

smaller size the skull cannot be distinguished from that of *M. a. neglectus*; it differs quite strikingly from the skull of *mial* in its smaller size, relatively greater zygomatic breadth, broader brain-case, and longer basioccipital (17.3 % of condylo-basal length). For the cranial dimensions see table on p. 367.

Remarks. This mouse is apparently a dwarfed insular development of *M. a. neglectus*, the form inhabiting the Scottish mainland. The presence of such an animal on Muck is the more interesting when we recall that on Eigg, as on Skye, Mull, Jura, Islay, Gigha, and Arran the grass-mice are either identical with *exsul* or more nearly related to it than to *neglectus*. It seems probable that Eigg and Muck have been separated from each other for a very long time and that Muck has been joined with the mainland at a more recent date than that of the severance of most of the other islands.

XLIII.—*Descriptions and Records of Bees.*—LIV.

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

Megachile vincta, Vachal.

Two females from Guayaquil, Ecuador (*Buchwald*; Alfken coll. 1). Previously known only from Arica, Chili. In one the abdomen shows distinct green tints. The ventral scopa is clear white, with a little black hair at extreme apex.

Megachile pyrrhogastra, sp. n.

♀.—Length about $12\frac{1}{2}$ mm.

Robust; head and thorax black, with long pale ochreous hair; abdomen bright ferruginous, the first segment above with ochreous hair, second to fifth with rather broad, entire, orange-fulvous hair-bands; ventral scopa white, scanty and fulvous on last segment; extreme sides of third and following segments with black hair, long and conspicuous, invading the scopa, on the fourth. Wings strongly reddish, with an orange tint. Legs black, the femora more or less stained with red. Mandibles broad, quadridentate; clypeus shining, strongly punctured, the lower margin with two tubercles close together; antennæ chestnut-red, dusky above; mesothorax granular from very dense minute punctures; tegulæ

ferruginous; hair of legs pale, ferruginous on inner side of the broad hind tarsi; spurs very pale reddish; apical tarsal joints ferruginous; claws simple; last dorsal abdominal segment straight in profile, with very fine and short appressed ochraceous hair, and some longer hairs; a few black hairs before the orange band on fifth segment.

Hab. Guayaquil, Ecuador (*Buchwald*; Alfken coll. 3).

Resembles *M. pulchra*, Smith, but differs in the colour of the legs and abdominal bands.

Megachile pyrrhotricha, sp. n.

♀.—Length about $12\frac{1}{2}$ mm.

Robust; black, with the hind tarsi and small joints of the other tarsi rather obscure red. Wings rather dilute fuliginous; ventral scopa bright fox-red. Head broad; mandibles quadridentate; clypeus shining, strongly punctured, with a delicate median raised line, lower margin practically straight; cheeks and sides of face and front with conspicuous long white hair, vertex with black hair; antennæ dark; mesothorax dull in front, but otherwise shining, with scattered punctures of different sizes, none large; middle of scutellum smooth and shining; a very little black hair on thorax above, but an erect tuft on tubercles; margins of mesothorax (including band in scutello-mesothoracic suture), and all of metathorax and pleuræ with creamy-white hair; tegulæ piceous. Legs with pale hair, fox-red on inner side of hind tarsi; spurs very pale reddish; claws with a sub-basal tooth. Abdomen shining, finely punctured, with a faint greenish tint; first segment above with creamy-white hair, the others with pale fulvous hair-bands, more or less interrupted on the second; segments between the bands with scanty short black hair; last dorsal segment straight in profile, with very minute appressed fulvous hairs, and black bristles laterally.

Hab. Guayaquil, Ecuador, 2 ♀ (*Buchwald*; Alfken coll. 2).

Not unlike *M. chrysophila*, Ckll., but sculpture of scutellum wholly different.

Megachile perochracea, sp. n.

♀.—Length about 10 mm.

Robust; black, including the tarsi, mandibles obscurely reddish; hair of head and thorax above bright ochreous mixed with fuscous; hair of face (mixed with black on

clypeus), cheeks, pleuræ, and metathorax pale ochreous, becoming white on underside of thorax; first abdominal segment above with fulvous hair, brighter than the ochreous bands on the second to fifth segments; sides of third and following segments with long black hair; ventral scopa creamy white, with black hair only at extreme sides; tegulæ reddish ochraceous, with a fuscous spot. Wings dusky. Head very broad; mandibles obscurely quadridentate; clypeus shining, well punctured, with a median ridge, the lower margin gently concave in the middle; antennæ dark; mesothorax and scutellum dull, densely granular-punctate; a broad fulvous hair-band in scutello-mesothoracic suture. Legs with pale hair, ferruginous on inner side of tarsi; hind basitarsi broad; claws simple; black hair between the abdominal bands extremely short; left dorsal segment in profile slightly concave, with short ochraceous tomentum and small dark bristles.

