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NEW FOSSORIAL HYMENOPTERA FROM NEW MEXICO.

BY T. D. A. COCKERELL AND WM. J. FOX.¹*Sphærophthalma snoworum* n. sp.

♂.—Length about 15 mm., anterior wing 11 mm. Head, thorax, antennæ and legs black, with black pubescence; abdomen ferruginous, the basal segment darkened. Head small, rounded; eyes very prominent, shining; pubescence of vertex becoming brownish; antennal sockets directed outward and downward, producing the appearance of a prominent tubercle immediately mesad of the insertion of each antenna, beneath which there is a deep depression, which is smooth and shining; clypeus and cheeks subcancellate with large, close punctures; penultimate joint of labial palpus very broad; first three joints of flagellum about equal in length.

Thorax irregularly cancellate with close punctures, moderately hairy, the pubescence on the prothorax becoming dark brownish. Tegulæ shining black. Middle segment gradually rounded, not carinate at the sides. Wings dark fuliginous, a hyaline streak across the second submarginal cell, and a hyaline spot just outside of it. Three submarginal cells, the second broadly subtriangular; marginal cell not extending further than the third submarginal; second recurrent nervure almost obsolete.

First abdominal segment shaped something like the head of a vulture, its union with the second marked by a deep suture. Pubescence of abdomen tolerably abundant, black on first segment, largely black on dorsum of second, the rest shining ochraceous. Punctuation of abdomen extremely dense, the shining articulating surfaces of the segments minutely transversely striate, no doubt for purposes of stridulation. Apex broad and rounded, with lateral keels.

Hab.—Albuquerque, New Mexico, Aug., 1894 (Snow). It is named after the Snows, father and son, who have contributed so much to our knowledge of the entomology of New Mexico. Near to *S. apicalata* Blake (err. typ. for *apiculata*?) from Mexico, but is larger, abdomen entirely reddish, and lacks the pale pubescence of

¹ The descriptions are entirely drawn up by Prof. Cockerell; my part has been chiefly the comparison of the species with the collection of the American Entomological Society.—W. J. F.

head and thorax. In general appearance it resembles the Mexican *Mutilla cyllene* Cam.

Sphærophthalma donæ-anæ n. sp.

♀.—Length from 8 to 10 mm.; brownish-ferruginous, with black and silvery pubescence, mostly appressed. Head very large, subquadrate, about as large, seen from in front, as the thorax seen from the side; cancellate from a very close punctuation; pubescence partly erect and partly depressed, not dense enough to hide the surface, silvery on cheeks, in front of eyes, on scape and base of mandibles, black on vertex; a small, smooth, shining spot behind each eye; cheeks distinctly keeled, but not toothed; mandibles with a rather large tooth on inner edge, this tooth and all beyond it black; antennæ reddish-brown with blackened tips, first joint of flagellum nearly twice as long as second.

Thorax strongly rugose-punctate, constricted at sides, abruptly truncate behind, with a tubercle at the top of the truncation; nearly as broad behind as in front. Pubescence not dense enough to hide the surface, forming a blackish triangular patch on dorsulum, its apex directed caudad, its base convex; outside of this large patch the whole dorsal area is covered with glittering yellowish-silvery hairs. Elsewhere on the thorax there is little pubescence, except about and just above the legs, where it is appressed, dense and silvery. Legs dark ferruginous, with thin pale pubescence, anterior tibiæ blackish, spines on hind tibiæ tipped with black.

Abdomen pyriform, first segment broadening rapidly, its suture with the second flat, its hind margin blackish; second segment, partly from the ground color and partly from the hairs, appearing bright orange-rufous, glittering with metallic orange, without any discal spots or marks, but with a very broad low black triangle on its hind border. Remaining segments with glittering yellowish-silvery pubescence, laterally with a few erect black hairs; extreme apex black or blackish, but this not due to pubescence. Punctuation of abdomen close.

The general effect of the head and thorax is a sort of purplish-brown, contrasting with an orange-scarlet second abdominal segment.

