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Descriptions and Records of Bees - LXXIV

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XXV. - Descriptions and Records of Bees. - LXXIV.

its whole length; in *A. fuscus* the terminal part of the under surface is brown.

Skull apparently somewhat smaller than in *A. fuscus*, but the age of the type is not very certainly determinable. Anterior part narrower, the breadth between the outer corners of the anteorbital foramina and the interorbital breadth both distinctly less.

Incisors very stout and heavy, decidedly thicker than in specimens of *A. fuscus* of apparently similar age.

Dimensions of the type:—

Tail (vertebræ in skin) 64; hind foot (dry) 28.

Skull: tip of nasals to back of frontals 28.5; greatest breadth 23; nasals 15 × 6.3; interorbital breadth 7.5; breadth between outer corners of anteorbital foramina 17.6; palatilar length 16.2; front of incisors to back of m^2 21.5; upper tooth-row (crowns) 8.4; combined breadth of upper incisors 4.7.

Hab. Osorno, S. Chili.

Type. Adult. B.M. no. 16. 11. 14. 4. Presented by Don Carlos E. Porter to Mr. J. A. Wolffsohn.

The British Museum contains eleven specimens of *Aconemys fuscus*, received at different dates from Mr. T. Bridges, but whether all were from the "Valle de Las Cuevas, on the east side of the Andes, near the Volcano of Peteroa, altitude 6000'," where Mr. Bridges discovered the species, there is, unfortunately, no evidence to show. But all agree in the characters used above in separating the southern form, which is probably an inhabitant of the high slopes on the Volcano of Osorno, some little distance from the town of the same name.

Since the time of Mr. Bridges no examples of this genus have come to the British Museum, nor has our indefatigable correspondent Mr. Wolffsohn been able to see or hear of any. Consequently this additional specimen, representing a second and more southern species of the genus, is an extremely welcome accession.

XXV.—*Descriptions and Records of Bees.*—LXXIV.

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

ALL the bees recorded in the present part are in the U.S. National Museum.

Andrena lugubrescens, n. n.

Andrena lugubris, Lepeletier, 1841 (not Erichson, 1840).

♂.—Belvidere, Tunis, May 10, 1899 (*P. Magretti*).

This is like the male of *A. albopunctata*, Rossi, but has the abdomen shining, irregularly wrinkled, and with scattered minute piliferous punctures, so it is doubtless the male of *A. lugubris*, described by Lepeletier from the female only.

Length about 12 mm.

Process of labrum prominent, shining, truncate, slightly emarginate; first recurrent nervure joining second submarginal cell distinctly before the middle.

The name *lugubris* is preoccupied, so *lugubrescens* is proposed as a substitute.

Andrena cussariensis, Morawitz.

♀.—Kohat, N.W. Provinces, India, March 1906 (*Frank Benton*).

Superficially this looks like *A. morio*, which Bingham records from the Simla hills; but it is certainly distinct from *morio*, and, as far as can be gathered from Morawitz's quite full description, agrees well with *cussariensis*. The abdomen has very fine punctures, and the process of labrum is much narrower than in *morio*. The species is more closely allied to *A. ephippium*.

Andrena cussariensis kohatensis, var. nov.

♀.—Length about 14.5 mm.

Scutellum and broad bands at sides of mesothorax terracotta red.

Hab. Kohat, India, March 1906 (*Frank Benton*).

This variety suggests comparison with *A. ephippium*, Spin., to which it is closely allied. It differs from *ephippium* by the narrower thorax, the scutellum much narrower, and less closely punctured on disc; the flagellum only very obscurely reddish beneath, the shorter fourth antennal joint, the less strongly sculptured area of metathorax, and the broad hind margin of first abdominal segment excessively finely punctured, abruptly contrasting with the rest of the segment. The hair of hind legs is entirely black.

Should comparison of specimens indicate that this species is to be separated from *A. cussariensis*, it may be known as *A. kohatensis*.

Andrena chionospila, sp. n.

♀.—Superficially exactly like *A. albopunctata*, Rossi (specimen from Ras-el-Ma, Algeria, compared), but differing thus:—Antennæ shorter; process of labrum, although very

broad, not so broad; area of metathorax smaller, less rugose; punctures of abdomen conspicuously more feeble and less dense; white hair-patches at sides of abdomen larger.

