

BOTANY.—*Five new plants from Venezuela.* S. F. BLAKE, Bureau of Plant Industry.

Four of the new species described in this paper are from high altitudes in the Andes of the States of Trujillo and Mérida, Venezuela. One is a striking *Draba*, with stout stem, fleshy leaves, and large yellow flowers; one is a species of *Aragoa*, a genus of shrubs allied to *Veronica*, and previously known only from Colombia; one is an alpine *Erigeron*, allied to *E. nevadensis* Wedd.; and the fourth is a species of *Desmanthodium*, a small genus of the *Heliantheae-Millerinae*, hitherto found only in Mexico and Guatemala. The fifth plant belongs to *Riencourtia*, and is the second new species of that genus collected in Venezuela by Mr. Henry Pittier.

Draba bellardii Blake, sp. nov. Caudex thick, with few short branches; stem low, thick, stellate-pubescent; basal leaves tufted, fleshy, yellowish green, oblong, serrate above, ciliate; stem leaves similar but shorter and broader; inflorescence dense; pedicels 1 cm. long or less; petals yellow, 7.5–10 mm. long; ovary glabrous, the ovules about 20 in each cell; style and stigma 2 mm. long.

Herbaceous perennial, about 14 cm. high; caudex thick, 4-branched, the branches short, erect, densely clothed toward apex with the imbricated corky bases of fallen leaves, one bearing a flowering stem, the others dense tufts of leaves; basal leaves tufted, fleshy, yellowish-green, sessile, narrowly oblong or oblanceolate-oblong, 4 to 5 cm. long, about 1.2 cm. wide, acute, serrate above the middle (teeth about 4 pairs, acute or acutish), hirsute-ciliate below the middle and denticulate-hirsute-ciliate above, the broad yellowish-white costa antrorse-hirsutulous with simple hairs on upper surface of leaf, glabrous beneath like the whole under surface; flowering stem leafy, stout (nearly 1 cm. thick), angled and striate, yellowish green, evenly but not densely stellate-pubescent with spreading, 2- or 3-branched hairs; stem leaves similar to the basal but rather shorter and broader, with slightly clasping base, the upper ones (subtending the lower branches of the inflorescence) ovate, about 2.5 cm. long, 1.5 cm. wide, pubescent like the basal leaves, about 7-toothed on each side above the entire base; inflorescence about 7 cm. long, dense, leafy-bracted, short-branched below, the flowers congested; pedicels in anthesis 1 cm. long or less, stout, pubescent like the stem; sepals oblong or obovate-oblong, 7 to 8 mm. long, 3.5 mm. wide, rounded, yellowish green, sparsely hirsute along midline with simple or bifurcate ascending hairs; petals yellow, equal, 7.5 to 10 mm. long, glabrous, the claw 2.5 to 4.5 mm. long, about 1.2 mm. wide, the blade suborbicular, subtruncate, 5 to 5.5 mm. long, 5.5 to 6.5 mm. wide, about 8-nerved; stamens 6, free, equal, the stout subulate filaments 5.5 to 6 mm. long; ovary ellipsoid, glabrous, 5 mm. long, the ovules pendulous on slender funicles, in two rows of about 10 each in each cell; style and stigma 2 mm. long, the style cylindrical-conic, the stigma slightly bilobed.

VENEZUELA: At the perpetual snow line, Sierra de Mucubajá, Andes of Mérida, altitude 4,880 meters, 1922, *E. P. de Bellard* 14 (type no. 1,185,120, U. S. Nat. Herb.).

Remarkable for its very stout leafy stem and large yellow flowers. The species evidently belongs in the section *Volcanicae* of Gilg, and is nearest the Colombian *Draba pachythyrsa* Triana & Planch., which is described as having lanceolate few-dentate leaves, contracted into a short broad petiole, violascent calyx, a very short style, and about 6-seeded capsule cells.

Aragoa lucidula Blake, sp. nov. Branches pilose-lanate; leaves oblong, 2–2.8 mm. long, obtuse, appressed, not keeled, shining, pubescent on back and margin; flowers sessile, small; calyx pubescent; corolla pilose at base of tube.

