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Descriptions and Records of Bees.— XVIII.

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Descriptions and Records of Bees.—XVIII.

By T. D. A. COCKERELL, University of Colorado.

Megachile helianthi, sp. n.

♀.—Length $13\frac{1}{2}$ mm.

Black, robust, but of the parallel-sided type; ventral scopa entirely white (in the type specimen full of bright orange pollen); lower margin of clypeus strongly undulate, with a broad, shallow, central emargination; claws with a large and

sharp basal tooth. Head large, round; cheeks flattened, not spined; punctures of head and thorax dense and coarse, on a dullish surface, but clypeus (convex in middle) and middle of supraclypeal area shining, with well-separated strong punctures; hair of head and thorax greyish white, the vertex also with dark fuscous hair, very short and easily overlooked; antennæ dark; mandibles short and thick, 4-dentate, fringed beneath with pale golden hairs; first joint of labial palpi about $\frac{4}{5}$ or $\frac{5}{6}$ length of second; tegulæ black. Wings strongly and broadly infuscated on apical margin; nervures black. Abdomen strongly but not densely punctured, with narrow white hair-bands, more or less failing in the middle; sixth dorsal segment rapidly descending, strongly concave in profile, its basal half with sparse, erect, pale hair, its apical with pale tomentum. Legs black, the tarsi (especially the middle and hind ones) broad and thick; hind basitarsus not quite so long as the other joints together, if claw is included. Third joint of maxillary palpi with very fine short pubescence and shorter than 1+2.

Belongs to the subgenus *Sayapis*, and is related to *M. sayi*, Cresson, but easily distinguished by the shining sparsely-punctured clypeus, the character of the clypeal margin, and the wholly white ventral scopa.

Hab. Boulder, Colorado, at flowers of *Helianthus lenticularis*, Aug. 29, 1906 (*S. A. Rohwer*).

Megachile terrestris, sp. n.

♀.—Length about $10\frac{1}{2}$ mm.

Black, moderately robust, in build something like *M. montivaga* or *M. melanopyga*, the abdomen strongly convex in profile; *ventral scopa entirely rather pale orange*, as are the narrow but very distinct abdominal bands; *clypeus undulate, with three low broad dentiform angles*, one being median; claws with a strong basal tooth. Head and thorax densely punctured, with the copious long pubescence very pale yellowish, becoming strongly fulvous on clypeus, lower part of cheeks, and vertex, and a little so in middle of mesothorax; head ordinary; clypeus closely punctured but shining; mandibles with only three distinct teeth, the innermost rounded; first joint of labial palpi a little shorter than second; last joint of maxillary palpi with the pubescence very short, indistinct; antennæ dark; mesothorax dull; tegulæ piceous. Wings strongly infuscated, yellower basally; nervures ferruginous, the outer ones piceous. *Tarsi ferruginous*, more or less infuscated, and clothed with orange-

fulvous hair; extreme apices of tibiæ slightly ferruginous, the legs otherwise black, with pale yellowish hair; hind basitarsus not greatly broadened. The hair of the abdomen between the bands, which in most species is black, is *fulvous*, and as it is long and overlaps the bands, it makes them appear yellower than they otherwise would; sixth dorsal segment descending almost perpendicularly, and then abruptly bending to the strong lip, the descending portion covered with long fulvous hair.

A very distinct species, not closely related to any other, so far as I am aware.

Hab. Florissant, Colorado, 8000 feet, June 14, 1907, flying over the ground (*S. A. Rohwer*).

Megachile anogræ, sp. n.

♀.—Length 11 to 12 mm. ($13\frac{1}{2}$ with the head thrust forward).

Black, rather robust, with greyish-white pubescence; the abdomen shining, with narrow white entire hair-bands, that on first segment broader and enlarged at sides; ventral scopa white, entirely black on the last two segments; claws with a strong basal bristle, but no well-developed tooth. Head and thorax densely punctured, with copious greyish-white hair; on the clypeus the hair is a shade greyer and thin, showing the shining and strongly punctured surface; margin of clypeus normal; *mandibles peculiar, short and thick, with an apical blunt tooth, and a long straight cutting-edge beyond*; cheeks rounded; eyes sage-green; tegulæ very dark brown. Wings only moderately dusky; second r. n. joining second s.m. very near its end. Legs black, with light hair, that on inner side of tarsi fuscous or reddish fuscous; apical corners of middle tarsal joints with pectiniform spines or bristles; hind basitarsus not greatly broadened. Abdomen between the bands, and the sixth segment, very shiny, with coarse black hair; *sixth segment wholly without pale hair* and not rapidly descending.