Hab. Guayaquil, Ecuador, 3 ♀ (*Buchwald*; Alfken coll. 5).

Very like *M. permunda*, Ckll., only known in the male, but that Brazilian species has red legs. It is superficially rather like *M. lenticula*, Vach., but the sculpture of the mesothorax is entirely different.

Megachile portalis, sp. n.

♀.—Length a little over 10 mm.

Robust; black, with the dorsal hair cream-coloured or very pale ochreous and black, the other hair white; abdominal bands very narrow, entire; black hair at sides of abdomen, but ventral scopa white, black on last segment except basally. Wings strongly dusky; tegulæ piceous. Eyes converging below; clypeus densely punctured, lower margin gently concave in middle. Antennæ slender, flagellum obscure reddish beneath; face and cheeks with white hair (thin on clypeus), vertex with black; mesothorax and scutellum dull, densely and finely punctured; a pale hair-band in scutello-mesothoracic suture. Legs with pale hair, ferruginous on inner side of tarsi; claws simple; last dorsal segment straight in profile, with appressed ochreous tomentum and small black bristles.

Hab. Guayaquil, Ecuador, 2 ♀ (*Buchwald*; Alfken coll. 4).

Close to *M. perochracea*, but the pubescence is differently coloured and the clypeus has no median ridge.

The following table will readily separate the above species :—

Abdomen red	<i>pyrrhogastra</i> , Ckll.
Abdomen dark	1.
1. Ventral scopa red	<i>pyrrhotricha</i> , Ckll.
Ventral scopa not red	2.
2. Thorax above with hair all black	<i>vineta</i> , Vachal.
Thorax above with hair not all black	3.
3. First abdominal segment with bright ochreous or fulvous hair; clypeus with a median ridge..	<i>perochracea</i> , Ckll.
Without these characters	<i>portalis</i> , Ckll.

Megachile kashgarensis, sp. n.

♀.—Length $13\frac{1}{2}$ mm.

Very robust; black, with ochreous pubescence; vertex and discs of mesothorax and scutellum with dark chocolate-coloured hair; head as broad as thorax; antennæ dark; mandibles with the long cutting-edge very oblique, with four well-defined subequal teeth; clypeus coarsely and extremely densely punctured, with a shining median line, lower margin straight, faintly trituberculate; face with abundant pale ochraceous hair; mesothorax with the sides densely rugosopunctate, but the disc shining, with large well-separated punctures; scutellum densely punctured; no conspicuous hair-bands on thorax; tegulæ piceous, with broad pale rufous margins. Wings hyaline, slightly dusky; b. n. falling short of t. m. Legs black, with pale hair, ferruginous on inner side of tarsi; hind basitarsi broad; anterior tibiæ with a fringe of long hair behind. Abdomen hairy and with narrow, well-defined, entire bands on all the segments except the last; second to fourth segments with ochreous hair covering part before the bands, but fifth and sixth segments show black hair, and fourth a little black just before the band; apical segment in profile a little concave, with black and pale erect hair; ventral scopa pale fulvous, white at base, not at all black at apex.

Hab. Kashgar, Chinese Turkestan, Aug. 27, 1893 (*W. L. Abbott*). U.S. National Museum.

Very similar to *M. lagopoda* (L.), but with much less black hair on the apical part of the abdomen, and thicker, more conspicuous abdominal bands. The hind basitarsus is considerably broader in *M. lagopoda*. Judging from the description, *M. rescinda*, Smith, may also be similar, but it is said to have tridentate mandibles, and no dark hair is mentioned on head and thorax above. *M. kashgarensis* may,

perhaps, be a desert subspecies of *lagopoda*; it certainly differs from the three species of the *lagopoda* group described by Morawitz.

Melipona orbigny, Guér.

Strand (Zool. Jahrb. 1910, p. 556) has discussed this species, indicating the confusion which has arisen regarding it. I have a male, which appears to be quite correctly determined, from F. Smith's collection. I have also before me two workers from Rosario, Argentina (Alfken coll. 33); they differ from the male by the black clypeus, with a little reddish around the edges, and the black hair of vertex, cheeks, and legs. These workers are easily distinguished from those of *M. quinquefasciata*, Lep., from Asuncion, Paraguay (*Schrottky*), by the black hair just mentioned, the lack of a clypeal stripe and of lateral face-marks, and the very broadly interrupted band on first abdominal segment.

Mesocheira bicolor (Fabr.).

Three from Guayaquil, Ecuador (*v. Buchwald*; Alfken coll. 11), represent a variety with the abdomen green, varying from yellowish green to peacock-green. The variety *elizabethæ*, Ckll., from the mountains of Ecuador, is not precisely the same, but I now doubt whether it represents a distinct geographical race.