♂.—Very like the female, except in the usual sexual characters; head very broad; region of mouth, sides of face, and region of antennæ with long black hair, but face otherwise with long white hair, which is dull, not clear white as in ♀; cheeks broad, with black hair; abdomen less distinctly punctured.

Hab. Menserah, N.W. Provinces, India, March 1906
(*Frank Benton*).

Perhaps a subspecies of *A. albopunctata*.

Andrena subspinigera, sp. n.

♀.—Length about 11 mm.

Head, thorax, and legs black; abdomen with the first three segments clear ferruginous (the first with a broad transverse black band, the third with an interrupted suffused dark band beyond the middle), the others black, the third and fourth with heavy fringes of pure white hair, the second with a thin inconspicuous fringe, the caudal fimbria brownish black. Hair of head and thorax white, with a slight creamy tint on thorax above; facial foveæ rather narrow, seen from above shining white, with the upper end brown; facial quadrangle broader than long; process of labrum broad and obtuse, with sloping sides; clypeus dull except at sides, with sparse punctures; flagellum bright ferruginous beneath except at base; third antennal joint almost as long as next three together; mesothorax and scutellum dull, without well-defined punctures, the long hair not concealing the surface; area of metathorax dull, minutely granular, scarcely defined; tegulæ pale yellowish testaceous. Wings strongly reddened, stigma and nervures rufo-fuscous; b. n. meeting t.-m.; second s.m. large, receiving first r. n. considerably beyond middle. Scopa of hind tibiæ compact, fuscous behind (above), white in front; basitarsi broad and flat. Abdomen dull, minutely granular, without any evident punctures.

Hab. Menserah, N.W. Provinces, India, March 1906
(*Frank Benton*). On some labels the locality is written "Manserah," on others "Menserah."

This species is very like *A. spinigera*, Kirby, from Quetta, but differs by the flagellum red beneath, the dusky reddish wings, the dull abdomen, &c.

Andrena quettensis, sp. n.

♂.—Length about 9 mm.

Black, the hind tarsi, apical half of middle tarsi, broad apical band on first abdominal segment, and second segment except a spot on each side and a dusky cloud in middle (or only the apical margin and a broad semilunar area on each side basally) all ferruginous red. Head broad, facial quadrangle much broader than long; mandibles rather short, red at end; process of labrum broadly emarginate; no light face-marks; clypeus dull and granular; face and front covered with long sooty hair, paler and reddish about middle of face, becoming black around margins; occiput and lower part of cheeks with long pale fulvous hair; cheeks broad, but rounded behind; antennæ long, reaching metathorax; flagellum thick, crenulate, entirely dark; mesothorax and scutellum dull; area of metathorax triangular, coarsely wrinkled, poorly defined; hair of thorax long and fulvous; tegulæ fuscous, the outer margin paler. Wings long, reddish hyaline, stigma and nervures amber-colour; second s.m. receiving first r.n. well beyond middle. Legs with pale hair, golden on inner side of tarsi. Abdomen shining, the dark segments beyond the middle with a very slight, hardly observable, greenish tint; segments with very thin bands of long pale hair; apical plate broadly emarginate.

Hab. Quetta, India, March 1906 (*Frank Benton*).

This does not agree with any of the species reported by Nurse from Quetta; the nearest is *A. balucha*, Nurse, which has more red on the abdomen and much paler hair on head. It is just possible that *A. quettensis* represents an extreme colour-variation of *A. balucha*, but it seems to be quite distinct. In Apidæ Europææ *A. quettensis* runs to *A. cingulata* and *A. laticeps*, but differs at once by the colour of hair on head. *A. balucha*, which I have examined in U.S. National Museum, has the area of metathorax of the *Trach-andrena* type.

Andrena bentoni, sp. n.

♀.—Length about 9 mm.

