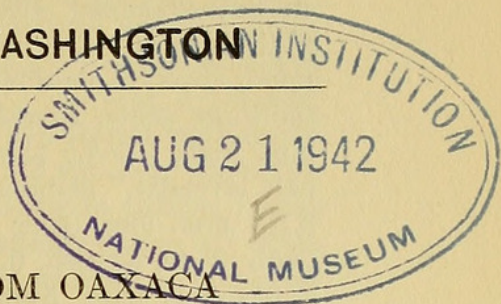


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



FIVE NEW ASTERACEAE FROM OAXACA
COLLECTED BY W. H. CAMP.

BY S. F. BLAKE.

Of the new Asteraceae here described, four are from Mt. Zempoaltepetl (also known as Zempoaltepec; 10,543 ft. = ca. 3,200 m.), the highest mountain in Oaxaca, and one from Tlaxiaco. An interesting account of the expedition on which these plants were collected, with a map and other illustrations, is given by Dr. Wendell H. Camp in the Journal of the New York Botanical Garden, vol. 38, pp. 129-144, 153-170. 1937. Dr. Camp informs me that all his specimens from Zempoaltepetl were collected along the ridge which goes from the village of Tlahuitoltepec to the summit, and that he used "top" on his labels to indicate the last few hundred feet below the summit, "upper slopes" for the region about 500-1,000 ft. below the summit, and "middle slopes" for that extending several thousand feet lower down.

Oxylobus oaxacanus Blake, sp. nov.

Suffrutex remosus dense foliosus; caulis anceps bifariam pilosus; folia elliptica obtusa breviter petiolata v. subsessilia flavo-viridia inconspicue crenata glabra triplinervia nervis supra impressis; capitula 8-9-flora numerosa apicibus caulis et ramorum arcte cymosa; pedicelli stipitato-glandulosi; involucri 3.5-4.3 mm. alti phyllaria oblonga obtusa v. acutiuscula; achenia sparse hispidula; pappus coroniformis fimbriatus 0.2 mm. longus.

Decumbent undershrub 3 dm. high, with erectish branches; stem 2.5 mm. thick below, glabrate and denudate below, above bifarious-pilose with brown hairs, not glandular; internodes nearly uniform, 3-12 mm. long, the upper not elongated; larger leaves 2.2-2.5 cm. long, 6-9 mm. wide, narrowed into a petioliform sparsely pilose-ciliate base 3-4 mm. long, obtuse and with a dark truncate or emarginate gland at tip, slightly revolute on margin, coriaceous, prominulous-reticulate beneath, the upper and those of the branches similar but smaller, sessile, mostly 8-14 mm. long, 1.5-4

mm. wide; cymes compound, close, 1.8–3 cm. wide, flattish, many-headed, stipitate-glandular with dark glands as are also the bracteal leaves, the pedicels mostly 3–8 mm. long; involucre slender-campanulate, 2-seriate, equal, stipitate-glandular like the pedicels, the phyllaries 6–7, obtuse or the inner acute, substramineous, rather strongly 2–4-ribbed; disk 5–5.5 mm. high, 2.5–3.5 thick; receptacle flat, naked; corollas "white, rarely pale lavender," glabrous but papillose all over on inner surface of teeth, 3.7–4 mm. long (tube slender, 1.5 mm., throat campanulate, 1.5 mm., teeth ovate, acutish, 0.7–1 mm. long); achenes black, with short whitish crustaceous base, 5-ribbed, sparsely hispidulous on the nerves chiefly above, 1.7 mm. long; pappus a fimbriate crown 0.2 mm. long, not separable into distinct squamellae; style branches 1.9 mm. long, the distinct stigmatic lines 0.8 mm., the linear obtuse papillose appendage 1.1 mm. long.

Mexico: Upper slopes of Mt. Zempoaltepetl, Oaxaca, 19–27 Feb. 1937, *W. H. Camp* 2634 (type, N. Y. Bot. Gard.; photo. and fragments, Nat. Arb. Herb.).

Of the three species of *Oxylobus* now known, *O. arbutifolius* (H.B.K.) Gray is the closest ally of the new species. *O. arbutifolius*, known from high elevations in the states of Mexico, Puebla, and Veracruz, is readily distinguished by its larger heads (involucre 5 mm. high, with mostly acute to acuminate phyllaries) with more numerous flowers (about 20–25) and phyllaries (10–11), its much better developed pappus (of about 5–7 distinct squamellae about 0.5 mm. long), and its dark- or blue-green color.

