

genital aperture is well forward, on a level with the pharynx, but to the left of it.

This is probably an older example of *P. redactum*, and the differences are due to development.

EXPLANATION OF PLATES XII. & XIII.

The following letters apply to all the figures:—

<i>A.S.</i> Oral sucker.	<i>P.S.</i> Ventral sucker.
<i>Ph.</i> Pharynx (œsophageal bulb).	<i>G.A.</i> Genital aperture.
<i>V.S.</i> Vesicula seminalis.	<i>V.G.</i> Vitelline glands.
<i>Ov.</i> Ovary.	<i>T.</i> Testes.
<i>Ex.P.</i> Excretory pore.	<i>Sp.</i> Cephalic spines.
<i>O.</i> Ova.	<i>Dv.</i> Intestinal diverticula.
<i>S.G.</i> Shell-gland.	

- Fig.* 1. *Echinostomum secundum*. $\times 16$.
Fig. 2. Ditto. Anterior end. $\times 60$.
Fig. 3. Ditto. Lateral view of head.
Fig. 4. *Zeugorchis acanthus*. $\times 25$.
Fig. 5. Ditto. Part of anterior end to show arrangement of spines (*c.s.*) on body. *G.P.* Genital papilla. $\times 60$.
Fig. 6. Ditto. Posterior view of head. $\times 35$.
Fig. 7. Ditto. Ovum. *E.S.* Eye-spots. $\times 100$.
Fig. 8. *Levinsonia similis*. *G.S.* Genital sinus.
Fig. 9. *Psilostomum redactum*. *Ab.* Refractive body.
Fig. 10. Ditto. Older example.

LXIX.—Descriptions and Records of Bees.—XI.

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

AUSTRALIA (including Tasmania) possesses thirty-five described species of *Megachile*, all first described by F. Smith with the exception of three, made known by Fabricius, Radoszkowski, and Froggatt respectively. In 1904 I had an opportunity to study Smith's types in the British Museum, and I have now been permitted to work up the material which has accumulated in that Museum since Smith's time, the present paper being the result. I include in my tables two species of *Lithurgus*, which are easily confused with *Megachile*.

The Australian species of *Megachile* do not appear, for the most part, to be closely related to those of the Austro-Malay islands. Thus, of all the Australian species known in the female, only two have the ventral scopa black, and three or four have it red or fulvous, all the rest having it white or nearly so. The Austro-Malay islands are richly endowed with fifty-five described species, most of which have the scopa

black or red, white being quite an uncommon colour. With these characters go others, not readily expressed in a few words.

Females.

- | | | |
|--|-----|----------------------------------|
| Abdomen entirely bright red, or only part of first segment black | 1. | |
| Abdomen not red, or at most with the apex red | 2. | |
| 1. Small; the red not due to tomentum | | <i>M. abdominalis</i> , Sm. |
| Larger; the red due to tomentum | | <i>M. mystacea</i> , Fabr. |
| 2. Ventral scopa entirely black; large black species, with deep fuliginous wings | | <i>M. Doddiana</i> , Ckll. |
| Ventral scopa bright red; abdomen with purple or green tints | | <i>M. pictiventris</i> , Sm. |
| Ventral scopa white or nearly so, often with black at extreme apex | 3. | |
| 3. Apex of abdomen with the tegument red . | 4. | |
| Apex of abdomen with the tegument not red | 5. | [Sm.*] |
| 4. Larger; marginal cell sharply pointed .. | | <i>Lithurgus rubricatus</i> , |
| Smaller; marginal cell rounded at apex.. | | <i>M. modesta</i> , Sm. |
| 5. Wings fuliginous or smoky, with the base light; abdomen black, without bands, but the first segment with white hair .. | 6. | |
| Wings hyaline or dusky; when the latter, abdomen conspicuously banded | 7. | |
| 6. Length about 17 mm.; clypeus with a great process on each side | | <i>M. monstrosa</i> , Sm. |
| Length about 12 mm.; clypeus without such processes | | <i>M. suffusipennis</i> , Ckll. |
| 7. Ventral scopa entirely white; cutting-edge of mandibles covered by a fringe of fulvous hair | | <i>M. fulvomarginata</i> , Ckll. |
| Ventral scopa with some black hairs on apical segment, at least | 8. | |
| 8. Mandibles mainly red; size small, length about 10 mm.; sides of ventral scopa practically without black hairs | | <i>M. atrella</i> , Ckll. |
| Mandibles black; size larger, or, when as small, sides of ventral scopa with conspicuous black hairs | 9. | |
| 9. Hair of top of head ochreous, or, at least, nearly all so; sixth abdominal segment covered with ochreous tomentum; abdomen conspicuously banded | | [(<i>maculata</i> , Sm.).] |
| Hair of top of head black or dark fuscous. | 10. | <i>M. macularis</i> , D. T. |
| 10. Abdomen parallel-sided, the hair-bands orange in the middle, and a patch of orange tomentum occupying part of fifth and sixth segments | | <i>M. Hampsoni</i> , Ckll. |