Black, including legs and abdomen; hair of head and thorax abundant, erect, but not hiding surface, very pale greyish ochreous, black on vertex; facial quadrangle considerably broader than long; clypeus shining, strongly and closely punctured, without any distinct smooth line; mandibles red apically; process of labrum broadly truncate;

facial foveæ reddish brown, separated from eye by a distinct punctured band; flagellum obscure brownish beneath except at base; third antennal joint about as long as next three together; fourth and fifth short and about equal, sixth longer; mesothorax dull, closely and distinctly punctured; scutellum shining; area of metathorax granular, minutely plicate at extreme base; tegulae fuscous, posteriorly ferruginous. Wings strongly reddened, stigma and nervures ferruginous; second s.m. receiving first r. n. in middle. Legs with pale hair, scopa of hind tibiae dense, entirely pale golden fulvous. Abdomen broad and flattish, glistening, very finely and closely punctured, second segment depressed hardly one-fourth; hind margins of segments 2 to 5 with rather weakly developed white hair-bands; apical fimbria dark chocolate.

Hab. Menserah, N.W. Provinces, India, March 1906 (*Frank Benton*).

In Apidae Europæ *A. bentoni* appears to fall nearest to *A. propinqua* and *A. separanda*, but the hair of thorax is quite differently coloured. There is no close resemblance to any of the Indian species.

Andrena præcocella, sp. n.

♂.—Length 7.5–8.5 mm.

Black, with long black and white hair. Very close to *A. præcox*, Scop., but differing thus:—Hind margins of second and third abdominal segments more or less brown or red; mandibles with no basal tooth beneath; head equally broad, but longer; upper part of cheeks punctured; light hair of thorax above white (not yellowish); fourth and fifth abdominal segments with thin white hair-bands; apical plate of abdomen emarginate, shaped like a fish-tail.

Compared with the Japanese *A. præcoiformis*, Ckll., it differs by the large amount of black hair at sides of face, the cheeks strongly angled behind, the black hair on metathorax, &c.

Hab. Quetta, India, March 1906, 5 ♂ (*Frank Benton*).

The females of this group are very unlike the males, so I thought it possible that Nurse might have described the species from Quetta in the female sex. There is, however, no description which seems possibly applicable. In *A. præcocella* the fourth antennal joint is about 256 microns long, the fifth 320. The mandibles are long and falciform.

Apis florea nasicana, Cockerell.

Kohat, N.W. Provinces, India, March 1906 (*Frank Benton*).

Tetralonia pomona (Nurse).

Both sexes; Quetta, India, March 1906 (*Frank Benton*).

Tetralonia kohatensis, sp. n.

♂.—Length 8.5–10 mm.; antennæ about 6.5 mm.

Black, with the small joints of tarsi ferruginous; clypeus, labrum, and basal half of mandibles clear sulphur-yellow; mandibles red in middle and black apically; antennæ long and slender, bright ferruginous beyond the third joint, the upper side dusky; third antennal joint much longer than its apical width, dark fuscous, abruptly contrasting with fourth; eyes green; maxillary palpi rather short, but six-jointed; head and thorax above, as well as front and upper part of face, with long pale fulvous hair, cheeks and underside of thorax with white hair; disc of mesothorax shining; tegulæ light reddish fulvous. Wings clear, faintly brownish in apical field; stigma and nervures reddish fuscous; first r. n. meeting second t.-c. or falling a little short of it; marginal cell obliquely truncate. Outer side of tibiae with dense white hair; tarsi with ferruginous hair on inner side; spurs creamy white. Abdomen shining, with piliferous punctures; apical margin of segments broadly pallid, covered with dense bands of pale ochreous tomentum, of equal width right across, the band on first segment narrow; no definable basal bands; lateral margins of sixth segment briefly dentate.

Hab. Kohat, N.W. Provinces, India, 4 ♂, March 1906 (*Frank Benton*).

Related to *T. erythroceræ*, Cam., but easily separated by the fulvous hair. Superficially the insect is exactly like *Tetraloniella aliena*, Ckll.

Anthophora connexiformis, sp. n.

♂.—Length about 14 mm.

