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## Some Bees in the Museum of Comparative Zoölogy, Harvard University

T. D. A. Cockerell  
*University of Colorado*

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# SOME BEES IN THE MUSEUM OF COMPARATIVE ZOOLOGY, HARVARD UNIVERSITY.

By T. D. A. COCKERELL

When recently at Cambridge, I was permitted, through the kindness of Mr. Samuel Henshaw, to examine the type specimens of bees in the Museum of Comparative Zoölogy. The notes now offered relate to species described by Dr. A. S. Packard and Mr. E. T. Cresson. The species of Packard were published long ago (1867 and 1869), and have remained unknown, for the most part, to modern apidologists. The specimens are the true and only types, and include all the species of bees described by Packard. The Cressonian species are mostly from the Texan collections, forming the subject of the "Hymenoptera Texana" (1872). These Texan types, after description, were divided among several collections, and are to be found at the Philadelphia Academy, the National Museum at Washington, the Museum of Comparative Zoölogy, and also a set evidently from the same source in the British Museum. In some cases it is not quite clear which should be considered the true types, supposing the specimens not to agree with one another. Cresson distinctly states, however, that the Dallas County specimens, obtained by J. Boll, are in the Museum of Comparative Zoölogy.

## *Melipona pictifrons* (Packard)

*Anthidium pictifrons* Packard, *Rept. Peabody Acad.*, 1869, p. 59.

Collected by Orton on the Napo River, Ecuador. This is a typical *Melipona*; about 13 mm. long; scutellum dark; hind margins of abdominal segments with white marks laterally, representing vestiges of white (tegumentary) bands; on the first segment the band is more developed, but very narrow. Tegulae dull testaceous; flagellum pale ferruginous beneath; scape cream-colored beneath; hair on inner side of hind basitarsus orange. The face-markings are reddish cream-color, and consist of a triangular supra-clypeal mark; a median longitudinal bar, broadening like the head of a nail at each end, on the clypeus; a triangle occupying each lower corner of clypeus, touching the lower lateral extensions of the longitudinal bar; and triangular lateral marks, which send a narrow, almost linear, process up the orbital margin. Wings strongly yellowish-reddish. Another species of *Melipona* was taken by Orton between Quito and Napo, and is labeled with a manuscript name (as an *Anthidium*) by Packard. It has the hind margins of the abdominal segments white, the scutellum light translucent yellow, and the clypeus with

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*Melipona*  
*Trigona*  
*Anthophora*  
*Centris*  
*Eulaema*  
*Tetraloma*  
*Melarta*  
*Osmia*  
*Halictus*  
*Angochloa*

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Nov. 21.

a longitudinal pale reddish line. I do not find that this was published; it differs from all the species known to me, and is probably new.

**Trigona mellicolor** Packard

A small species; head and thorax honey color; head large, broader than thorax; mandibles not dentate; metathorax darkened, its base black; wings hyaline, nervures pale honey color; legs honey color. Abdomen missing in the unique type.

The similarly colored *T. mellea* Smith has toothed mandibles.

**Anthophora pilifrons** Packard

♀. A species of ordinary size, the face with dense white hair, the vertex with much black, the thorax above with black and pale fulvous mixed, but on hind part of scutellum dense and entirely rather bright fulvous. First recurrent nervure reaching second submarginal cell in middle. Legs dark red; outer side of hind tibia and basitarsus with much coarse black hair. Abdomen with dense pale fulvous hair-bands. Apical plate very narrow.

**Centris conica** (Packard)

**Anthophora conica** Packard, *Rept. Peabody Acad.*, 1869, p. 57.

♀. This is a genuine *Centris*, of the subgenus *Trachina*. The face-marks are of the same type as those of *C. flavifrons* (Fabr.), but the lateral marks are narrower and longer, and the transverse bar on the clypeus is more elevated in the middle, forming, with the upright mark, a sort of reversed Y. Labrum cream-color; eyes large, prominent, green; thorax above with dense rufo-fulvous hair, pleura with paler hair; legs red, the large scopa of hind legs orange-fulvous; abdomen red; the second and third segments with the posterior middle, narrowing laterally, darker and a little metallic; segments 4 and 5 with orange-fulvous hair, and their tegument pale, except that 4 is dark in basal middle.