The description of *Phania trinervia* DC. ("ramulis glabris, foliis integerrimis, invol. 8-phylo, capitulis 15–16-floris") somewhat suggests *O. oaxacanus*. It was known to DeCandolle only from a colored plate of Moçino, which has been reproduced in outline in the *Calques des Dessins* (pl. 527), and it is definitely referred by Robinson to the synonymy of *O. arbutifolius* on the ground that the sketch shows no differences which can not be readily explained by the crudeness of the draftsmanship.

In the set of mounted Sessé and Moçino plants lent me for study by the Field Museum were 3 sheets of *Oxylobus*. Two of the original labels bore the name "*Ageratum?*," one with an unpublished specific name, and the third an unpublished specific name under the genus *Ethulia*. They are all definitely *O. arbutifolius*. The single head dissected was 25-flowered, with a pappus of about 10 unequal squamellae, the longest about 1 mm. long and linear-acuminate. These specimens afford collateral evidence that Robinson's reference of the name *Phania trinervia* to the synonymy of *O. arbutifolius* was justified.

***Erigeron mihianus* Blake, sp. nov.**

Perennis biuncialis stoloniferus; folia basalia rosulata bipinnatifida antrorse pilosa segmentis spathulatis v. oblanceolatis subacute callosopapiculatis 1–2 mm. latis, caulina linearia integra; caulis simplex 1-capitatus patenti-pilosus; capitulum 2.5 cm. latum radiatum, radiis albis; involucri ca. 3-seriati paulum gradati 6–7 mm. alti phyllaria lineari-lanceolata acuminata medio pilosa subscarioso-marginata; pappus subsimplex.

Stolons becoming buried and woody, 1–2 mm. thick, those of the year procumbent, whitish, 5–8 cm. long, pilose with mostly antrorse hairs, leafy, their leaves narrowly spatulate, obtusely callous-pointed, narrowed into a petioliform base, antrorse-pubescent, about 1 cm. long, 1–1.5 mm. wide, normally with 1–2 pairs of small antrorse callous-tipped teeth above the middle; leaves of the basal rosette numerous, 2–3 cm. long (including the slender petiole, this 1–2 cm. long), the blade ovate in outline, pinnatifid into 2–3 pairs of lobes, the lowest pair usually entire and often toothlike, the others normally with 1–3 lateral teeth or lobes, the terminal lobe of the leaf usually 3-parted; stems 1–3, decumbent, 3–5.5 cm. high, slender, whitish, leafy practically to apex, the lowest leaves linear-spatulate, usually with a lateral tooth or lobe on each side, the others linear, sessile, acutely callous-pointed, 5–8 mm. long, 0.5–0.8 mm. wide; peduncle 3–5 mm. long; disk about 5 mm. high, 9 mm. wide (as pressed); phyllaries erectish, with brownish-green or purplish body (pilose medially nearly to apex) and narrow to (in the inner) rather broad subscarious whitish margin, this glabrous except for some slight ciliation; rays about 60–75, “white or lavender-tinted, particularly on under surface,” fertile, 11 mm. long (tube 1.5 mm., sparsely puberulous toward apex, lamina linear, 9.5 mm. long, 0.8–1 mm. wide, 4-nerved, tridenticulate); disk flowers numerous, their corollas yellow, essentially glabrous, 4 mm. long (tube 1.2 mm., throat slender, 2 mm., teeth triangular, acute, 0.8 mm. long); ray and disk achenes (immature) similar, linear-oblong, 1–1.3 mm. long, erect-hirsutulous, 2-nerved; pappus essentially simple, whitish, of about 25–28 slender hispidulous bristles 3.5 mm. long; style appendages short, deltoid, obtuse.

Mexico: Beside the high altar, summit of Mt. Zempoaltepetl, Oaxaca, 19–27 Feb. 1937, *W. H. Camp* 2668 (type, N. Y. Bot. Gard.; photo. and fragments, Nat. Arb. Herb.).

This interesting little plant is well distinguished by its stoloniferous habit and once to twice pinnatifid basal leaves. One of the specimens shows a series of 3 rosettes in connection, 2 of them flower-bearing. The specific name is taken from the Mihi tribe, near whose sacrificial altar on the summit of Zempoaltepetl the plant was collected (see *Camp, Journ. N. Y. Bot. Gard.* 38: 166–170. 1937). The type and only known collection of *Erigeron oaxacanus* Greenm., from San Mateo del Mar, Oaxaca, is somewhat suggestive of this species, particularly in the stem leaves which closely resemble those of the stolons of *E. mihianus*. The plant, however, has diffusely branched stems, with no stolons and no indication of the basal tuft of pinnatifid leaves of *E. mihianus*, and its heads are much smaller.