Robust; black, including legs and antennæ (except a very small cream-coloured line on scape), with a short linear creamy mark on each orbital margin below level of antennæ, and a large cream-coloured area on clypeus, broad below, narrowed to a band above (inverse goblet-shaped), but labrum and mandibles wholly black; eyes bright ochreous; facial quadrangle much longer than broad; mandibles with a large rounded tooth on inner side; malar space well developed; third antennal joint fully as long as next three united, the fourth very short; clypeus, labrum, cheeks (except upper part anteriorly), and occiput densely covered

with very long pure white hair; front, vertex, sides of face, and upper part of cheeks anteriorly with black hair; thorax with very long hair, mixed grey and white, dark on scutellum, shining white on mesopleura; tegulae black, very hairy. Wings hyaline. Legs slender, with long black and white hair, dark chocolate on inner side of tarsi; apical joint of middle tarsi with no noticeable fringe; hind basitarsus long and broadened. Abdomen not banded or spotted, but with a profusion of long erect hair, which is mostly greyish white, but black on discs of fourth and following segments, though white and very long at sides.

Hab. Quetta, India, March 1906 (*Frank Benton*).

Closely allied to *A. connexa* (Nurse), also from Quetta; but according to Nurse's description *connexa* has the clypeus all yellow, the apical tarsal joints more or less rufo-testaceous, the blackish hair of abdomen confined to the apical two segments, and the front with white hair. It thus seems probable that our insect is a distinct species, though it may be only a variety. There is a pencil of white hair on each side of front, a little above level of antennae. The general appearance of the insect is very like that of *Tetralonia pomona*.

Anthophora (Micranthophora) albopicta, sp. n.

♀.—Length about 11 mm., anterior wing 8 mm.

Black, including the legs and antennae, but mandibles ferruginous with the lower basal corner broadly black; labrum black, with a very broad white band down the middle; clypeus with a large apical white triangle, attenuated above, this on a light ferruginous field, which extends as a band to upper margin, but the upper half of clypeus black except in middle; eyes greyish ochreous, converging below; the front very broad; flagellum very obscurely reddish beneath; third antennal joint about 640 microns long, the next three together about 735; maxillary palpi with stout bristles, except on the last two joints; third joint of labial palpi 560 microns from base to origin of fourth joint; pubescence very pale ochreous, nearly white, long on head and thorax; on head and thorax above with black hairs intermixed; mesothorax extremely densely punctured; tegulae piceous. Wings hyaline, with a very faint brownish tint. Legs with creamy white hair, rusty black on inner side of hind tibiae and tarsi, anterior and middle tibiae with a small patch of ferruginous hair at apex. Abdomen broad,

hind margins of segments whitish hyaline; whole surface of dorsal segments rather thinly covered with appressed pale hair, not forming bands; apex with a patch of black hair; apical plate very long and narrow.

Hab. Kotal Malul, S. Persia, Feb. 1906 (*Frank Benton*).

A typical *Micranthophora*, looking just like the Californian *A. anstrutheri*, Ckll., though differing in the face-markings and many other details. It is also related to the Indian *A. candida*, Sm., but the pubescence of the abdomen in that species is much more dense, the face-markings are different, and the flagellum is red beneath.

Anthophora cincta (Fabricius).

Axim, Gold Coast, Africa (*C. R. Mengel*).

Anthophora antimena, Saussure.

Mahanoro, Madagascar, May 5, 1895 (*W. L. Abbott*).

Anthophora acraensis (Fabricius).

Luebo, Congo (*D. W. Snyder*).

Anthophora flavicollis, Gerstaecker.

Axim, Gold Coast, Africa (*C. R. Mengel*).

Anthophora leucorhina, sp. n.

♂ (type).—Length about 15 mm.

Black, including flagellum and legs, except the reddish apical joint of tarsi; face-marks creamy white, including clypeus, labrum (except large black spot at each basal corner, and black apical margin), elongate spot on base of mandibles, narrow stripe along each anterior orbit (beginning at about level of antennæ, but not reaching lower corner of face), and anterior surface of scape; clypeus prominent, convex; third antennal joint about as long as next three combined; face and cheeks with long pure white hair, occiput with yellowish, vertex and front with black hair, but some white on each side of antennæ, and some long black hairs at sides of face; malar space well developed; thorax with abundant long hair, pale greyish-yellow above and on upper part of sides,

black on anterior part of scutellum, and white on lower part of pleura; mesothorax dull, slightly shining on disc; tegulae piceous. Wings hyaline, very faintly brownish apically. Legs with long white hair; middle tarsi not modified, nor with any black fringe on last joint; hind basitarsi not toothed. Abdomen shining, with piliferous punctures, the surface covered with long hair, pale greyish-yellow on first two segments, black on the others, but hind margins of segments 2 to 4 with loose bands of white hair; venter with long white hair.