**Centris quadrimaculata** Packard

♀. Nearly 25 mm. long; face with four subtriangular cream-colored marks, two of them on the clypeus; middle of clypeus impunctate; upper part of cheeks very shiny; hair of thorax above chocolate-color, dense, moss-like; scopa of hind legs fulvous; wings deep ferruginous; abdomen clear red, without bands.

Friese suggests that this may be the female of *C. personata* Smith, but it is too large.

**Centris braccata** Packard

♀. A large black species, about 30 mm. long; no light marks on face; basal half of first abdominal segment ferruginous; mandibles with a yellow subapical band; clypeus deep ferruginous, with a smooth median band, which is faintly keeled in the middle; posterior orbital margins very narrowly ferruginous; hair of thorax above dense, brown-black; wings very dark violaceous; abdomen without bands; scopa of hind legs brown-black. Close to *C. atra* Friese, but larger.

**Eulæma bombiformis** (Packard)

**Euglossa bombiformis** Packard, *Rept. Peabody Acad.*, 1869, p. 57.

Very large and robust, about 30 mm. long; mouth parts very large; head and thorax black, with short dark chocolate-colored hair; eyes green; clypeus with a strong median longitudinal keel; a ridge across front as in *E. dimidiata*; scutellum as in *dimidiata*; wings with basal part fuscous, beyond that pale reddish, the apical margin broadly hya-

line; abdomen with brilliant purple and green colors, and bright fulvous hair forming bands on apical margins of segments and covering apex. Second recurrent nervure joining third transverso-cubital; basal nervure going a little basad of transverso-medial.

Exceedingly close to *E. dimidiata* (Fabr.), but I think a valid species.

***Tetralonia honesta* (Cresson)**

**"*Melissodes honesta* Cress., type."**

♂. Flagellum all black; sides of clypeal yellow obtusely notched; labrum black; mandibles with no light spot; hair of cheeks copious and white, of thorax above quite bright fulvous; mesothorax densely punctured and dull, more sparsely and shining in middle; abdomen with a broadly interrupted white hair-band on second segment, and entire ones on the following; tarsi slender, but otherwise normal; third antennal joint much longer than broad.

***Melecta interrupta* Cresson**

**"*Melecta interrupta* Cress., type. Dallas."**

♂. Pubescence of abdominal bands very pale yellowish; legs dark ferruginous; scutellum mammiform; apex of abdomen emarginate; flagellum very thick.

***Osmia lignivora* Packard**

♀. "From cells in maple." Robust, about 13 mm. long, head large; hair of vertex and thorax above light silky yellowish, with no black intermixed; *of face below antenna dark chocolate*; a very large transverse ridge or thickening just above apical margin of clypeus; mandibles with two strong apical teeth, and a long inner cutting edge, their outer surface with fulvous hair; vertex dark bluish, front green; legs dark ferruginous, the femora quite red; no metallic color on legs; hair of legs shading from fuscous to ferruginous; *ventral scopa largely reddish*, the hair more dark fuscous basally, more red apically; abdomen dark purplish, hind margins of segments more or less (very narrowly) rufescent.

A very striking species, suggestive of some of the Central Asian forms.

***Osmia chalybea* Smith**

**"*Osmia texana* Cress., n. sp., 648."**

This is a *female*, whereas *O. texana* was based exclusively on two *males*. Cresson records from Texas a single ♀ *O. chalybea*, collected by Belfrage; I suppose this to be the specimen examined by me, since that certainly appears to be *chalybea*. Its principal characters are as follows:

Bright steel blue, of fair size, with white pubescence, which forms narrow fine bands on lateral hind margins of first three abdominal segments. Scopa black, but hair on lateral margins of abdomen white. Vertex broad, with strong large punctures. Wings quite dusky. Legs not at all metallic, hair of tarsi mainly fulvous. Mandibles broad, with two sharp apical teeth, and a rudimentary third one; outer side, parallel with the cutting edge, with a band of conspicuous fulvous hair. Middle of apical margin of clypeus with a pair of strong nodules, and between them a little keel.