Hab.—The Mesilla Valley in Doña Ana County, New Mexico. Mesilla, Aug. 15 and 18, 1896 (Ckll.); near Las Cruces, Sept. (Ckll., 4,857, 4,894).

Close to *S. contumax* Cresson, from Colorado, but the thorax is broader, less narrowed posteriorly, being nearly quadrate; there is

no pale pubescence forming maculation on second dorsal segment; head without pale glittering pubescence to the extent of that in *contumax*.

Mutilla (s. lat.) *sanctæ-fææ* n. sp.

♀.—Length about $6\frac{1}{2}$ mm., slender, head and thorax ferruginous, abdomen black except the first segment, which is ferruginous; pubescence thin, silvery, not hiding the surface. Head rather small, almost circular seen from in front, subcancellate with large punctures, very thinly pubescent, cheeks not keeled; eyes prominent and shiny, as in *Sphaerophthalma*, but oval; mandibles black-tipped, and bearing a prominent tubercle on the outer (lower) edge, not far from the base; antennæ ferruginous throughout, first joint of flagellum about as long as second. Thorax subcancellate, with very thin erect pubescence, not forming any pattern; seen from above it is little constricted at the sides, and gradually but not greatly narrows caudad, sloping rapidly behind, without any abrupt truncation. The side view of the thorax has the outline of a half-circle. Coxæ, bases of femora, knees and tarsi ferruginous; femora and tibiæ mainly blackish; tibial spines not tipped with black. Abdomen fusiform, moderately shiny, second segment moderately densely punctured, first segment rapidly broadening to second, its suture with it little depressed. Pubescence of abdomen erect and rather conspicuous, on the hind margins of segments 2 to 5 partly depressed and forming rather thin white bands, on the disc of the second segment shorter and blackish. The large, exposed articulating surfaces of the third and fourth segments are minutely transversely striate, that of the third having a sharply-defined median smooth area, wholly wanting on the fourth.

Hab.—Santa Fé, New Mexico, August 5, 1895 (Ckll., 4,260). Superficially resembles *S. virguncula*, but has the abdomen finely punctured and the entire insect is much more slender. *M. sanctæ-fææ* is rather an anomalous little species, for while the eyes are shiny and prominent as in *Sphaerophthalma*, it has the oval shape of *Mutilla*; the general coloration, also, recalls some of the species of *Mutilla*. The tubercle on the mandibles is a striking feature. The middle tibia has two spurs.

Ancistromma chilopsidis n. sp.

♀.—Length about $11\frac{1}{2}$ mm., anterior wing 7 mm., smooth and shining, entirely bright ferruginous except the head, which is black except the antennæ and region of the mouth. Front shining, with

a distinct median groove, finely and tolerably closely punctured, a few much larger punctures scattered about; distance between eyes at top fully equal to joints 3 to 5 of antennæ; clypeus, a small supraclypeal area, mandibles except ends, palpi and antennæ ferruginous; clypeus with minute close punctures except in the middle, where they are large and sparse, anterior margin gradually rounded, sublaterally angled, but hardly dentate; antennæ short, scape swollen, with a conspicuous bulla, first three joints of flagellum of about equal length.

Dorsulum with fine close punctures, the mesothorax with thin short reddish-orange pile, not easily noticeable, shining almost silvery just in front of scutellum in certain lights; scutellum not impressed medially; middle segment very finely transversely striate, appearing almost sericeous. Legs quite spinose, the anterior tarsi especially with very long spines, seven on the first joint, and two on each of the following three; hind spur of hind tibia nearly as long as first tarsal joint. Abdomen impunctate, pygidial area not nearly twice as long as broad, very sparsely punctured. Wings hyaline, nervures ferruginous.

Hab.—Rincon, New Mexico, at flowers of *Chilopsis saligna* Don, (Bignoniaceæ), July 5, 1896 (Ckll., B. 4), one specimen only. It is quite distinct from all other species by its coloration; it comes nearest, apparently, to *A. conferta* Fox, which has a black thorax, etc.

Astatus bigeloviae n. sp.

