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## NEW AND LITTLE-KNOWN AMERICAN BEES.

By T. D. A. COCKERELL.

### PERDITA MENTZELIARUM, Ckll., var. LAUTA, n. var.

♀. Anterior and middle femora without dark markings, or slightly marked with black or blackish in front; abdomen creamy-white, with the bands much reduced, usually represented by two pairs of lateral or sublateral spots on the first segment, and one pair each near the hind margins of the second and third; lateral face-marks usually pointed above.

♂. Head very large; cheeks with a short spine; yellow going above level of antennæ in median line, the process blunt.

*Hab.* Collected by Professor E. O. Wooton "on *Mentzelia* (*wrightii* or *multiflora*), five or six miles above Tularosa, New Mexico, on road to mountains, end of August"; seven females, two males. Flying with them, over the same flowers, were *P. mentzeliarum*, Ckll., two females; *P. mentzeliæ*, Ckll., one male, one female; and several *P. wootonæ*, Ckll.

The *mentzelia* (i. e. *Touterea*) species of *Perdita* are very variable. At Raton, N. M., Aug. 29th, I took a variety of *P. mentzeliæ*, much larger in both sexes than that found near Tularosa, the male having a very large head, like the *pulchrrior* form of *P. pallidior*. At flowers of *Touterea multiflora*, at La Cueva, Organ Mts., Sept. 2nd, Prof. C. H. T. Townsend took a male *P. mentzeliarum*, in which the abdomen is orange, wholly without bands or spots, except an arched dark band on the first segment.

### MELISSODES AGILIS, Cresson, var. SUBAGILIS, n. var.

♂. Length about  $8\frac{1}{2}$  mm.; labrum entirely black, mandibles without a yellow spot; third submarginal cell less narrowed above; eyes (when dry) light green.

*Hab.* Fort Collins, Colorado, Aug. 21st, 1903. (Colorado Agricultural College.)

By the black labrum and spotless mandibles this agrees with the Mexican *M. floris*, Ckll.; it differs from *floris* by the rufous

edge of the clypeus, absence of black hairs on thorax, and generally lighter colour. The type specimen was taken at flowers of *Grindelia squarrosa* by Mr. F. C. Bishopp.

MELISSODES MYSOPS, n. sp.

♂. Length nearly 14 mm., pubescence dull white, some black on scutellum, and black on the basal parts of the abdominal segments except the first; clypeus lemon-yellow, its upper margin black; labrum black; mandibles without a yellow spot; flagellum red beneath. Very close to *M. cnici*, Rob., from which it differs thus: yellow of clypeus only obscurely trilobed; face broader; eyes (when dry) pale bluish-grey; antennæ darker; ventral hair of thorax not black; scutellum with black hair in middle; hair of legs not black; disc of mesothorax and scutellum more shining, the punctures more separated; abdomen narrower and longer, with weak light hair-bands, failing in the middle; lateral subapical teeth longer and narrower.

♀. Length about 14 mm.; face broad, facial quadrangle much broader than long; eyes light grey; flagellum stained with red beneath; hind part of mesothorax, and scutellum, shining, with well-separated punctures, and sparsely clothed with erect black hair; pubescence of legs black, but scopa on outer side of hind tibiæ and base of tarsi long, strongly plumose, and light reddish, in striking contrast; hair on under side of abdomen and lower part of pleura black, that at apex of abdomen dark fuscous or black. Differs from *M. cnici*, Rob., by the conspicuous black hair on disc of thorax, the more shining and less closely and coarsely punctured scutellum, and the narrower abdomen, with distinct pale hair-bands, especially on the third and fourth segments.

*Hab.* Maybell, Colorado (type locality), Aug. 1st, 1904, both sexes; Virginia Dale, Colorado, Aug. 2nd, 1903, two females. *M. cnici* is an oligotropic visitor of thistles; the pollen collected by the present species at Maybell looks like thistle-pollen. My *M. cnici*, used for comparison, are Nebraska specimens received from Mr. J. C. Crawford. In dry specimens the eyes of *M. mysops* are light grey in both sexes; in *M. cnici* they are light reddish; in *M. dentiventris* (female) they are light green.