* The specimen of *Lithurgus rubricatus* (labelled simply "Australia") before me differs from the type in having distinct pulvilli. I do not think it is a different species, but rather that the pulvilli are sometimes evident and sometimes not, according to the condition of the specimen.

- Abdomen shovel-shaped, the hair-bands white 11.
 11. Larger; length about 13 mm.; hind spurs black *M. Waterhousei*, Ckll.
 Smaller; length about 10 mm; hind spurs red..... *M. quinquelineata*, Ckll.

Males.

- Head and thorax black; abdomen bright red, the colour not due to tomentum: size small *M. abdominalis*, Sm.
 Head and thorax black; abdomen (except for the hair or tomentum) black or almost 1.
 1. Abdomen bright red, from a covering of tomentum *M. mystacea*, Fabr.
 Abdomen not so..... 2.
 2. Anterior tarsi flattened and peculiarly coloured 3.
 Anterior tarsi ordinary 6.
 3. Size small: upper surface of anterior tarsi white striped with black; last two abdominal segments with orange tomentum . *M. nigrovittata*, Ckll.
 Larger, 10 or 11 mm. long 4.
 4. Upper surface of anterior tarsi without black markings; anterior femora and tibiæ mainly red 5.
 Upper surface of anterior tarsi with a conspicuous black spot on second joint; anterior femora red..... *M. darwiniana*, Ckll.
 5. Fifth abdominal segment with conspicuous erect black bristles; outer edge of anterior tibiæ (except at ends) straight *M. cygnorum*, Ckll.
 Fifth abdominal segment without black bristles; outer edge of anterior tibiæ presenting an angle a little before the middle *M. Gahani*, Ckll.
 6. Tibiæ and tarsi, and greater part of anterior femora, red *M. Kirbyana*, Ckll.
 Legs black 7.
 7. Smaller: apex of abdomen showing more or less red..... 8.
 Larger: apex of abdomen not showing red..... 9.
 8. The red almost confined to penultimate segment, and due entirely to tomentum . *M. tomentella*, Ckll.
 The red including the last two segments, and apical margin of fourth, and not due to tomentum..... *M. rhodura*, Ckll.
 9. Apex of abdomen terminating in a point; antennæ short [*Ckll.* *
Lithurgus atratiformis,
 Apex of abdomen emarginate; antennæ long *M. Austeni*, Ckll.

* *Lithurgus atratiformis*, Ckll., has only been described in the female. The ♂ (Queensland, Gilbert Turner, 304) is like that of *L. atratus*, Sm., but differs by having the hair of the face all white, that of the pleura all

Megachile abdominalis, Smith.

Townsville, Queensland, 12. 2. 03 (*F. P. Dodd*) ; Queensland (*Gilbert Turner*, 322 Hy.).

Megachile mystacea, Fabricius.

Port Darwin (*J. J. Walker*, 747, 748) ; Queensland (*Gilbert Turner*, 232 Hy.).

Megachile pictiventris, Smith.

M. secunda, D. T. (*senex*, Smith), is the same insect. Queensland (*Gilbert Turner*, 296 Hy.).

Megachile Doddiana, sp. n.

♀.—Length $16\frac{1}{2}$ mm. ; expanse of wings about 27 mm. ; width of abdomen $5\frac{1}{2}$ mm.