***Archibaccharis campii* Blake, sp. nov.**

Herbacea (?), caule piloso pilis pluriloculatis non glanduliferis; folia oblonga-elliptica subsessilia v. brevissime petiolata acuminata basi cuneata serrata papyracea; capitula pro genera majuscula subdense cymoso-paniculata femina 35–40-flora (flor. 2–3 hermaphroditis), mascula 43-flora;

involuceri 4.5–5 mm. alti gradati 5–6-seriati phyllaria saepius acuta chartacea supra linea viridi praedita e lanceolato-ovatis in anguste lanceolata transeuntia ciliata dorso inconspicue glandulari-puberula; corollae fl. hermaph. dentibus ca. $2\frac{1}{2}$ -plo tubo longioribus.

"Plant 6 dm. high," the stem (or branch) unbranched below the inflorescence, herbaceous (so far as seen), straight, subterete or slightly angled, solid, pithy, purple-brown, rather densely pilose with spreading many-celled acuminate eglandular hairs; leaves alternate; internodes mostly 1–3 cm. long; petioles 2 mm. long to essentially wanting; blades elliptic-oblong or lance-oblong, 6–11 cm. long, 2–3.7 cm. wide, callous-serrate or -serrate-dentate above the cuneate base (teeth 0.5–1.5 mm. high, mostly 3–8 mm. apart), above evenly and rather densely tuberculate-hirsute-pilose with several-celled tuberculate-based eglandular hairs, somewhat roughish to the touch, beneath pilose-hirsute on veins and veinlets but scarcely on surface, penninerved (chief lateral veins about 6–9 pairs, with the secondaries loosely prominulous-reticulate beneath, scarcely so above); panicles short, flattish or rounded, 6–8 cm. wide, about 28–30-headed, densely glandular-puberulous with several-celled hairs and very sparsely pilose-hirsute, the lower branches subtended by reduced leaves, the bracts lanceolate or linear, subchartaceous, 2–3 mm. long, the pedicels slender, densely glandular-puberulous, mostly 3–7 mm. long; involucre of pistillate and staminate heads essentially similar but the staminate phyllaries rather broader, all with greenish 1-vittate midline above, chartaceous often rosy-tinged body, and narrow subcarious lacerate-ciliate margin, on back rather sparsely puberulous, the hairs several-celled, in part tipped with small pale glands; pistillate heads (moistened) oblong-cylindric, 8 mm. long, 3–3.5 mm. thick; receptacle fimbriate, the margins of the areoles with toothed but not ciliate margins; corollas of pistillate flowers tubular-filiform, obliquely truncate, whitish, 3.5–3.8 mm. long, about 1.5 mm. shorter than the style, puberulous especially toward apex, their achenes compressed, elliptic-oblong with short callous base, 2–3-nerved, erect-hispidulous, about 1.5 mm. long, their pappus whitish, simple, 5.2 mm. long, about equalling the styles; corollas of hermaphrodite flowers (in the pistillate heads) whitish, puberulous on tube, base of throat, and on both faces of the teeth above, 5.5 mm. long (tube 2.8 mm., throat campanulate, 0.8 mm., teeth lance-oblong, acute, 2 mm. long), their achenes linear-oblong, 3–4-nerved, sparsely hispidulous above, 1.3 mm. long, the style branches linear, acuminate, hispidulous outside nearly to the base, without stigmatic lines, 1.8 mm. long; staminate heads (moistened) campanulate, 7.5 mm. high (excluding styles), 8 mm. thick, the staminate corollas whitish, puberulous on tube, base of throat, and toward tip of teeth above outside, 4.8–5.4 mm. long (tube 2.3–2.6 mm., throat campanulate, 1–1.2 mm., teeth oblong, acute, 1.5–1.8 mm. long), their achenes abortive, stipitiform, glabrous, the pappus whitish, 4.2 mm. long, of slender hispidulous not apically thickened bristles, the style branches linear, acuminate, densely hispidulous outside, 1.5–1.7 mm. long.

Mexico: Lower slopes, Mt. Zempoaltepetl, Oaxaca, 19–27 Feb. 1937, W. H. Camp 2700 (pistillate plant; type, N. Y. Bot. Gard., photo. and

fragments, Nat. Arb. Herb.); middle slopes, same locality and date, *Camp* 2685 (staminate plant; N. Y. Bot. Gard., photo and fragments, Nat. Arb. Herb.).