Shrub; branches and branchlets numerous, mostly opposite or in 3's, the branchlets 1.5–2 mm. thick (including the leaves), terete, cinereously pilose-lanate, densely covered by the appressed, crowded, long-persistent, many-ranked leaves; leaves of main stem linear-oblong, 2.8 mm. long, about 0.5 mm. wide, obtuse, concave inside, sparsely pilosulous dorsally, those of branches and branchlets oblong, 2–2.6 mm. long, 0.8 mm. wide, obtuse, thick, concave and glabrous inside, rounded and loosely pilose on back, ciliate especially toward apex, dark green and shining, with narrow pale margin; flowers few toward apex of branches, sessile; calyx 5-parted, 2–2.8 mm. long, the segments imbricated, oval, rounded, 1.5 mm. wide, subcoriaceous, with green center and subequal subscarious margins, pilose on the green portion of back, especially toward apex, and ciliate; corolla campanulate-rotate; 4-lobed about to middle, 7 mm. wide, long-pilose in a ring at base inside, otherwise glabrous, the campanulate tube 2 mm. long, the obovate-oblong rounded entire lobes 3 mm. long; stamens 4, the filaments flattish-subulate, 3 mm. long, pilose about to middle, adherent to tube throughout its length, the anthers reniform, confluent 1-celled; disk annular, thick; ovary globose-ovoid, glabrous, shorter than style, 2-celled, several-ovuled; capsule ovoid, glabrous, 2 mm. long, 4-valved, the valves thick, the septum free; seeds (immature?) obscurely winged.

VENEZUELA: Sierra Nevada de Santo Domingo, Mérida, altitude 3600 meters, 12 Sept. 1922, A. Jahn 1091 (type no. 1,186,693, U. S. Nat. Herb.).

Aragoa lucidula is the first species of the genus to be found in Venezuela. From the three species of the genus previously known, all of which are Colombian, it is distinguished by its small flowers and dorsally pubescent leaves. The vernacular names given by Dr. Jahn are "romero negro" and "chicote," the former signifying "black rosemary," the latter ("end of a rope," Velázquez Dictionary) presumably referring to the ropelike appearance of the branches. The name "romero de páramo" is given on a sheet of *A. cupressina* H. B. K. in the National Herbarium, collected by Triana near Bogotá.

Erigeron blepharophyllus Blake, sp. nov. Perennial, with short and thick rhizome; leaves all in a basal tuft, narrowly cuneate or oblanceolate, about 5 cm. long, narrowed to the sessile base, denticulate toward apex, densely pilose and stipitate-glandular; stem scapiform, 1-headed; involucre subequal, glandular-pilose; rays numerous, about half longer than the involucre; achenes hispid.

Rhizome erectish, about 1.5 cm. long, simple; basal leaves 12 or more, 4.5–6 cm. long, 4–8 mm. wide, erect or in age reflexed, acute or obtuse and

somewhat callous-thickened at apex, gradually narrowed to base, about 4-denticulate on each side toward apex with small blunt callous teeth, 1-nerved or with a pair of lateral nerves well above the base (the nerves all impressed), densely pilose with many-celled acuminate hairs on both sides and on margin and also stipitate-glandular, thick-herbaceous (perhaps fleshy in life), subscarios and glabrous within toward the base, this about 5-nerved; stems one or two, erect, 12–22 cm. high, densely pubescent with dark several-celled gland-tipped hairs and sparsely pilose, bearing 2–4 linear bracts, these 3–13 mm. long, 0.5–2 mm. wide, pubescent like the basal leaves; head 2 cm. wide; disk 7–8 mm. high, 12 mm. thick; involucre about 2-seriate, 8–9 mm. high, the phyllaries linear (1 mm. wide), acuminate, erect, the outer dull green or purplish, stipitate-glandular and pilose, with very narrow or obsolete scarious margin, the inner whitish, indurate, with narrow scarious margin, 1-vittate, ciliate chiefly toward apex, otherwise nearly or quite glabrous; rays about 40, sub-2-seriate, whitish (when dried), considerably exceeding the involucre, the tube 2 mm. long, erect-pilose with several-celled hairs, the lamina linear-elliptic, bidenticulate, 4-nerved, 6 mm. long, 1.7 mm. wide; disk corollas apparently whitish, erect-pilose with several-celled hairs at base of throat and sparsely so on teeth, 4 or 5-toothed, 4.3 mm. long (tube 1.8 mm., throat funnelform, 1.3 mm., teeth ovate, obtuse or acute, 1.2 mm. long); achenes (immature) of ray and disk slender, hispid, several-nerved, 2.5 mm. long; pappus of 25–30 hispidulous rufid bristles 4 mm. long, a few of the outer only about half as long; anthers sagittate at base; style branches with lanceolate, acute, finely papillose-hispidulous appendages.