♀.—Length 11 mm., anterior wing $7\frac{1}{2}$ mm., smooth and shining, entirely pitch black. Front with large close pits, one might say deeply malleate, area between each lateral ocellus and the eye smooth and impunctate, distance between the eyes at the top about equal to antennal joints 2 to 4, first joint of flagellum a little longer than second; scape swollen, sparsely punctured; upper part of clypeus and supraclypeal area impunctate; anterior margin of clypeus sulcate, gently rounded, curved outward; lower part of cheeks, and mandibles at base and beneath, with black bristles; cheeks otherwise with sparse long silvery hairs; antepenultimate joint of labial palpi produced at tip, with the outline of a right-angled triangle, very broad at base, the penultimate joint springing from near the apex; mesothorax with large punctures, close in front, becoming sparse and irregular caudad, the surface between the punctures irregularly transversely striate; tegulæ very dark brown; disc of scutellum shining, with a few very large punctures; middle segment above minutely cancellate, appearing coarsely granular under a low power;

wings fuliginous, marginal cell only a little shorter than the first submarginal, obliquely truncate; second submarginal narrowed above nearly to a point; legs tolerably spiny, first joint of anterior tarsus with four long spines; tibial spurs black; abdomen microscopically tessellate, with a very few scattered punctures on the third to the fifth segments, pygidial area minutely granular, about one-third longer than broad.

Hab.—On *Bigelovia wrightii*, close to the Agricultural College, Mesilla Valley, New Mexico, Sept. 11, 1895 (Ckll., 4,951). Differs from *A. nigropilosus* by the sculpture of the middle segment, which is not obviously reticulate. A specimen of true *nigropilosus* (recognized as such by Mr. Fox) was taken on the campus of the Agricultural College on Oct. 31.

Gorytes bigeloviae n. sp.

♂.—Length about 10 mm., anterior wing 7 mm., rather slender, black; occiput, sides of face, cheeks, thorax, especially sides and hind end, and abdomen, especially on dorsal segments three and four, hoary from a minute silvery pile; antennæ, clypeus, mandibles and anterior legs, orange-rufous, bright in color except the antennæ, which are dusky-brown above; middle femora and tibiæ obscurely brownish beneath; a narrow line along inner orbits, hind margin of prothorax, tubercles and a mark behind them, obscure spot on tegulæ, spot above base of wings, broad band on scutellum, line on postscutellum, and elongate patch on each side (margin) of middle segment, apical bands on dorsal segments 1 to 5, broad on 1, becoming successively narrower, and a broad interrupted band on the second ventral segment, all creamy-white. Eyes very little converging below, front strongly but rather sparsely punctured, clypeus somewhat convex, scape with an obscure yellow stripe in front, first joint of flagellum only a little longer than second; mesothorax with very large, not particularly close punctures; tegulæ testaceous, with a whitish spot; scutellum sparsely punctured; triangular basal area of middle segment very strongly longitudinally furrowed, the remaining portion obscurely subcancellate; wings hyaline, the marginal cell and a little beneath it fuliginous, nervures piceous, as also the stigma, marginal cell shorter than in some species; tibiæ and tarsi with only the minutest spines; abdomen slender, first segment shaped something like the head of a vulture, strongly bulging at end, its suture with the second, viewed from the side, a little less than a right angle; first two segments with large rather sparse punctures,

second microscopically tessellate; third to fifth segments with smaller, somewhat closer punctures, apical segment microscopically punctulate.

Hab.—On *Bigelovia wrightii*, close to the Agricultural College, Mesilla Valley, New Mexico, Sept. 12, 1895 (Ckll., 5,096). This has something the appearance of *G. fuscus* Tasch., but will be known at once by the coarctate first segment of abdomen, and the color of the antennæ and legs. The submedian cell of the hind wings terminates the merest point beyond the origin of the cubital nervure and the last ventral segment is not bifid, or is the fifth ventral segment armed with a prominence.

Gorytes crucis n. sp.