Black, with very dark fuliginous wings, which are strongly purple-iridescent ; pubescence short and black, not abundant ; a patch of white hair on each side of the face, between the eye and the antenna ; each side of first abdominal segment with a large patch of hair, the upper half of which is white ; hair on inner side of tarsi (especially anterior ones) more or less reddened ; a very little scattered light hair on coxæ and bases of femora beneath ; rest of hair all black, including scopa ; head and thorax coarsely and extremely densely punctured, the punctures of top of head larger than those of mesothorax ; head large, with broad cheeks, which at the lowermost point bear a sharp tooth, directed downwards ; clypeus confluent punctured, its anterior margin with a pair of widely separated shining broad triangular teeth, the interval bearing a small nodule in the median line ; mandibles elongated, the outer margin bisulcate (or tricarinate), the apex curved inwards, the long cutting-edge (which is bordered by a line of shining reddish tomentum) bearing a short sharp tooth before the middle ; labrum normal, with blunt corners ; antennæ black ; middle tibiæ with a conspicuous apical tooth directed outwards ; last segment of abdomen vertical.

Hab. Townsville, Queensland, 10. 1. 03 (*F. P. Dodd*).

By the black colour and coarse sculpture it resembles

black (except a very little white hair in front), the black hair at sides of sixth abdominal segment scarcely half as long, and the marginal cell much more sharply pointed.

M. scabrosa, Sm., discovered by Wallace in the Aru Is. It appears to be the Australian representative of *M. lachesis*, Sm., which is widely distributed among the islands to the north. The only other Australian species with a black scopa is *M. fumipennis*, Sm., which is easily known from *M. Doddiana* by the white pubescence of face, &c.

Megachile modesta, Smith.

Queensland (Gilbert Turner, 756, Ridg. 4. 92).

This seems to agree with Smith's too brief description, but it may prove distinct upon comparison. It is also very near to *M. apicata*, Smith; possibly not specifically different. The anterior margin of the clypeus has a pair of short widely-separated teeth, the interval being convex, so as to suggest a rudimentary middle tooth.

Megachile monstrosa, Smith.

Townsville, Queensland, 7. 1. 03 (F. P. Dodd).

The ventral scopa is yellowish white, hardly fulvous as Smith describes.

Megachile suffusipennis, sp. n.

♀.—Length 12–13 mm.; expanse of wings about 18 mm.

Black, with a parallel-sided abdomen; wings fuscous, hyaline at base; upper half of marginal cell very dark; pubescence arranged nearly as in *M. Doddiana*, but white, including the scopa; the broad vertex has a few dark hairs; head and thorax very densely punctured; facial quadrangle about square; antennæ black; cheeks simple; anterior margin of clypeus straight; mandibles broad, bisulcate, the inner tooth subapical and rounded; tegulæ black; scutello-mesothoracic suture with two transverse marks of white tomentum; middle tibiæ without a conspicuous apical tooth; abdomen bandless, with large well-separated punctures; first segment with a conspicuous tuft of white hair on each side; fourth and fifth segments with hardly noticed short black hair; sixth with short dull white hair; hind spurs black.

Hab. Queensland (Gilbert Turner, 289 Hy.).

Very near to *M. lucidiventris*, Sm., which differs by the fuscous hair of clypeus, ferruginous spurs, &c.

Megachile fulvomarginata, sp. n.

♀.—Length about 12 mm.

Black, abdomen parallel-sided; wings hyaline, with the

nervures black; pubescence, including the scopa, white; head and thorax strongly and very densely punctured; head very large, vertex very broad; cheeks very broad, unarmed, with strong well-separated punctures on a shining ground; flagellum dull reddish beneath, especially at apex; sides of face with much snow-white hair; clypeus low and broad, its anterior edge straight, with an obscure median nodule; mandibles elongate, the cutting-edge covered by a very conspicuous band of golden-fulvous hair, which completely hides what rudiment there may be of the second tooth; blade of maxilla light rufo-fulvous; tegulæ black, a little tuft of white hair on thorax above and behind each; a tuft of white hair at each extreme side of metathorax; claws with a short basal denticle projecting at right angles; hind spurs clear rufous; hair on inner side of basal joint of hind tarsi very light yellowish; abdomen above white-pruinose, with a spot of white hair on each side of first segment, and indications of marginal bands on second and third.

Hab. Queensland (*Gilbert Turner*).

Presented to the Museum by Mr. E. Saunders.

Megachile atrella, sp. n.

♀.—Length about 9 mm.

