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NEW AMERICAN BEES.—VIII.

By T. D. A. COCKERELL.

Nomada vexator, n. sp.

♀. Length, 7 to 8 mm.; ferruginous red; head, thorax, and legs marked (not heavily) with black, but with no yellow; abdomen shining light ferruginous, with no black except three spots (one basal and two lateral) on first segment, and even these sometimes hardly developed; second abdominal segment with a variable but always large cream-coloured patch on each side; third segment with much smaller spots, sometimes reduced to dots; fourth with two transverse subdorsal spots, sometimes absent; fifth with a pair of large spots, usually confluent; apex with a rather narrow band of silvery tomentum. Antennæ entirely clear ferruginous, third joint a little longer than fourth, flagellum rather thick; mandibles simple; first joint of labial palpi much longer than the other three united; middle of face, connecting with a large area enclosing ocelli, and hind part of cheeks, black; scutellum strongly bilobed; mesothorax very densely punctured, with a median black band, broadening anteriorly; metathorax with a black band, and its sides with white hair; tegulæ bright ferruginous; wings dusky hyaline, clear subapically and strongly dusky at apex; stigma ferruginous, nervures fuscous; b. n. meeting t. m.; second s. m. large, receiving the r. n. far beyond its middle; third s. m. narrowed greatly above; tibiae and tarsi without black, but the femora marked with black, especially the hind ones; venter of abdomen red without markings. In my table of Rocky Mountain *Nomada* (Bulletin 94, Colo. Exp. Sta.) this runs nearest to *N. luteopicta*, but differs in the proportions of the antennal joints, and the pale yellow abdominal markings. The same characters, and the venation (b. n. meeting t. m.) readily separate it from *N. cymbalariae* and *N. mera*, which run to the same point in the table. In many respects *N. vexator* resembles *N. accepta*, but the abdomen is much darker and more copiously ornamented with cream-colour in *accepta*, while the mesothorax is three banded, and there are yellow spots at the lower corners of the face.

♂. Length, 7 mm.; head and thorax black, without any red; both densely punctured, and with quite abundant white hair, which is appressed and bright silvery on face; thorax with no light markings except a cream-coloured spot on the tubercles; clypeus with the lower half (narrowest in the middle), lateral marks sending linear upward extensions to level of antennæ, scape in front, labrum, and mandibles except apex, light yellow; third antennal joint about as long as fourth on upper side, but much shorter below; scape and first four joints of flagellum black above, remaining joints showing successively decreasing infuscation: legs red, anterior and middle femora black basally beneath, hind femora black with the apex red; second s. m. narrower than in female, receiving r. n. in middle; abdomen marked nearly as in female, but basal half of first segment nearly all black, and blackish transverse stains on third and fourth; apical segments with thin white pubescence; apical plate very narrow and

pointed, entire; venter red, with black only on first segment. The markings of the abdomen are not unlike those of *N. gracilis*, but the apical plate is entirely different.

Hab. Troublesome, Colorado, alt. 7345 ft., June 9th, 1908 (S. A. Rohwer). One male and five females, the type being one of the latter.

Nomada wootonella, n. sp.

♂. A small species closely related to *N. sayi*, Robertson, but differing as follows:—Head broader, eyes more diverging above; lateral face-marks not so large below; eyes pale green; pleura with a dull yellowish spot in front; legs light ferruginous, the anterior ones largely yellowish, and the others spotted with yellow, the hind femora with a brown spot behind near apex; abdomen with the yellow markings enlarged, so that the second and third segments have very broad bands, narrowed and interrupted in the middle; apical plate entire, or with only a faint trace of the emargination which is so conspicuous in *N. sayi*. The *N. sayi* compared is an authentic specimen from Robertson.

Hab. Mesilla Park, New Mexico, April 26th (T. D. A. Cockerell). At flowers of *Sophia ochroleuca*, Wooton. Named after Prof. Wooton, of the New Mexico Agricultural College, who described the plant it visits.

Nomada civilis, Cresson, 1878.

Cresson described this from nine males collected in Colorado. It is very variable, both in size and markings. At Troublesome, Colorado, alt. 7345 ft., June 9th, 1908, Mr. S. A. Rohwer took both sexes. The female runs in my table of Rocky Mountain *Nomada* (Bull. 94, Colo. Exper. Sta.) to *N. agynia*, male, but is quite distinct from that species. As is usual in the group to which the species belongs, the female *N. civilis* is very unlike the male, agreeing, however, in the very broad face, with the orbits diverging above. The following characters of the female are distinctive:—

Lower part of face, including labrum and supraclypeal mark, lemon-yellow; orbital margins above middle of face broadly ferruginous, this continuing over to the cheek, on the lower half or more of which it gives way to yellow; scape ordinary, yellow in front, antennæ otherwise wholly ferruginous, without black or dusky; mesothorax rough, black, with a little red at extreme sides; tegulae light ferruginous, with a yellow spot in front; tubercles and upper margin of prothorax yellow; pleura ferruginous, with a suffused yellow patch; scutellum and postscutellum yellow, with reddish hair; metathorax black, with a pair of large round light red spots, varying to slightly yellowish in the middle; legs clear ferruginous red, the apices of the femora and anterior and middle tibiae conspicuously marked with yellow; abdomen bright lemon-yellow, with clear ferruginous bands above and below; on the first segment the yellow is reduced to a mark (one-third of a band) on each side, and

there is a black subbasal median spot; on the second segment the yellow is much narrowed in the middle.