VENEZUELA: Páramo del Jabón, Trujillo, altitude 3300 m., 2 Oct. 1910, *Alfredo Jahn* 46 (type no. 602241, U. S. Nat. Herb.); Páramo de Aricagua, Mérida, altitude 3300 meters, 31 March 1922, *Jahn* 1035.

Allied to *Erigeron nevadensis* Wedd., which is similar in appearance but is not glandular, and has merely ciliolate leaves with glabrous faces.

Desmanthodium blepharopodum Blake, sp. nov. Stem essentially glabrous; leaves ovate, denticulate, subcoriaceous, practically glabrous, on rather short densely ciliate petioles; heads medium-sized for the genus, 6–10-flowered.

Stem herbaceous above, rather stout, subterete, hirsutulous chiefly in 2 lines with mostly appressed, several-celled hairs, quickly glabrate; leaves opposite; petioles unmarginated, connate at base, densely ciliate with several-celled sordid hairs, 3–13 mm. long; blades ovate, 7–17 cm. long, 3.5–7 cm. wide, acuminate, at base cuneate, remotely denticulate (teeth about 0.5 mm. high, 5–8 mm. apart), subcoriaceous, hirsute-ciliate when young, above deep dull green, very sparsely hirsutulous, beneath slightly lighter green, very sparsely hirsutulous along some of the veins or essentially glabrous, quintuplinerved well above the base, the nerves impressed above, with the secondaries loosely prominulous-reticulate beneath; panicle trichotomous, flattish-topped, 14 cm. wide, its branches sordid-hirsutulous in lines with spreading or ascending hairs, the branchlets strongly flattened, hirsutulous on the upper side, the bracts (except the lowest pair) 1 cm. long or less, ovate, coriaceous; heads sessile, about 5 mm. high, 3 mm. thick, 6–10-flowered, crowded at tips of branchlets in glomerules about 1 cm. thick; outer phyllaries 4, the outermost one suborbicular, about 10-nerved, the others smaller, oblong or obovate, all whitish, subscarios, rounded, glabrous;

♀ flowers 3, inclosed in bottle-shaped, strongly obcompressed, obliquely truncate, few-nerved, glabrous, whitish phyllaries 3.5–4.5 mm. long and 2 mm. wide, their corollas whitish, tubular-funnelform, glabrous, 1.5 mm. long, the limb irregularly about 6-toothed; disk flowers (sterile) 3–7, their corollas whitish, 2–3 mm. long, hirsute above, with subcylindric tube, short campanulate throat, and 5 erect teeth longer than the tube and throat; receptacular pales none; achene obcompressed-trigonous, obovoid, glabrous, blackish, 2.8 mm. long, 1 mm. wide, crowned with a fleshy ring; sterile ovaries oblong to linear, 1–3 mm. long, hirsutulous with 1-celled hairs.

VENEZUELA: Between La Puerta and Timotes, States of Trujillo and Mérida, altitude 2000 meters, 16 Sept. 1922, *Alfredo Jahn* 1143 (type no. 1,186,743, U. S. Nat. Herb.).

Nearest *Desmanthodium guatemalense* Hemsl., which has glaucescent branches and thin-membranous, more or less rhombic-ovate, subsessile leaves which are not ciliate at the base. No species of the genus has hitherto been known outside of Mexico and Guatemala, the Colombian plant described as *Desmanthodium trianae* Hieron. being really a typical *Clibadium* (*C. trianae* (Hieron.) Blake, *Contr. Gray Herb. n. ser.* 52: 6. 1917).

Riencourtia pittieri Blake, sp. nov. Stem strigose; leaves mostly ovate or elliptic-ovate, 3.5–4.8 cm. long, 1.5–1.7 cm. wide, hirsute and hispidulous; heads in few glomerules, 9-flowered.

