mathews 1360 (TYPES: Brit. Mus., Kew, fragm. in hb. Gray). - Rather closely related to C. sylvestre (Aubl.) Baill. (C. Vargasii DC.: see above), but that species, unknown in Peru, has smaller heads with a more decidedly herbaceous involucre.

C. Sprucei, sp. nov. Frutex sect. Euclibadii scandens (?) ramosus ramis latissime patentibus. Caulis obtusangulus ramique teretes densissime aspere strigosi pilis arcte appressis demum deciduis eorum basibus albidis tuberculatis persistentibus. Folia opposita ovato-lanceolata longissime acuminata paullum falcata basi truncato-rotundata vel superiora basi rotundata ca. 1 cm. supra basin valde trinervia mucronato-denticulata (dentibus ca. 20-jugis patentibus tenuibus) supra viridia impresso-venoso-reticulata asperrime scabra pilis densis incurvis basi valde tuberculatis subtus vix pallidiora dense submolliterque pilosa pilis incurvis basi subtuberculatis et glanduloso-adspersa 7-14 cm. longa 1.8-3.3 cm. lata, in petiolis immarginatis 4-10 mm. longis dense strigoso-hispidis pilis incurvis basi tuberculatis. Capitula in glomerulis densissimis axillaribus et terminalibus (in pedunculis 2-4 cm. longis) basi bifolioso-bracteatis rare nudis 1.1-2.1 cm. diametro 10-20cephalis aggregata. Involucri 6 mm. alti 4 mm. diametro ellipsoidei plus minusve compressi phyllaria 3 oblonga ad oblongo-ovalia obtusiuscula subherbaceo-submembranacea dense strigillosa et ciliolata 4-5-nervia apice paullum sicca 6-6.5 mm. longa 3-3.5 mm.

lata. Receptaculum convexum apice excepto paleaceum, paleis exterioribus (eis flor. fem.) squamis involucri similibus sed minoribus introrsum sensim reductis; intimis scariosis lanceolatis acuminatis ciliatis floribus multo brevioribus. Flor. fem. 10-11, hermaph. 10-11 (in capitulo altero flor. fem. 10, hermaph. 11, altero flor. fem. 11, hermaph. 10). Flor. fem .: ovarium ovale apice sparse pilosum 1.2 mm. longum; corolla tubulosa bilobata apice sparse pilosa nectario conspicuo annulari praedita 1.7 mm. longa. Flor. hermaph.: ovarium oblongo-obovoideum supra longe pilosum 0.7 mm. longum; corolla 5-dentata supra pilosa clavato-tubulosa 2.7 mm. longa basi nectario annulari praedita; antherae basi sagittatae apice appendice ovali-ovata obtusa munitae; stylus indivisus supra medium plus minusve hirtus. - ECUADOR: Tungaragua, 1857-1859, Spruce 5826 (TYPE COLL.: Brit. Mus., Kew, Gray Herb.). - Long ago referred to Clibadium by Bentham (Gen. Pl. ii. 346), who considered it transitional to Ichthyothere, as a new species of which genus it was originally distributed. It has however no special affinity with this genus. Clibadium Sprucei belongs to the section Euclibadium, where its nearest ally is the (from description) clearly distinct C. subsessilifolium Hieron. of Ecuador. Only the two or three innermost florets of the disk are without pales.

C. Trianae (Hieron.), comb. nov. — Desmanthodium Trianae Hieron.! Engl. Bot. Jahrb. xix. 52 (1894). — This species, the type of which, Triana 1317, from Colombia, is represented in both the British Museum and Kew Herbarium and by a fragment in the Gray Herbarium, is so clearly a Clibadium both in habit and technical characters that it is difficult to understand how it could have been referred to Desmanthodium by Hieronymus. The small heads densely aggregated in ternately arranged glomerules place it between C. subsessilifolium Hieron. and C. glomeratum Greenm., from both of which it is (from description) very distinct. The female florets seem to be always 5; the hermaphrodite may be either 6 or 7 in number.

C. polygynum, sp. nov. Frutex ramosus sect. *Euclibadii*. Caulis teres dense patenter hispidus et hispidulus pilis deorsum demum deciduis basibus tuberculatis persistentibus. Folia opposita ovata vel suprema ovato-lanceolata acuminata basi acute cuneate trinervia e basi serrata (dentibus acute mucronatis ca. 21-26-jugis sub-

