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[February

1906]

NORTH AMERICAN BEES

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NORTH AMERICAN BEES OF THE GENERA *ANDRENA* AND
MELITTA IN THE BRITISH MUSEUM.—I.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

When, in the summer of 1904, I visited the British Museum, one of my chief objects was to examine the types of the American species of *Andrena* described by F. Smith. These insects, described when comparatively little was known about American bees, had always been difficult to identify, and with a few exceptions the current identifications were open to more or less doubt. Some years ago, the Rev. F. D. Morice very kindly sent me a series of notes resulting from his examination of them, and these were published in the *Canadian Entomologist*, 1901; but further investigation was clearly desirable. I did not publish my notes on *Andrena* along with my other remarks on the British Museum bees (*Trans. Am. Ent. Soc.*, 1905), because it was intended to include them in a lengthy paper which Mr. Viereck expected to publish in 1905; but as this work (a review of all the known American *Andrenæ*) is likely to be much delayed, I give them here.

Melitta americana (Smith).

Cilissa americana, Smith, ♀. Length 12 mm. or slightly over; facial foveæ apparently very broad, but ill-defined and not hairy; process of labrum low and broadly rounded; clypeus with a longitudinal median ridge, the upper part of which is narrow and grooved, while the lower part is very broad, and shining; rest of clypeus dull, with rather close punctures; mandibles broad at apex, with a short inner tooth; cheeks ordinary; mesothorax fairly shining, with quite close shallow punctures, which look as if caused by blows from a hammer; mesothorax and scutellum with a good deal of black hair, which, however, is not conspicuous, except perhaps at sides of scutellum; scutellum shining on disc, with definite punctures; postscutellum quite dull, with a curious subtesselate surface, and posteriorly with long hair; enclosure of metathorax triangular and ill-defined, slightly wrinkled at base; tegulæ with a conspicuous ferruginous spot; stigma yellowish-ferruginous, small and lanceolate; second submarginal cell not far from square, equally broad above and below, receiving the recurrent nervure at its middle; third submarginal cell very long, narrowed more than half to marginal; middle femora reddish, sharply keeled beneath; hind trochanters without any curled floccus; hair on outer face of hind tibiæ rather long and coarse, but

not plumose; abdomen broad and dullish, with numerous distinct piliferous punctures, but not otherwise punctate; caudal fimbria dull black.

By the obliquely truncate apical joint of antennae, and characters of legs, this is a veritable *McIlitta* (= *Cilissa*); by the dark caudal fringe it is allied to *M. leporina*, but it is not that species. It was described vaguely from the "United States," but Mr. Lovell informs me that he has taken it at Waldoboro, Maine.

Andrena commoda (Smith).

♀. Expanse of wings about 22 mm.; facial foveae quite broad, whitish; clypeus closely punctured, with a strong median ridge; tubercle on labrum large and quite broadly rounded, not nearly so pointed as Morice's account suggested; eye not separated from fovea by more than the usual narrow line; mesothorax minutely roughened, with small shallow punctures; mesothoracic area not distinctly defined, only minutely plicate basally; tibial scopa fulvo-ferruginous, not plumose; basal joint of hind tarsi broad, red, with ferruginous hair on inner side; abdomen not hairy as in *sayi*, having only piliferous punctures (but these very distinct), and not fasciate; fimbria a fine orange-fulvous. I noted that it suggested *A. corni*, Rob., and later Mr. Viereck sent me a specimen of *corni* to compare, and I found no difference.

Andrena integra, Smith.

♀. In Robertson's tables this runs to 11, and then runs out, because of unbanded abdomen and eye not widely separated from fovea. Compared with a species from Pennsylvania sent by Mr. Viereck, and supposed to be *integra*, the type was found to be a smaller and very different species, without abdominal hair-bands, and with the fimbria strong light ferruginous. It has strongly-marked, yellowish-white, *narrow* facial foveae, adjacent to the eyes; clypeus microscopically tessellate, with scattered and shallow but distinct punctures; scutellum very shiny, its disc wholly impunctate; wings yellowish, stigma dark ferruginous.

Upon learning that the supposed *integra* was not that species, Mr. Viereck sent *A. lineata*, Prov., suggesting that this was the real *integra*. Careful comparisons showed that they were identical.

Andrena subtilis, Smith.

♀. Vancouver I. (*Lyal*). Supposed *subtilis*, sent by Mr. Viereck, was a much smaller and very different species. The real *subtilis* is a large, handsome

species, with strongly fulvous hair on thorax; abdomen dark green, without any distinct bands; fimbria fulvous; stigma narrow, dark red-brown; process of labrum pointed; fovea broad, pale red, adjacent to eye. Size about equal to *vicina*. Later, Mr. Viereck sent for comparison a specimen of *A. seminigra*, Vier., which proved to be exactly the same.

Andrena algida, Smith.

♀. Hudson's Bay. Mr. Viereck sent a Philadelphia specimen of what had been taken for *algida* in this country; but the real *algida* proved to be quite a different species, with the following distinctive characters: larger; facial foveae short, strongly reddish, seen from above occupying only about half distance between eye and antenna; process of labrum broadly rounded; third antennal joint longer; wings not yellowish, stigma and nervures duller and darker; abdomen more hairy, the hair of the bands longer and not so dense; segments 1 and 2, viewed laterally, with very conspicuous suberect hairs on hind margin; venter of abdomen dark reddish-brown; anal fimbria pale sooty; hind tibiae, as well as their tarsi, dark reddish.