The only near relative of this plant is *Archibaccharis hieracioides* Blake, of central Mexico (State of Mexico and Federal District). In that species the stem is densely glandular-pilose, the leaves are more densely pubescent with partly gland-tipped hairs and borne on definite slender petioles usually about 1 cm. long, and the phyllaries are narrower (linear-lanceolate), acuminate, more herbaceous-tipped, and densely stipitate-glandular.

***Archibaccharis caloneura* Blake, sp. nov.**

Frutex erectus ramis rectis, costa paginae superioris foliorum et ramis inflorescentiae hispidulis exceptis glaberrimus; folia elliptica v. oblongo-ovata petiolata breviter acuminata basi cuneata v. rotundo-cuneata serrata firme pergamentacea penninervia utrinque prominulo-reticulata lucida; capitula mediocria apicibus caulis et ramorum cymoso-paniculata, femina 6 mm. alta 25–26-flora (flor. hermaph. 2–4), mascula 5 mm. alta 30–32-flora; involucri valde gradati phyllaria ovata ad lanceolata ciliolata; corolla fl. hermaph. dentibus ca. 7-plo tubo longioribus.

Shrub 1.5–2.5 m. high; stem subsimple or erectish-branched, subterete, striate, solid, pithy, brown-purple, completely glabrous below the inflorescence or very sparsely and inconspicuously hispidulous with mostly erectish hairs; internodes 1–3 cm. long, much shorter than the leaves; leaves alternate; petioles slender, naked, purplish, sulcate above, obscurely ciliolate, 6–10 mm. long; blades 6–8 cm. long, 2–3 cm. wide, serrate nearly to base with obtuse or sometimes acute callous teeth (about 0.5 mm. high, 5–7 mm. apart), obscurely hispidulous on margin, antrose-hispidulous on costa above, completely glabrous beneath, the chief lateral veins 5–6 pairs, with the veinlets prominulous-reticulate on both sides; pistillate panicles many-headed, rounded, rather dense, 9–11 cm. wide, hispidulous with mostly incurved or erectish hairs, the lowest bracts foliaceous, the upper linear or subulate, minute, the pedicels slender, 2–5 mm. long; pistillate involucre about 6-seriate, strongly graduated, 5 mm. high, appressed, the phyllaries ovate or triangular-ovate (outermost) to linear-lanceolate, (innermost), the outermost mostly acute, the others obtuse to acutish, stramineous, with brownish green 1-vittate midline, whitish body, and subscarious ciliolate border, often purplish toward tip; pistillate heads campanulate, 6 mm. high, 4 mm. thick (moistened), the receptacle fimbriate, the pistillate flowers 21–24, the hermaphrodite 2–4, the pistillate corollas tubular-filiform, whitish, erect-hirsutulous especially toward apex, oblique at tip and obscurely 3-denticulate, 2.2–2.5 mm. long, about 1.2 mm. shorter than the style, their achenes oblong, 2–3-nerved, whitish, erect-hirsutulous, 1.7–2 mm. long, their pappus essentially 1-seriate, of about 30–35 slender hispidulous mostly subequal whitish bristles 4 mm. long, the hermaphrodite corollas whitish, 4 mm. long (tube 2.3 mm., erectish-hirsutulous, throat scarcely wider than tube, 0.2 mm. long, densely hirsutulous, teeth 5, lance-oblong, acutish, 1.5 mm. long, hirsutu-

lous toward apex outside and papillose on margin within toward apex), the hermaphrodite achenes 3-4-nerved, linear or narrowly obovoid, erect-hispidulous, 1-1.7 mm. long, provided with an ovule, the style branches linear, obtusish, densely hispidulous outside; staminate panicles similarly pubescent, 4-6.5 cm. wide, the pedicels 2-6 mm. long; staminate involucre 4 mm. long, similar to that of the pistillate head but with rather broader phyllaries; staminate heads campanulate, 5-5.5 mm. high, 6 mm. thick (moistened), 30-32-flowered, the receptacle fimbriate, the achenes abortive, stipitiform, glabrous, 0.2-0.7 mm. long, the corollas whitish, 3.7 mm. long, (tube slender, sparsely erectish-hirsutulous, 1.5 mm. long, throat broadly campanulate, sparsely hirsutulous, 0.3 mm. long, teeth 5, lance-oblong, acute, obscurely hirsutulous outside toward apex, 1.7 mm. long), the style branches linear, acute, densely hispidulous, 1-1.2 mm. long, the pappus irregular, 3 mm. long, partly of slender apically slightly thickened hispidulous bristles and partly of ligulate or linear-lanceolate papillose structures irregularly connate among themselves and with the pappus bristles into groups.