A pretty and distinct species, rather like *M. generosa*, Cresson, but easily separated by the wholly light hair of vertex and mesothorax and other characters.

Hab. Florissant, Colorado, at flowers of *Anogra coronopifolia* (scopa full of light yellow pollen), July 21, 1907; also July 22, 1907 (*S. A. Rohwer*).

Megachile chrysothamni, sp. n.

♀.—Length 13 mm. or a trifle less.

Black, with white pubescence, having rather a mould-like appearance on thorax; abdomen shining, rather parallel-sided, with creamy-white hair-bands; *ventral scopa white, black on last segment and apical third of penultimate one*; claws without any distinct basal tooth. Head normal; eyes pale greenish grey, parallel; vertex with a band of black hair, and middle of mesothorax with a little of the same colour; clypeus shining, but closely punctured, its anterior edge very thick, but not dentate; mandibles 4-dentate; antennæ dark; mesothorax very densely punctured; tegulæ dark reddish. Wings moderately dusky. Legs black, with light hair, that on inner side of tarsi pale yellowish; middle tarsi thick; hind basitarsus only moderately broadened. *Abdomen with hair on first two segments wholly pale*, beyond these coarse and black between the bands, as also on sixth segment, which, however, is covered with pale tomentum at its tip; sixth segment ordinary, not subvertical.

Rather like *M. texana*, Cresson, but the black hair does not cover the penultimate ventral segment, and the last three abdominal bands are very entire and conspicuous, giving the insect a distinctive appearance. The shining, rather parallel-sided abdomen is also peculiar. Perhaps the closest real affinity is with *M. manifesta*, Cresson, although this would never be suggested by superficial appearances.

Hab. Boulder, Colorado, at flowers of *Chrysothamnus graveolens* (scopa full of bright yellow pollen), Sept. 1, 1906 (*S. A. Rohwer*).

Megachile newelli, sp. n.

♀.—Length about 11 mm.

Very black; short, broad, with a heart-shaped abdomen; ventral scopa white (full of bright orange pollen, doubtless from some species of Compositæ), the last segment with black bristles at the sides; pubescence greyish white, rather scanty; the thorax seen from above is black, with a creamy-white band in the scutello-mesothoracic suture, and a spot on each side of it, a little in front, these markings being very conspicuous; abdominal bands present, but only moderately developed. Head very broad; flagellum inclined to be reddish beneath; clypeus very densely punctured; mandibles very broad, the teeth low and obtuse; lower margin of mandibles strongly concave; apical joint of maxillary

palpi not or hardly pubescent; the broad and flat vertex, the mesothorax, and scutellum with thin black hair; tegulæ very dark brown. Wings dusky. Legs black, spurs very pale; middle tarsi greatly broadened; hind basitarsus very large and flat, much longer than the remaining joints together, and with light yellow hair on its inner side. Abdomen with very short black hair between the bands; last segment with erect hair only at sides.

Very closely allied to the Mexican *M. chrysophila*, Ckll., but differing in the colour of the ventral scopa, the proportionately longer hind basitarsus, the shape of the mandibles, &c.

Hab. Keatchie, Louisiana, July 8, 1905, two specimens (*Wilmon Newell*).

Megachile murinella, sp. n.

♀.—Length about 10 mm.

Black, broad, the abdomen long-cordiform; pubescence greyish white, scanty, becoming mouse-grey on sides of metathorax; abdominal bands well developed, but hardly noticeable because dull mouse-grey, the last and the sides of the penultimate scantily overlapped by shining white hairs; ventral scopa dull white, black on last segment except at extreme base, and some black hair at sides of penultimate; claws with a sharp basal tooth; no light hair-markings on thorax above. Head ordinary, rather large, eyes distinctly converging below; clypeus shining, with strong, rather close punctures, its apical margin straight; mandibles 4-dentate, with golden hairs projecting from the lower margin; antennæ dark; mesothorax densely punctured; tegulæ dark rufous. Wings moderately dusky; recurrent nervures joining second submarginal cell at equal distances from apex and base. Legs black, hair on inner side of tarsi pale yellowish; spurs whitish; hind basitarsus only moderately large. Abdomen between the bands with a pale hardly noticeable pruinosity; some black hairs, not readily observed, on the last two segments, particularly the penultimate one.