Since writing the above I have ascertained that the Maybell material was collected by Mr. S. A. Johnson at flowers of thistle, while the Virginia Dale specimens were collected by Mr. F. C. Bishopp at flowers of white thistle.

SYNHALONIA TERRITELLA, n. sp.

♂. Length slightly less than 10 mm.; black, the head, thorax, base of abdomen, and legs with abundant long erect greyish-white hair, not at all fulvous, even on mesothorax; eyes (dry) dark plumbeous; facial quadrangle about square; clypeus lemon-yellow, without any black border above, but with the usual narrow brown anterior edge; antennæ long, entirely black, third joint comparatively long, considerably over twice length of second; labrum light yellow, with the lateral margins black; mandibles black; last joint of maxillary

palpi long, apparently a little longer than the fifth, fourth and fifth together about as long as third; tegulæ dark; wings clear; abdomen subglobose, black, the erect white hair covering first segment and basal two-thirds of second, the apical third of second covered with black hair; third and fourth segments with short black hair, and no pale hair-bands; fifth with a subapical band of very thin light hair; sixth with a more pronounced band or fringe; last ventral segment with the lateral margins elevated; legs normal, hair on inner side of basal joint of tarsi orange.

*Hab.* Palisade, Colorado, May 7th, 1901, two males. (Colorado Agricultural College.)

Similar in many respects to *S. edwardsii*, but smaller, with the third antennal joint longer, the yellow of the clypeus paler, &c. The type specimen was taken by Prof. C. P. Gillette at flowers of plum.

#### SYNHALONIA TRUTTÆ, n. sp.

*Synhalonia frater* (not of Cresson), Ckll., Amer. Naturalist, vol. 36, p. 815 (no description).

♂. Length about 12 mm.; black, the head, thorax, base of abdomen and legs with abundant long erect greyish-white hair, not at all fulvous, even on mesothorax; eyes (dry) reddish-black; facial quadrangle broader than long; clypeus very bright lemon-yellow, the upper border narrowly black, this black broadening before it ends laterally; narrow anterior margin very pale brownish; labrum retracted in the specimen described; mandibles black; last joint of maxillary palpi at least as long as the fifth; antennæ long, entirely black, third joint of moderate length; wings slightly dusky; abdomen quite without light hair-bands; first two segments with erect light hair, but extreme apical margin of first, and base and apex of second, with black hair; last ventral segment with no distinct lateral elevations; legs normal; pectinigerous spur on anterior tibia ending in two long slender spines, one of which terminates the comb, while the other is prolonged in the line of the spur; hind spurs normal. Although the abdomen is without hair-bands, properly speaking, the sides of the third and fourth segments, viewed laterally (obliquely) show glittering white hairs. This is extremely like the male of *S. edwardsii*, but the pubescence is paler, and the second abdominal segment has it black at base; the scape also is considerably less swollen.

♀. Differs from that of *S. frater* by its rather smaller size; reduced abdominal hair-bands, those on the third and fourth segments being narrow and more or less broken in the middle line; apical plate much more rounded, less conical in outline; hind spur of hind tibia long and straight, not curved at the tip; mandibles without a light streak. The reduced abdominal bands, the shape of the apical plate, and the long straight hind spur, also distinguish it from *S. belfragei*. The ventral abdominal segments are fringed with pale hair, greyish-white at the sides, more or less fulvous in the middle. The second dorsal abdominal segment has a complete transverse area covered with light hair to the exclusion of the black, which is before and behind it, but this light hair is thin and erect, so that it does not seem to form

a band when the insect is seen from above, as it does in *frater* and *belfragei*; this area of light hair is gently concave behind, and is considerably narrowed laterally.

*Hab.* Trout Spring, Gallinas Cañon, New Mexico, May 24th (Cockerell). It visits the flowers of *Iris missouriensis*. Evidently the New Mexico representative of *S. edwardsii*, Cresson.

SYNHALONIA SPECIOSA (Cresson).