Nomada truttarum, n. sp.

♂. Length about 8 mm., the abdomen fusiform and rather slender; belongs to the subgenus *Xanthidium*. Head broad, orbits not greatly diverging above; face with appressed silvery hair, not concealing the surface; mandibles simple; mandibles except apex, labrum, clypeus (a black sutural spot on each side), quadrate supra-clypeal patch, and large lateral face-marks (filling in the whole area between clypeus and eyes, and extending from upper corners of clypeus, touching the antennal sockets, to a point some distance above antennæ) all pale yellow; a narrow yellow stripe, becoming reddish, extends up posterior orbital margins, and there is a ferruginous patch above summit of eye; third antennal joint scarcely over half length of fourth; scape moderately swollen, yellow in front, black behind, the junction of the colours reddish; flagellum stout and long, red, with the first five joints strongly blackened above, and the third to fifth strongly undulate; apical joint obtuse; thorax black, with the hair all white, especially conspicuous on pleura; scutellum, four rather obscure stripes on mesothorax, part of prothorax above, and a large spot on anterior part of pleura, all ferruginous; tubercles pale yellow suffused with red; mesothorax entirely black; tegulae shining hyaline testaceous, with two pale yellow spots; wings dusky at apex, otherwise nearly clear; stigma dark ferruginous; b. n. going a long distance basad of t. m.; second s. m. large, broad above, receiving the r. n. at the beginning of its last third; third t. c. abruptly bent; legs red, without yellow, except that the anterior femora are suffusedly yellowish in front; a little black at base of anterior femora, more on middle femora, and hind femora broadly black beneath except at apex; abdomen rather well punctured; first segment black basally, and with the broad band red without any yellow; second segment red, with an exceedingly broad lemon-yellow band, narrowly interrupted in the middle (by a longitudinal red band) and notched at each upper lateral corner; segments three to six red with yellow bands, on three and four widely interrupted, on six a median patch, not reaching the sides of the segment; apical plate broad, strongly notched; venter red, suffused with blackish, and with a large diamond-shaped yellow spot at extreme apex. In the tables of Rocky Mountain *Nomada* runs to *N. vicinalis*, Cresson, from which it differs by the large lateral face-marks, first abdominal segment without yellow, &c.

Hab. Trout Spring, Gallinas Canyon, New Mexico, May 24th (T. D. A. Cockerell).

Osmia malina, n. sp.

♀. Length about 9 mm., thick-set, brilliant dark indigo-blue, the hind margins of the abdominal segments concolorous and very narrowly impunctate; legs black, without metallic tints; antennæ entirely black. Face broad; hair of face and vertex coarse and black, but on each side of the antennæ is a patch of white hair, recalling the

appearance of *O. albolateralis*, which is in other respects a very different species. Lower edge of clypeus black, slightly elevated, but not peculiar in any way; mandibles with two pointed teeth, and a truncate subemarginate inner one; hair of cheeks black, but a conspicuous tuft of white hair on prothorax at sides of base of head; tubercles with white hair, pleura with black, sides of metathorax with white; dorsum of thorax with mixed black and white hair, the black preponderating, except posteriorly, along hind margin of scutellum; wings very smoky; legs with short black hair, shining brownish on anterior and middle tarsi; abdomen with white hair on first segment and extreme base of second; the other segments with short black hair, with a few light hairs intermixed on second and third, and much glittering white hair on fifth; scopa and hair at sides of abdomen black. Superficially like *O. wilmattæ*, Ckll., but distinguished by the second s. m. more produced beyond the second r. n., the thorax above with much more black hair, the larger ocelli and the tufts of white hair on the face. From *O. giliarum*, Ckll., it is known by the abundant black hair on the thorax above, and the white hair on face. From *O. pikei*, Ckll., it differs by the broader, deep blue face, &c.

Hab. Northern Colorado, in the region near the foothills, either in the vicinity of Boulder or Loveland (Clarence De Voss).

Osmia (Acanthosmioides) nifoata, n. sp.

♂. Length, 9 mm.; dark greenish blue, the abdomen shining; hair of head and thorax entirely white; flagellum black or almost above, ferruginous beneath; apical tooth of mandibles very long, the other subobsolete, broadly obliquely truncate; tegulae blue in front; wings clear, a little stained along the veins; legs black with strong metallic tints, especially on the femora behind; hair of legs partly light and partly dark, the anterior and especially the middle tibiae conspicuously fringed with white hair behind; hind femora strongly swollen, their hair largely black; hind tibiae conspicuously bent; inner side of hind basitarsus with dark fuscous hair; first abdominal segment with white hair, second with white and black, the others with black, a little white near hind margin of third; sixth segment entire; seventh bidentate; second ventral longitudinally grooved, and with a short compressed apical tooth, scarcely a third the length of the segment. As in *O. odontogaster*, the ventral tooth is sometimes slightly bifid at the end. Distinguished from *O. odontogaster*, Ckll., by the entirely different colour, and broader abdomen. It is nearer to *Osmia ashmeadii* (*Acanthosmioides ashmeadii*, Titus), but differs from that by the much darker flagellum and the absence of a carina on the first ventral segment. The eyes are sage-green.

Hab. Troublesome, Colorado, 7345 ft., June 8th and 9th, 1908; three males (S. A. Rohwer). This is the first *Acanthosmioides* from the Rocky Mountains.

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