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appressis) utrinque scabra supra patenter vel adscendenter hispida et hispidula pilis basi tuberculatis subtus paullo pallidiora sparsius hispida et hispidula pilis basi non tuberculatis 7-9.5 cm. longa 2.3-4 cm. lata, in petiolis dense patenter hispidis et hispidulis immarginatis 1-3 cm. longis. Paniculae 3.5 cm. latae ca. 9-11-cephalae; pedicelli dense hispidi et hispiduli 3-7 mm. longi. Capitula globosa ca. 5 mm. alta 6 mm. diametro. Involucri phyllaria ca. 2 ovalia acutiuscula strigosa lineata ca. 3 mm. longa 1.5 mm. lata. Receptaculum paene ad apicem paleaceum; paleae exteriores ovales obtusae supra strigosae hispido-ciliatae ca. 5-nerviae 4 mm. longae 2 mm. latae; interiores sensim angustiores, intimae anguste oblongae 1-nerviae apice subherbaceae sursum hispido-ciliatae pilis incurvis 3 mm. longae. Flor. fem. 29, hermaph. 8. Flor. fem.: corolla glabra obtuse 3-denticulata 1.7 mm. longa. Flor. hermaph.: corolla clavato-tubulosa 1.8 mm. longa, dentibus 5 pilosis; ovarium sterile dense pilosum oblongum 1.2 mm. longum; stylus vix exsertus. Achenia nigrescentia obovoidea marginata apice dense pilosa 2 mm. longa 1.5 mm. lata. — NICARAGUA: Chontales, 1867-68, R. Tate 192 (Brit. Mus., Kew, fragm. in hb. Gray); without definite locality, Seemann 88 (TYPE COLL.: Brit. Mus., Kew). - Unique among the species of the section Euclibadium by reason of its very numerous female florets, in which it approaches the species of the section Trixidium.

C. divaricatum, sp. nov. Frutex ramosus sect. Trixidii. Caulis tenuis subteres striatus plus minusve flexuosus minute subsparse strigillosus viridescens. Folia opposita ovato-lanceolata longe acuminata basi acute cuneata paene e basi serrata (dentibus ca. 8-11jugis appressis mucronatis) trinervia paullum reticulata supra obscure viridia minute subdense strigillosa subtus pallidiora subdense appresseque hispidulo-strigillosa 7-9.5 cm. longa 2.1-3.8 cm. lata, in petiolis tenuibus sparse strigillosis immarginatis 1-2.6 cm. longis. Paniculae ramos et ramulos terminantes breviter (ca. 1 cm.) pedunculatae divaricatissime ramosae strigillosae 20-27cephalae 3-4 cm. latae. Capitula depresso-hemisphaerica plus minusve distantia sessilia 2.5 mm. alta 4 mm. diametro. Involucri phyllaria 5 latissime orbiculari-ovata obtusiuscula viridescentia minute et subsparse strigillosa ciliolata 3.3 mm. alta 3 mm. lata. Receptaculum omnino paleaceum; paleae extimae squamis consimiles; interiores oblongae obtusae subglabrae margine ciliato

excepto 3-nerviae. Flor. fem. 24; hermaph. 10. Corollae non visae. Achenia obovata marginata viridescenti-nigrescentia 1.5 mm. longa 0.9–1 mm. lata. Ovaria sterilia linearia ad apicem villosa pilis perpaucis praedita ad 1.8 mm. longa. — PERU: near Tarapoto, 1855–56, Spruce 4522 (TYPE COLL.: Brit. Mus., Kew, Gray Herb.). — Very distinct from any published species.

II. A REVISION OF THE GENUS DIMEROSTEMMA CASS.

BY S. F. BLAKE.

In 1848 Gardner published from Brazil a new genus of the helianthoid Compositae which he named *Serpaea* in honor of Dr. Serpa, then professor of botany in the College of Olinda near Pernambuco. One of the two species on which the genus was based is a true *Aspilia* and was referred to that genus by Baker in 1884, having wrongly been remanded to *Viguiera* by Bentham & Hooker in 1873. The other, *S. ovata* Gardn., has since 1873 been retained in *Oyedaea*, to which it was first referred by Bentham & Hooker. With three new species it was taken by Baker in 1884 to constitute his subgenus *Serpaea* of *Oyedaea*.

Recent critical study of the genera Viguiera and Oyedaea has convinced me that Gardner's genus Serpaea is well worthy of generic rank. While all the some 20 species of Oyedaea have a thickened laterally rounded achene bearing a pappus of two awns with an intermediate corona of basally fused squamellae, the six species referable to Serpaea have a more or less quadrangular achene with a pappus of two awns only without intermediate corona, although in some cases the intermediate angles of the achene are prolonged into short teeth or occasionally into awns nearly or quite as long as those of the main angles. These species are likewise distinguished by the possession of a secondary involucre of 2-several herbaceous bracts outside the true more or less indurated phyllaries, these accessory bracts being similar to the stem leaves but very much reduced in size.

Cassini's genus *Dimerostemma*, described in 1817 from material in the herbaria of Jussieu and Desfontaines brought from the garden of Lisbon and originating from Brazil, has ever since remained an unverified genus to synantherologists. It was placed by Ben-



Blake, S. F. 1917. "Notes on the systematic position of Clibadium, with descriptions of some new species." *Contributions from the Gray Herbarium of Harvard University* (52), 1–8. <u>https://doi.org/10.5962/p.336007</u>.

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