♂. Length about 14 mm.; black, with dull white pubescence, tinged with ochreous on thorax above; facial quadrangle longer than broad; clypeus bright lemon-yellow, the yellow notched deeply on each side above; labrum pale yellow; mandibles black, with the apical part reddish, and furnished below with a number of shining red hairs; maxillary palpi 6-jointed, the second and third joints long and about equal, the last three together about as long as the third, and successively smaller, the last being narrow and minute; antennæ reaching to base of abdomen, entirely black, apical part of flagellum crenulated, and obscurely longitudinally ridged above; scape short and broad; third joint about one-third length of fourth; mesothorax and scutellum with very close shallow punctures; tegulæ dark anteriorly, pallid and subhyaline posteriorly; wings tinged with brown, the nervures piceous; abdomen with black hair mixed with the pale on the basal parts of segments three to six; apex of second segment with coarse black hair; third to sixth segments with apical or subapical bands of white tomentum (such as are seen in females of *Synhalonia*), these bands successively stronger on each segment going backwards; apical plate black, broadly truncate, very little narrowed posteriorly; last ventral segment with a short square tooth or process on each extreme lateral margin; legs black, the tarsi ferruginous, the basal joints black or blackish on the outer side, the hair on inner side of basal joints orange-ferruginous; middle tarsi slender but normal, first joint with no apical process; both spurs of hind tibiæ hooked apically; basal joint of hind tarsus with a couple of red curved bristles at apex, simulating a curved spine.

*Hab.* Fort Collins, Colorado, May 29th, 1901, and May 28th, 1901 (Colorado Agricultural College); Boulder, Colorado, May 17th, 1902 (S. A. Johnson, 496).

Allied to *S. gillettei*, Ckll., but easily distinguished by the smaller size, hooked spurs, &c. The May 29th example is recorded as from mountain ash, taken by Mr. Titus. I had described this as a new species, but having some misgivings lest the remarkable character of the hind spur might have been overlooked in the description of one of Cresson's, I asked Mr. Viereck to examine Cresson's types with this question in mind. He has very kindly done so, and reports that in *S. frater*, *dilecta*, *lepida*, and all the other species of *Synhalonia* in the collection at Philadelphia the spurs are simple; except in the male of *S. speciosa* as determined by Robertson, who has taken the sexes *in coitu*. In this male *speciosa* the spurs and the peculiarities of the hind tarsi are just as described above, and it is evident that the species

is the same. It had not occurred to me to refer the insect to *speciosa*, because the only description of that species given by Cresson is that of a female, and Robertson had published the opinion that it is a synonym of *frater*. It is now evident that *frater* can readily be distinguished from *speciosa* in the male by the character of its spurs.

Boulder, Colorado: March 6th, 1905.

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## STRAY NOTES ON ACULEATES.

BY PERCY E. FREKE, F.E.S.

I HAVE always found *Vespa vulgaris* more numerous than other wasps. In some places *V. germanica* seems to be as abundant or, indeed, more so, but this is, I believe, more apparent than real, the latter coming much more into houses and shops in search of sweets. At Tramore, Co. Waterford, it seemed to be almost the only wasp in the town, but on examining the country hedgerows, I found *V. vulgaris* maintained its numerical superiority. *V. germanica* might well be called the "house-wasp," or the "town-wasp," and *V. vulgaris* the "country-wasp." At Borris, Co. Carlow, I examined many nests, and found that *V. vulgaris* was responsible for 81.5 per cent. of them, *V. germanica* coming next, but a long way behind. There *V. rufa* and *V. sylvestris* are about equally common, probably rather less so than *V. germanica*, whereas about Dublin *V. rufa* is rare, and *V. sylvestris* and *V. norvegica* (the last the least common at Borris), are about equal, and *V. germanica* is about half as common as *vulgaris*. In one place one seems more numerous, whereas in another place the reverse is the case, but always *vulgaris* holds the lead more or less. Why is this? I believe because it is the most "hardy" of our wasps. I have noticed it flying in some numbers quite late in the season, when others of its genus had ceased to appear weeks before, and I think it probable that this character enables a larger proportion of females to survive the winter. I believe *vulgaris* has also a larger family. Certain it is that the males of this species are more commonly seen on the wing in autumn than *germanica* even in the latter's most favoured districts.

With regard to the face-markings, I have found the females and workers of *germanica* to vary more than *vulgaris*, and I believe variation is by nests, and not individually. I examined a nest of rather abnormally marked *germanica*, and found 80 per cent. of the workers were thus marked. In the normally marked nests I found no abnormally marked individuals.

Generally, wasps are very good-tempered, unless the nest