Mesoplia decorata (Smith).

Guayaquil, Ecuador (*v. Buchwald*; Alfken coll. 34). Described from Brazil.

Triepeolus buchwaldi (Frieese).

Guayaquil, Ecuador, 1 ♂, 1 ♀ (*v. Buchwald*; Alfken coll. 12).

The *Epeolus buchwaldi*, Frieese, is a typical member of the North-American genus *Triepeolus*. It is very similar to *T. sublunatus*, Ckll.

Crocisa lamprosoma, Boisduval.

New South Wales (Nat. Mus. Victoria, 119): "presented by B. F. Hill, Windsor, 12. 97" (Nat. Mus. Vict. 120).

I am not quite sure whether the specimen last cited was collected at Windsor or not; some of the labels from the Victorian Museum seem to refer to the residence of the

donor and the date of the donation, confusing information of no scientific value. I also learn from Mr. Froggatt that there may be doubt about some of the localities of the bees he received from Melbourn, many of which I have recorded, crediting their capture to Mr. French. Mr. Froggatt ascertained that the bees were bought from a collector "who named them where he pinned them, so the localities, unless verified, are not reliable." In future, when I have occasion to refer to bees of this lot, I shall cite the data on the labels, but within quotation marks.

Crocisa waroonensis, Cockerell.

Waroon, W.A. (*G. F. Berthoud*).

Marked nearly as in *lamprosoma*, but all the markings white; anterior part of mesothorax with long white hair; wings with a little more than the basal half clear hyaline, the apical half fuscous, with the usual spots.

Parasphecodes excultus, Cockerell.

Magnet, Tasmania (*Lea*).

Female not unlike *P. speculiferus*, Ckll., but tegulæ rufous; posterior disc of mesothorax shining, with well-separated punctures; area of metathorax much shorter; abdomen with only segments 2 and 3 and apical half of first red.

Paracolletes leai, Cockerell.

Ulverstone, Tasmania (*Lea*).

Female about $11\frac{1}{2}$ mm. long, rather slender; shining black; clypeus strongly punctured and with a median ridge; mesothorax sparsely punctured; hind tibial scopa large, creamy white, stained with fuscous behind.

Full descriptions of the above three species will be found in Proc. Linn. Soc. New South Wales.

Anthoglossa hackeri, sp. n.

♀.—Length 14 mm.

Robust; black, the hind margins of abdominal segments with the tegument broadly shining orange-golden; wings strongly dusky; antennæ and legs black. Head very broad; clypeus shining, with strong scattered punctures; hair of head and thorax white on sides and below, white also on face and occiput, but dark sooty on vertex and dorsum of thorax, also just below wings, and on upper part of sides of metathorax; mesothorax and scutellum dull; b.n. falling

short of t.-m.; second s.m. very broad, receiving first r. n. in middle; tegulæ black; hair of femora white, of tibiæ and tarsi black; on inner side of anterior tarsi the hair is ferruginous; abdomen, except for the bands, dull and black, with no punctures and no distinct hair-bands; caudal fimbria dark sooty; ventral segments fringed with white hair.

Hab. Tambourine Mountain, Queensland, Oct. 27, 1912 (*H. Hacker*). Queensl. Museum 76.

A very beautiful species, structurally like *A. aureotincta*, Ckll., but differing by the absence of a band on first abdominal segment, the dark hair of upper part of head, and the dusky wings.

Trichocolletes venustus (Smith).

Oakleigh, 1894 (*B. F. Hill*; Nat. Mus. Vict. 110).

Paracolletes megachalceus, sp. n.

♀.—Length about 14 mm.

Robust; head and thorax black, densely hairy; abdomen brassy green, the hind margins of second and following segments broadly pale reddish; postscutellum with a median tubercle. Wings dusky hyaline, nervures ferruginous, b. n. falling just short of t.-m.; second s.m. broad, receiving first r. n. some distance before middle; third s.m. receiving second r. n. very near end. Head very broad; clypeus shining, strongly punctured; flagellum red at apex and far toward base beneath; hair of face, cheeks, pleura, and occiput dull white, of front pale fulvous, of vertex purplish fuscous, of thorax above (also just below wings) dense and very bright rufo-fulvous; disc of mesothorax shining, with scattered punctures, but in front the mesothorax is more closely punctured; tegulæ bright orange-ferruginous. Legs red, more or less clouded with dusky, their hair mainly pale, but fuscous on outer side of middle and hind tibiæ and tarsi; hind tibial scopa very large and loose, beautifully plumose, anteriorly white, fuscous behind, the tibia on inner side with appressed light fulvous hair. Abdomen with much fulvous hair, but no hair-bands; hair of fifth segment bright red, but of sixth more sooty; venter with cream-coloured hair.