I had formerly supposed, from a superficial examination, that the grey abdominal bands were accidentally discoloured; but this seems not to be the case. The species is related to *M. cleomis*, Ckll., but much smaller.

Hab. Mesilla Park, New Mexico, Sept. 2, 1898 (*Cockerell*).

Megachile kallstræmiæ, sp. n.

♀.—Length nearly 11 mm.

Black, short and broad, with cordate abdomen, and having a white line of pubescence in front of scutellum, and spot on each side, as in *M. newelli*, to which it is closely allied. It differs from *newelli* in being a little smaller, less robust, greyer (from the pubescence), with whiter hair-bands, the hair of face very white; the last dorsal segment with obvious pale pruinosity. It is evidently a desert representative of the same stock (originally neotropical) which produced *newelli*. The dusky wings, black hairs at sides of apex of abdomen, and mesothorax in front with a widely interrupted band of white hair, are characters separating it from the hitherto undescribed female of *M. townsendiana*, Ckll., the latter having wings clear or almost, no black hair at sides of apex of abdomen, and mesothorax in front with two spots or bars of white hairs.

Hab. Mesilla Park, New Mexico, at flowers of *Kallstræmia*, July 27 (Cockerell); Mesilla, July 15, at flowers of *Verbesina encelioides* (Cockerell); Las Cruces, New Mexico, at flowers of *Solidago canadensis*, Sept. 9 (C. H. T. Townsend).

Females of *M. townsendiana*, taken in company with males, are from Las Cruces, Aug. 23. *M. townsendiana* was also taken at San Augustine, at the base of the Organ Mts., New Mexico.

Megachile verbesinæ, sp. n.

♀.—Length about 15 mm., width of abdomen $4\frac{2}{3}$.

Black, parallel-sided, with white pubescence, and narrow entire white abdominal hair-bands; sixth segment with pale tomentum; ventral scopa entirely white; clypeus shining, with well-separated punctures, its margin straight, but with a little dentiform prominence, not projecting at all below the margin, in the middle. Thorax above without any conspicuous pale hair-markings. Superficially, this species looks just like *M. heterodonta*, Ckll., except that the abdomen is not quite so long and narrow. It is, however, entirely distinct from *heterodonta* by the last dorsal segment, which instead of being nearly vertical and covered with black bristles, is subhorizontal and tomentose. The mandibles also are not as in *heterodonta*, but have four ordinary teeth, counting the inner angle. A closer real affinity is found with *M. casada*, Ckll.; but in that species the abdomen is shorter, the sixth segment is strongly concave in profile, and the hind basitarsus is not nearly so long and broad. (In

verbesinæ the hind basitarsus much exceeds the other joints together.) From *M. sidalceæ*, Ckll., the new species is easily known by the absence of the conspicuous white line of hair across the thorax, and the total absence of black hair on the scutellum.

The vertex has a small amount of fuscous hair among the white, but the mesothorax none. The second abdominal segment has a little fuscous hair, almost concealed by the white.

Hab. Upper Rio Grande, at Rinconada, New Mexico, at flowers of *Verbesina exauriculata*, Sept. 26 (Cockerell).

Megachile populi, Ckll.

Renewed study convinces me that *M. opuntiarum*, Ckll., is conspecific with *populi*.

Megachile emoryi, Ckll.

This fine species has hitherto been known only by the unique type, but Mr. S. A. Rohwer took a female at Boulder, Colorado, Aug. 30, 1907, at flowers of *Helianthus pumilus*.

Megachile perihirta, Ckll.

Copeland Park, Boulder County, Colorado, Sept 6, 1907 (S. A. Rohwer). This is the second specimen known.

Megachile mucrosa, sp. n.

♂.—Length about 11 mm., width of abdomen about $4\frac{1}{2}$.

Black, with dull white pubescence, abundant on head and thorax, pure white and dense on face and lower part of cheeks; *no black or fuscous hair anywhere*, but inner side of tarsi with orange hair. Head rather large; eyes yellowish green, slightly converging below; antennæ black, faintly crenulated, not flattened or expanded at apex; clypeus normal; vertex and mesothorax dull, with feeble punctures; tegulæ reddish, darker basally. Wings nearly clear, the nervures and stigma rather dark ferruginous. Legs black, *the anterior femora largely red above and the anterior tibiae with the inner surfaces red, their tarsi simple*; coxal spines distinct but short, with a little patch of shining copper-red hair at outer base; hind tarsi rather thick. Abdomen with a large shining basin on first segment, the other segments strongly depressed basally and furrowed apically; *sixth segment densely punctured above, with a strong longitudinal keel, which points toward the apex of the transverse keel*,

which is produced into a broad beak-like structure, perfectly entire, its point forming somewhat more than a right angle, and curved downwards; beneath, the segment presents two large oblique teeth on each side, the inner the larger, and in the broad median interval appears the stout spine-like process of the seventh segment. Four ventral segments are visible.