Mexico: Lower slopes, Mt. Zempoaltepetl, Oaxaca, 19-27 Feb. 1937, *W. H. Camp* 2701 (pistillate plant; type, N. Y. Bot. Gard., photo. and fragments, Nat. Arb. Herb.); same locality and date, middle slopes, *Camp* 2698 (staminate plant; N. Y. Bot. Gard., photo. and fragments, Nat. Arb. Herb.).

Related to *Archibaccharis sescenticeps* Blake and *A. asperifolia* (Benth.) Blake, but distinguished from both by having its leaves completely glabrous beneath, as well as by various other characters.

***Perezia erioloma* Blake, sp. nov.**

Perennis scaposa ca. 6.5 dm. alta; folia basalia rosulata pauca obovata petiolata obtusa basi cuneata repando-denticulata penninervia chartacea subglabra; scapus ebracteatus sparse pilosus; capitula 25-flora mediocria ca. 11 thyrsoido-paniculata, pedicellis brunneo-lanatis setaceo-bracteatis; involucri valde gradati ca. 7-seriati 10-11 mm. alti phyllaria omnia (intimis exceptis) margine brunneo-lanata dorso subglabra, e lanceolatis acuminatis in lineari-lanceolata mucronata transeuntia; achenia dense hispidula.

Rhizome slender, fibrous-pilose toward apex, 4 cm. long, with long fibrous roots; scape solitary, erect, terete, multistriate, pale green, slender, 2 mm. thick at base, naked below the inflorescence except for a couple of subulate brown-lanate bracts 6 mm. long above the middle, essentially glabrous except toward base and above, there thinly pilose; basal leaves about 4, 14-18 cm. long including petiole (this about 2 cm. long), 4-6 cm. wide, obtuse but with a triangular acute tooth at apex about 1 mm. long, cuneately decurrent on the petiole, shallowly repand especially below, callous-denticulate throughout (teeth 0.2-0.5 mm. high, about 3-6 mm. apart), sparsely hispidulous above on costa and very sparsely so on surface with erect hairs, essentially glabrous beneath except for some deciduous brown lanosity on costa, pale green, featherveined, the chief lateral veins

about 10 pairs, prominulous, the secondaries obscure; panicle about 19 cm. long, 5 cm. wide, the bracts subulate, 4–6 mm. long, brown-lanate on margin, the branches ascending, 2–3-headed, thinly brownish-lanate, the pedicels 1.2–3 cm. long, slender, setaceous-bracted above; heads (moistened) turbinate-campanulate, in young fruit (excluding corollas) 14 mm. high, 6 mm. thick; the 4 or 5 outer series of phyllaries lanceolate, acuminate, substramineous with greenish midline or tip, nerveless, densely brown-lanate on margin, 1.2–1.6 mm. wide, the next series narrowly lanceolate, short-mucronate from a blunt tip (mucro about 0.2 mm. long), usually with ustulate tip, brown-lanate on margin and on back toward apex, the inmost linear-lanceolate, acuminate, mucronate, ustulate-tipped, the 2 or 3 inner series often reddish-tinged toward apex; receptacle fimbriate; corollas "white," glabrous, 8.5 mm. long (tube 4.3 mm., throat 0.7 mm., outer lip elliptic, 3-dentate, 3.5 mm. long, inner lip 2-divided); achenes subcylindric, densely hispidulous, not glandular, 6-nerved, 5 mm. long; pappus brownish, 6 mm. long, rather copious, the bristles hispidulous, clavellate toward apex.

Mexico: On moist mountain slopes near Tlaxiaco, Oaxaca, 16–19 Dec. 1936, *W. H. Camp* 2225 (type, N. Y. Bot. Gard.; photo., Nat. Arb. Herb.).

Nearest to *Perezia umbratilis* Robins. & Greenm., also a plant of Oaxaca, known to me only from description. In *P. umbratilis* the leaves are lyrate-pinnatifid, the scapes are much shorter and only 2–3-headed, and the phyllaries are membranaceous, sericeous on margin, and mostly obtuse to rounded at apex but often mucronulate, a few of the outermost acutish or barely acuminate.



Blake, S. F. 1942. "Five new Asteraceae from Oaxaca collected by W. H. Camp." *Proceedings of the Biological Society of Washington* 55, 113–119.

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