Hab. Clarence River, New South Wales (*Wilson*; Nat. Mus. Vict. 124).

A very fine species, structurally related to *P. dentiger*, Ckll., but larger, more robust, and quite differently coloured.

Paracolletes fimbriatus, Cockerell.

Two males from Victoria Museum ; New South Wales (123) and no locality (112).

Paracolletes megadontus, sp. n.

♀.—Length 10 mm.

Head, thorax, and abdomen steel-blue, with greenish tints, strongly punctured ; postscutellum with a very prominent tooth ; antennæ dark, flagellum reddish at end ; pubescence black and white ; caudal fimbria dense and black, but a tuft of white hair on each side of abdomen subapically. Wings dusky hyaline ; sides of front with very strongly marked black foveal depressions, which at the upper end almost touch lateral ocelli.

Very near to *P. dentiger*, Ckll., differing as follows:—Smaller ; the thin hair of clypeus white ; area of metathorax smooth and shining, without transverse striæ ; second s.m. receiving first r. n. before the middle, but not near base ; third s.m. receiving second r. n. much nearer apex ; hind legs not metallic ; hair on outer side of tarsi and of middle tibiæ black, also black on inner side of tarsi ; hind tibial scopa bicoloured, white and black ; abdomen shining and finely punctured.

Also very close to *P. cæruleotinctus*, Ckll., which is known only in the male ; but from the entirely different colour of hair of head and thorax and the prominent postscutellar spine (male *cæruleotinctus* has a slight prominence, not amounting to a tooth or spine), as well as the darker venation, it can hardly be the opposite sex of that species.

Hab. Calowadra, Queensland, Oct. 30, 1912 (*H. Hacker* ; Queensl. Mus. 81).

Andrena (Trachandrena) prunicola, sp. n.

♀.—Length 10 mm.

Black, with greyish-white pubescence ; hind tibiæ and tarsi clear ferruginous ; middle tarsi dark reddish ; facial quadrangle a little broader than long ; process of labrum broad, truncate ; clypeus shining, strongly and closely punctured, without a smooth line ; facial foveæ brownish white, rather narrow, tapering below to a point about level with middle of supraclypeal area, not widely separated from eye ; supraclypeal area densely punctured, the punctures much smaller than those of clypeus ; flagellum obscurely reddish beneath toward end ; third antennal joint a little

shorter than next two combined ; mesothorax shining, with strong scattered punctures ; mesopleura dull, strongly and closely punctured ; area of metathorax semilunar, sharply defined behind, with fine weak ridges, the sculpture unusually fine for a *Trachandrena* ; tegulæ dark reddish. Wings reddish hyaline ; nervures and the large stigma chestnut-red ; b. n. meeting t.-m., second s. m. receiving first r. n. beyond middle. Hair of legs pale ; scape of hind tibia rather small, white. Abdomen shining, strongly punctured, second segment in middle depressed a little less than half ; white hair-bands at sides of second segment, on third except in middle, and right across fourth ; hair at apex of abdomen pale fulvous.

Hab. Beulah, New Mexico (Canadian Zone), at flowers of wild plum, May 30 (*Wilmatte Porter*).

On account of the weak sculpture of the metathoracic area this resembles *A. radiatula*, Ckll., but that species has the second abdominal segment depressed more than half, and the hind tibiæ and tarsi are not ferruginous.

Andrena argentinæ, var. *trichomelæna*, v. n.

♂.—Hair of face entirely black ; of cheeks, legs, and sides and venter of abdomen mainly black or sooty.

♀.—Hair of face entirely black.

Hab. Florissant, Colorado, 2 ♂ (one of them the type) and 1 ♀ at flowers of *Salix brachycarpa* ; 1 ♂ at flowers of *Ribes vallicola*, June 10, 1907. All collected by S. A. Rohwer.

A. argentinæ was described as *A. vicina argentinæ*, Ckll., but it is probably a distinct species.

At Longs Peak Inn, Colorado, alt. 8956 ft., June 25 and 26, 1913, I took *Andrena mariæ*, Rob., *A. tacitula*, Ckll., *A. cyanophila*, Ckll., and *A. medionitens*, Ckll. These records are of interest on account of the altitude.

XLIV.—*Thaumastotherium osborni*, a new Genus of *Perissodactyles* from the Upper Oligocene Deposits of the Bugti Hills of Baluchistan. — Preliminary Notice. By C. FORSTER-COOPER, M.A., University Demonstrator in Comparative Morphology, Cambridge.

DURING an expedition to Baluchistan in 1911 I found, among other fossils, a mammalian atlas and dorsal vertebra remarkable for their unusually large size. These I suggested



Cockerell, Theodore D. A. 1913. "Descriptions and records of bees. LIV." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 368–376.

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