Related to *M. reflexa*, Cresson, but differs in the colour of the legs and pubescence. It cannot be the male of *M. populi*, as the sculpture of the thorax is quite different, and the venation of the hind wings differs.

Hab. Boulder, Colorado, Aug. 9, 1906 (*W. P. Cockerell*).

Megachile onobrychidis, sp. n.

♂.—Length $8\frac{1}{2}$ mm.

Black, with dull white hair, dense and pure white on face and lower part of cheeks and pleura; no black or fuscous hair, that on inner side of tarsi orange; *vertex shining, with strong well-separated punctures*; antennæ slender, black, flagellum faintly reddish beneath, not flattened or expanded at apex; mandibles with a reddish spot just before tip; first joint of labial palpi shorter than second; mesothorax very densely punctured; tegulæ very dark reddish, with a white patch of hair in front. Wings moderately dusky; second r. n. joining second s.m. a considerable distance from its end. Legs black; *anterior femora with no red patch*, their tibiæ faintly reddish on inner side, *their tarsi simple*; coxal spines strong but rather short; hind tarsi slender. Abdomen short, rather shining, with narrow white hair-bands; in addition to the usual apical bands there are distinct, but less pronounced basal ones; sixth segment above very densely punctured, with fine whitish tomentum, and a pit or depression in the middle just before the transverse keel, which is jagged apically, and with a slight rounded emargination; beneath, the lateral teeth are very low, the points of the inner ones scarcely more distant than they are from the lateral ones; median projection of seventh segment small, but evident; four ventral segments.

Hab. Mesilla Park, New Mexico.

On the Agricultural College farm, April 25, 1895, I observed what I supposed to be a single species of *Megachile* visiting the flowers of *Onobrychis sativa* in some numbers, these flowers being the only ones at which I had so far obtained *Megachile* that year. Two specimens were caught, and these now prove to belong to different species, *M. onobrychidis* and *M. schismatura*.

Megachile schismatura, sp. n.

♂.—Length about $9\frac{1}{2}$ mm.

Superficially like *M. onobrychidis*, but differing as follows : face broader, eyes less converging below ; vertex with a good deal of fuscous hair ; the recurrent nervures joining second s.m. about equally far (a short distance) from base and apex ; keel of sixth abdominal segment presenting a very large circular emargination, the lateral corners of which are sharply pointed, forming much less than right angles ; on each side of the emargination the margin is crenate, but not jagged ; sixth segment above the keel densely white-pruinose. The pubescence of *M. onobrychidis* has a faint yellowish tint, wanting in *schismatura*. The eyes of *schismatura* are distinctly darker and narrower than those of *onobrychidis*. In the apical emargination of the abdomen, *M. frugalis*, Cress., is like *schismatura*, but the latter has only minute lateral teeth, instead of the prominent ones of *frugalis*.

Hab. Mesilla Park, as described under *M. onobrychidis*.

Megachile albula, Lovell & Cockerell.

Described from Maine. I find I have a male which I took at Beulah, New Mexico, 8000 ft., July 11.

Note on Gilbert Turner's Australian Bees.

I take the opportunity to add a note explaining the localities of Gilbert Turner's bees, described in earlier numbers of this series. I am indebted to Mr. Rowland E. Turner for the following information :—"The abbreviations on the labels on the Australian bees are : Seaf., Seaforth, a locality on the coast 20 miles north of Mackay, Queensland ; Ridg., The Ridges, a small property 13 miles from Mackay which was held by my brother the late Gilbert Turner and myself in partnership for many years. Hy. is merely short for Hymenoptera. All the bees sent by my brother to the Museum were taken at one of the two above places, but as they are not settlements of any size I always use the locality Mackay." (*Litt.*, Dec. 2, 1907.)

University of Colorado,
Boulder, Colorado, U.S.A.,
Jan. 12, 1908.