In Robertson's table, *algida* runs to *A. arabis*, Rob.; Mr. Viereck sent me *arabis* to compare, and I found them closely allied, but apparently distinct. *A. arabis* has hair of abdomen yellowish, *algida* has it dull white, with the fimbria pale grey; the whole pubescence of *algida* is greyish, contrasting with the strongly ochreous of *arabis*; *arabis* has the flagellum beneath, and the claw-joints, very red, which is not the case in *algida*; the clypeus of *arabis* seems to have rather larger punctures than those of *algida*, though they are alike in character; in the dry state the eyes of *algida* are grey, of *arabis* black; in *arabis* the basal joint of hind tarsi within is darkened, in *algida* it is entirely pallid, with a pale ochreous tint.

Andrena fragilis, Smith.

Expanse of wings just over 14 mm. Runs to *platyparia* in Robertson's tables. Compared with *platyparia*, I found that *fragilis* had the hind tarsi and hair at apex of abdomen redder, but there was no essential difference.

Andrena placida, Smith.

♀. Length about 10½ mm. Fovea broad, seen from above pale reddish; process of labrum remarkably long and narrow; clypeus convex, microscopically tessellate, with quite widely separated punctures; disc of mesothorax dullish, with minute, well-separated punctures; metathorax truncate, the enclosure

rugose-wrinkled, very ill-defined; hair of hind tibiae plumose, at least in part; stigma ferruginous, quite large; abdomen with apparently a very faintly purplish tint, and with only piliferous punctures, and these very few and minute; fimbria dark purplish-chocolate; depressed hind margins of abdominal segments reddened; pygidial plate with a grooved V. This is not *A. cressoni*.

Andrena sodalis, Smith.

♀. Oaxaca. Ordinary-looking species, easily known by hind tibiae and basal two-thirds (at least) of basal joint of hind tarsi clear light reddish-fulvous, strongly contrasting with the very dark brown hind femora, and apical part of basal joint of tarsus, as well as small joints of tarsus. The anterior and middle legs are also wholly very dark brown; the tibial scopa is strongly plumose. Facial foveae fairly broad, their pubescence (seen from above) very dark seal brown; clypeus with quite a broad median impunctate band or area; abdomen practically impunctate.

A second specimen has only about half the basal joint of hind tarsi fulvous, junction of the two colors very oblique. Fimbria light brown, with a greyish tinge.

Andrena simplex, Smith.

♀. Length less than 10 mm.; clypeus minutely roughened, with scattered, shallow, piliferous punctures; labrum with reddish hair, contrasting with the dull white hair of clypeus; third antennal joint longer than 4+5; disc of mesothorax shining, with small, widely-separated punctures; fovea short, not widely separated from eye; area of metathorax merely roughened, very ill-defined; metathorax with a *concave* truncation; tegulae dark red; stigma small, light reddish with a dark margin; third submarginal cell very broad above; first three segments of abdomen dark reddish; hair on outer face of hind tibiae plumose; basal joint of middle tarsi quite broad.

Andrena hilaris, Smith.

Mr. Viereck sent one from Clementon, N. J. I found Smith's type identical, except that it had dark red legs.

Andrena auricoma, Smith.

Mr. Viereck sent a Corvallis, Oregon, example of this remarkable species, and it was the same as the type. The type has the first recurrent nervure joining submarginal cell some distance basad of the middle.

Andrena vicina, Smith.

A specimen from Philadelphia, Pa. (Viereck), of the species recognized as *vicina* in America, agreed with Smith's type.

Andrena nivalis, Smith.

A Milwaukee, Wis., specimen, sent as "*nivalis*!" by Mr. Viereck, proved to be Smith's species. In the type the longitudinal ridge on the clypeus was more prominent than in the Wisconsin specimen.

Andrena cerulea, Smith.

Compared with *Palandrena crypta*, Viereck, this was found to be very closely allied; they have just the same color and sculpture, and the same reddish, narrow, short facial fovea. *A. cerulea* is larger, and has the scopa of hind tibiae dark brownish-grey, a good deal of long, erect, black hair on face, and some black hair at sides of mesothorax.

Andrena nubecula, Smith.

Compared with a Milwaukee specimen, and found the same; the species is well known. The type has lighter tegulae than the Wisconsin example.

Andrena fimbriata, Smith.

Expanse of wings 20 mm. A specimen sent by Mr. Viereck is correctly named; the type is rather smaller, and has the first recurrent nervure joining second submarginal cell nearer its end. *A. fimbriata* is a homonym, and Dalla Torre changed it to *americana*; but Mr. Viereck finds that it is *hirticincta*, Provancher, and this name has priority.

Andrena fulvipennis, Smith.

I could not find a specimen of this in the collection.

Andrena flavoclypeata, Smith.

♂. This is generally understood to be *bipunctata*, Cresson, and the type runs to that species in Robertson's tables. Compared with a specimen of *bipunctata*, the type of *flavoclypeata* differs by being a little smaller, with the flagellum light reddish beneath except at base. The clypeus is a sort of pale orange, instead of a clear lemon yellow, but this may be due to cyanide. The tarsi are decidedly reddish.

Andrena perplexa, Smith.

Compared with a *Corvallis*, Oregon, example, sent by Mr. Viereck, the type differed by the bright orange-red hair on scutellum, and pubescence in general brighter; but they appeared to be the same species.

Andrena candida, Smith.

The type (Vancouver I., *Dr. Lyall*) was compared with a *Corvallis*, Oregon, specimen sent by Mr. Viereck, and found to be apparently the same species, but with rather strong varietal differences: —

Type.

Stigma dark red.
Abdomen strongly blue.
Facial foveæ dark chocolate color,
very handsome.

Corvallis specimen.

Stigma pale amber.
Abdomen greenish.
Facial foveæ less conspicuous

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