♀.—Length about 10 mm., of head and thorax 5, of anterior wing $7\frac{1}{2}$ mm., of ordinary build, bright ferruginous, with a broad yellow band on scutellum, and a darker, smooth abdomen. Inner orbits parallel; front minutely granular, with rather large sparse punctures; area between the ocelli black; space between the antennal sockets slightly less than the diameter of a socket; clypeus prominent, shining, its lateral margins with some short silvery pubescence, its anterior margin gently concave; mandibles dark at tips; scape not swollen, second flagellar joint about two-thirds length of first. Prothorax (and tubercles) entirely without pale marking; mesothorax granular, with large not very close punctures; scutellum microscopically punctulate and sparsely punctured, yellow, with the anterior margin black; anterior half of postscutellum black; middle segment coarsely rugose-punctate, the well-defined triangular enclosure strongly sulcate or longitudinally ribbed.

Tegulæ pale orange-fulvous; wings fuliginous, with a pallid area by the base of the stigma; stigma (and costal nervure) fulvous, nervures dark fuscous, marginal cell quite long. Legs entirely ferruginous, not very strongly spined; claw-joint of anterior tarsus much swollen, the remaining joints also somewhat enlarged. First segment of abdomen coarctate; the abdomen was unfortunately destroyed before a detailed description had been prepared.

Hab.—Las Cruces, New Mexico, Aug. 12 (C. H. T. Townsend). Resembles *tricolor* and *dentatus* in regard to coloration, but the first segment is coarctate. Its coloration and robust form easily distinguish it from the species with a coarctate segment heretofore known. Using the table in Proceedings of the Academy of Natural Sciences of Philadelphia, 1895, p. 517, it runs at once to *G. rufocinctus*, from which it differs entirely in coloration. It has some degree of re-

semblance to *G. phaleratus* (*rufoluteus* Pack.), which was taken by Prof. Townsend at Las Cruces on the same day (Aug. 12), but the latter has a black mesothorax, yellow collar, etc., and has more the appearance of *venustus*.

Passalæcus armeniacæ n. sp.

♀.—Length 5 mm., black; the scape in front, mandibles except their rufescent ends, palpi, and anterior tibiæ in front, pale chrome yellow, and anterior tarsi orange-rufous; tubercles cream-color; tegulæ very pale testaceous with a cream-colored spot. Front roughened from minute close punctures; sides of face, and clypeus to some extent, with brilliant silvery hairs; labrum conspicuously produced, ending in a blunt point at an angle of about 75°. Mandibles bidentate at apex, the inner tooth much the shortest. Dorsulum very closely punctured, with a pair of obtuse but very distinct tubercles; middle segment coarsely reticulate. Wings hyaline, beautifully iridescent, nervures and stigma piceous. Abdomen shining, slightly pruinose, minutely punctured.

Hab.—Santa Fé, New Mexico, flying about the foliage of an apricot tree, July 4 (Ckll., 3,305). Near to *P. annularis*, but dorsulum bituberculate, and its anterior furrows not foveolate; labrum more acute than in *annularis*.

Diodontus leguminiferus n. sp.

♂.—Length about 3½ mm.; black, with a large head and rather slender abdomen; face below antennæ silvery-canescant; mandibles with a yellow streak and rufous tips, palpi pale grayish-brown; anterior knees, tibiæ and first joint of tarsus, and middle tibiæ at base and apex, pale dull orange-rufous; hind tibiæ at base pale brownish-orange, tarsi all brownish. Front microscopically lineolate passing into tessellate, with scattered punctures; antennæ simple; clypeus bidentate-emarginate; dorsulum very minutely roughened, and very distinctly punctured, the punctures very dense in front; middle segment coarsely roughened, irregularly cancellate; tegulæ black; wings hyaline, nervures and stigma piceous; abdomen shining, distinctly but very minutely and not very densely punctured; its outline from the side suggests a ripe pea-pod, hence the specific name. The suture between the first and second segments is quite depressed.

Hab.—Santa Fé, New Mexico, in Mr. Morrison's garden, July 10 (Ckll., 3,447). Comes near *D. flavitarsis* in regard to the simple antennæ, but is much smaller and more slender, and the legs are differently colored.