Erect herb, about 55 cm. high, the base not seen; stem slender, with short erectish branches, evenly but not densely strigose with tuberculate-based hairs; internodes 6 to 12.5 cm. long, much surpassing the leaves; leaves opposite, those of the main stem about 7 pairs; petioles hispid-strigose, 2 to 3 mm. long; blades of the lowest leaves oval-ovate, about 2 cm. long, 1 cm. wide, obtuse, those of the middle and upper ovate or elliptic-ovate, 3.5 to 4.8 cm. long, 1.5 to 1.7 cm. wide, acute or acutish, rounded at base, serrate (teeth about 9 pairs, depressed-triangular, mucronulate), above deep dull green, hispid and hispidulous with tuberculate-based mostly incurved hairs, beneath lighter green, hispid-hirsute and hispidulous along all the veins and veinlets with spreading or divergent hairs, triplinerved from near the base (the lateral nerves with a basal branch) and prominulous-reticulate beneath, impressed-veined above; peduncles solitary at tips of branches, ternate at apex of stem, 4 to 5.5 cm. long, strigose; glomerules about 1 cm. wide and high, subtended by a pair of reflexed lanceolate bracts about 12 mm. long; heads (excluding corollas) 5 mm. high, 3 mm. wide, compressed, 9-flowered; phyllaries 4, dry, whitish, hispid above, mucronulate, the two outer folded, 4.2 mm. long, the two inner flattish, 5 mm. long; ♀ flower 1, the corolla not seen; disk flowers (sterile) 8, their corollas yellowish-white, 3 mm. long (tube slender, 1 mm., throat campanulate, 1 mm., teeth 5, ovate, 1 mm. long), the teeth hispid-hirsute with spreading hairs above on back, inside densely barbatulate and with a tuft of longer hairs at apex; achene obovoid, plump, pilose, margined, 3.2 mm. long, 2.2 mm. wide; sterile ovaries linear, pilose, 4 mm. long or less.

VENEZUELA: In savannas, Upper Cotiza, near Caracas, altitude 1250 meters, 18 Sept. 1921, *Pittier* 9824 (type no. 1,122,830, U. S. Nat. Herb.).

This plant is nearest the Brazilian *Riencourtia latifolia* Gardn., with which it agrees in most characters. No material of *R. latifolia* has been examined, but Dr. A. B. Rendle and Mr. John Hutchinson, who have examined the

material of the type collection (*Gardner* 3280) in the British Museum and the Kew Herbarium, inform me that the stem-pubesence is wide-spreading in that species, while it is closely appressed in *R. pittieri*. *Riencourtia pittieri* is the second species of the genus known from Venezuela, the other being *R. ovata* Blake, recently described from specimens collected by Mr. Pittier in savannas near Valencia, State of Carabobo.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

BIOLOGICAL SOCIETY

668TH MEETING

The 668th meeting was held in the lecture hall of the Cosmos Club, May 10, 1924, at 8 p.m. with Vice-President GOLDMAN in the chair and 36 persons present. New members elected: IRVING L. TOWERS, MURRAY T. DONOHO.

Under *Short Notes*, C. P. HARTLEY demonstrated that length of day was the factor limiting the amount of growth of stalk in the smaller varieties of corn. Specimens exhibited showed conclusively that in the same variety the stalk of an April planting was decidedly shorter than a stalk planted in June, though the two had grown in adjacent rows only four feet apart. In larger varieties conditions were equalized because of the longer growth period.

I. N. HOFFMAN exhibited and commented upon several of the largest known species of Coleoptera, belonging to the family *Lucanidae*.

In continuation of discussion of Mr. Hartley's note A. A. DOOLITTLE reported that corn planted for classroom study in October made a very short stalk. Mr. HARTLEY considered this as probably due to the shortness of winter days.

E. A. GOLDMAN called attention to a belief prevalent in many places in the Tropics that timber cut in certain phases of the moon produces lumber more resistant to rot and insect infestation.

J. M. ALDRICH reported that one of the beetles exhibited by Mr. HOFFMAN, *Dynastes tityus*, frequently may be identified by its peculiar odor, even when the insect itself is not seen. He also stated that it was expected that Professor MARIO BEZZI, an Italian entomologist and a student of Diptera of high reputation, would come to this country to examine our National Park System for his government, and in addition under a grant from the National Research Council, to study insect life at high altitudes.

E. D. BALL: *Migratory habits of insects in arid regions* (Illustrated by slides). Migration is an adaptation that enables species to occupy regions which would otherwise be uninhabitable. Migratory habits in birds are well recognized phenomena. There are also many curious and interesting cases in insects. The milkweed butterfly each fall gathers in great swarms and flies southward from the Great Lakes and Manitoba to the Gulf regions. The black witch, a large Noctuid, reverses this process and flies northward from Cuba, oftentimes reaching the northern states, occasionally as far as Saskatchewan. Many other moths fly northward annually from southern regions. The migratory locusts of the Bible and similar species in South America, South Africa, and eastern Russia, in the course of their migrations cause great damage. In former times the buffalo came down in winter out of the mountain regions to sheltered spots on the plains. Lady beetles