***Osmia subfasciata* Cresson**

**"*Osmia subfasciata* Cress., n. sp., 649."**

♀. This must surely be a genuine type, although it has the abdominal scopa shining



white, and the anterior and middle femora strongly tinged with metallic blue; whereas Cresson says "scopa pale ochraceous" and "legs black." It is a little bright steel blue species, about 8 mm. long, with more or less complete narrow pure white bands on the abdomen. Mandibles 3-dentate; hair of face all white; a pair of little orange tufts below anterior margin of clypeus; hair on inner side of tarsi light yellow.

***Osmia densa* Cresson**

"*Osmia densa* Cress. MS., n. sp., Georgetown, July 8."

♀. About 12 mm. long, with the head thrust forward. The specimen is evidently from a spider's web, and curiously, has lost all its ventral scopa, except some black hairs (carrying pollen) on extreme sides. Much coarse black hair on face with finer white hair intermixed; hair of pleura white, of scutellum all light, but dark hairs intermixed on mesothorax, some quite at hind border; legs not at all metallic; wings yellowish; abdomen with strong purple-blue tints, hind margins of segments not at all pallid.

This is a genuine *densa*, but not the type; the latter was from Pike's Peak.

***Halictus albitarsis* Cresson**

"*Halictus albitarsis* Cress., type. Dallas."

♂. About 6 mm. long; with head extended. Wings milky whitish, iridescent, with pale amber-colored stigma and nervures, the stigma quite brightly colored; antennæ long, the flagellum bright ferruginous beneath; tarsi light yellow, with the apical joint more or less ferruginous; knees light; head and thorax olive-green, metathorax bluer; head rather long; labrum yellow except at sides; area of metathorax with longitudinal plicæ, its apical surface not sharp-edged laterally; abdomen dark rufopiceous.

The original description was based on twenty-six specimens, and probably included more than one species. The color of the antennæ and abdomen, as described, do not agree well with the specimen examined.

***Halictus rimosiceps* Packard**

♀. Quito, Ecuador. Nearly 10 mm. long; head and thorax dark olive green, thorax above dull and granular; metathorax with fine dark blue tints. Abdomen rufopiceous, slightly purplish, the fimbria fuscous. Legs dark, refescent. Wings hyaline, stigma and nervures dull reddish. Second submarginal cell approximately square, receiving first recurrent nervure just before its end; *area of metathorax dull and granular, not at all ridged or grooved*; hair of face and cheeks white, of vertex and front largely black; hair of thorax mixed black and light; eyes normal, little emarginate; *abdomen without bands*, and second segment not in the least vibrissate. Hind spur with two very large blunt spines, and a rudiment of a third.

***Augochlora nigroænea* Packard**

♀. Quito to Napo River, Ecuador. About 9 mm. long, belongs to group *Sericea*, not at all vibrissate, and the hind spur pectinate with a few large teeth. Face bluish-green, dullish and granular, with sparse punctures; eyes strongly emarginate; mesothorax dull green, blackish in middle; scutellum black; area of metathorax black, concave, with very fine longitudinal striation; the metathorax outside area is green, contrasting; pleura black; wings dusky, the costal region broadly suffusedly darker; second submarginal cell receiving first recurrent nervure near its end; abdomen black, with the hind margins

of segments reddish, and their bases brilliant green; legs rufopiceous, not metallic. A very distinct species.

***Augochlora fuscipes* Packard**

♀. Between Quito and Napo. About 9 mm. long; not at all vibrissate; the legs are so placed that the hind spur cannot be seen. Face bright green, front and vertex black; mesothorax and scutella black; pleura greenish; area of metathorax broad, flat, granular, bright green; abdomen very dark purplish, green at sides; second segment narrowly green right across at base; wings strongly reddish; first recurrent nervure joins second submarginal cell at its apex; legs ferruginous.