♀.—Length about 16 mm.

Tongue very long; no pale face-marks, but a red tubercle on each side of base of labrum, and malar space red; hair of front pale; disc of mesothorax and anterior part of scutellum with some dark hair, not conspicuous; tegulae rufo-testaceous; patches of fulvous hair at apices of anterior and middle tibiae and on hind knees; hair on inner side of hind tibiae (except base) black, on inner side of hind tarsi largely red, in some lights appearing rich fox-red with black margin; abdomen with broad pale hair-bands on segments 2 to 4; apex with black hair; apical plate long and narrow; venter with white fringe on segments 2 to 4, but dense black hair on apex of 5.

Hab. Kotal Malul, S. Persia, Feb. 1906 (*Frank Benton*), 2 ♂, 1 ♀.

Resembles *A. cinerea* (Fries), from Sarepta, but is considerably larger. There is a general resemblance to *A. crinipes*, Sm., but the middle tarsi are not modified as in that species, and *crinipes* has a linear malar space. By the white face-marks and prominent clypeus the male resembles *A. dives*, Dours, of which I have a specimen marked "cotype" from Gribodo, but the legs are entirely different. Fries makes *dives* a synonym of *A. dufourii*, Lep., but it is possibly separable, the male (at least) having no metallic colour on abdomen, the middle tarsal joints of middle leg longer and slenderer than in Fries's figure, and the brush on last joint wider. They agree, however, in the remarkable hind basitarsi.

Osmia (Ceratosmia) baluchá, Nurse.

Quetta, India, March 1906 (*Benton*).

The male has the middle femora strongly produced and angulate beneath, but the hind basitarsi are not dentate.

BIBLIOGRAPHICAL NOTICE.

Catalogue of the Lepidoptera Phalaenæ. Supplement, Vol. I.
London: the Trustees of the British Museum. 1914-15.

SINCE the publication of the first two volumes of the 'Catalogue of Moths' a formidable number of species in the families therein included have since been described. Hence it became necessary to prepare a supplement in order that the subject-matter of these volumes might be brought up to date. The present volume, with a smaller containing the plates, represents the first instalment of that supplement.

Some idea of the number of species which have been added to the lists may be gathered from Dr. Gahan's Preface to Sir George Hampson's work. Thus, the family *Amatidæ* in vol. i. contained 169 genera and 1184 species, to which are now added 16 genera and 945 species. The family *Nolinæ* in vol. ii. had 13 genera and 162 species, to which are added 1 genus and 116 species; while the *Lithosiænæ* in vol. ii. had 244 genera and 1055 species, to which are added in this Supplement 73 genera and 880 species! A supplementary volume to vol. iii. is in progress.

Whether all the species recognized in this Catalogue are really "good species" is evidently a matter for debate, since the author, in this Supplement, frequently admits of this or that new species that it is "very possibly" the male or female, or even a "variety," of some other specific form.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

December 6th, 1916.—Dr. Alfred Harker, F.R.S., President,
in the Chair.

Mr. G. C. CRICK, A.R.S.M., F.G.S., gave an account of some recent researches on the belemnite animal. He stated that it was not his intention to deal that evening with the homologies of the belemnite shell or with the phylogeny of the belemnite group, but to confine himself to the restoration of a typical belemnite animal and its shell, as shown particularly by examples in the British-Museum collection.

He first demonstrated, by means of a rough model, the construction of the belemnite shell, including the guard or rostrum, the phragmocone with its ventrally-situated siphuncle, and its thin envelope the conotheca, with its forward prolongation and expansion (on the dorsal side) known as the pro-ostracum. He then