Abdomen parallel-sided, but short; black, with dull white pubescence; scopa white with a faint yellowish tint, black on last segment; hair of vertex fuscous, but very scanty; apical part of abdomen above with some dark hair; sides of face with much white hair; a white patch at each side of first abdominal segment; the segments have obscure dull white or greyish narrow hair-bands. Head large, considerably wider than thorax; cheeks unarmed; flagellum obscurely brown beneath; clypeus with large confluent punctures, the upper part with a central smooth shining area; mandibles dark red, with the 4-dentate cutting-edge black; mesothorax and scutellum with extremely dense small punctures; tegulæ piceous with a rufous spot; wings hyaline, nervures black; legs quite hairy, the hairs on anterior and middle tarsi bent over or hooked at end; hair on inner side of basal joint of hind tarsi pale fulvous; claw-joints and claws ferruginous; hind spurs dark reddish piceous; hind tarsi much longer than the others, which are shortened, the joints 2 to 4 being short and broad, triangular.

Hab. W. Australia; "68.6."

Superficially it resembles the European *M. rotundata*, Fabr., but it is more robust.

Megachile macularis, Dalla Torre.

Queensland (*Gilbert Turner*, 295 Hy. and 622, Seaf. 3. 90).

The pubescence of the thorax and abdomen above varies from decided ochreous to yellowish white.

Megachile Hampsoni, sp. n.

♀.—Length about 14 mm.

Abdomen long and parallel-sided; black, with black, white, and orange pubescence, the latter only on the abdomen; head large, but cheeks and vertex rather narrow, the distance from a posterior ocellus to margin of occiput less than the distance to opposite posterior ocellus; head and thorax above densely and strongly punctured, but on scutellum, and especially on hind middle of mesothorax, the shining surface is very apparent between the punctures; clypeus and supra-clypeal area with very large punctures, the latter punctured all over; anterior edge of clypeus straight; flagellum dark reddish beneath; mandibles black, only the extreme tip dark reddish, cutting-edge notched near the tip, but otherwise the teeth obsolete; sides of face, and cheeks, with much white hair; hair of front dull pale ochreous, of vertex short and dark fuscous; a conspicuous tuft of white hair just below tegulæ, and sides of metathorax and lower part of pleura with much white hair; upper part of pleura, extreme sides of scutellum, and mesothorax just above tegulæ, with black hair; tegulæ rufo-piceous, with a large fulvous spot posteriorly. Wings dusky, nervures black, second recurrent nervure exactly meeting second transverso-cubital; upper part of marginal cell with a fuliginous streak. Legs black, with white pubescence; the claws ferruginous, with a slender oblique basal denticle; hind spurs black; basal joint of hind tarsi broad and flat, the hair on its inner surface reddish chocolate. First abdominal segment broadly concave, with a tuft of white hair on each side; segments 2 to 4 with short black hair (except basally, where they are nude), and with narrow, but very distinct marginal hair-bands, white at the extreme sides, but otherwise orange; fifth segment with the marginal band orange, but the orange also invades the disk, leaving the black only at the sides; sixth with the base broadly covered with orange tomentum; ventral scopa long and white, black on the last segment and at extreme sides of penultimate one.

Hab. Fremantle (*J. J. Walker*, 1938).

Named after Sir G. F. Hampson, of the British Museum.

In some of its characters it resembles *M. oblonga*, Sm., *chrysopyga*, Sm., and *heriadiformis*, Sm., but it is quite distinct. It has the form of the American *M. pugnata*, Say.

Megachile Waterhousei, sp. n.

♀.—Length about 13 mm.; width of abdomen 5 mm.

Black, with white pubescence, abundant and quite long on front, sides of face, cheeks, pleura, and metathorax, and forming a spot above each tegula; hair black or dark fuscous on vertex, and a little on the practically nude mesothorax, some black also on the ventral surface of thorax; head broad; flagellum dull reddish beneath; clypeus confluent punctured, with a median impunctate line; anterior margin of clypeus irregular; mandibles with two well-formed teeth, the inner angle hardly forming a tooth; mesothorax dullish, extremely densely punctured; tegulæ ferruginous, with a fuscous spot, and the anterior margin broadly subhyaline. Wings only slightly dusky, upper half of marginal cell with a fuliginous streak; nervures piceous, second r. n. not meeting second t.-c. Basal joint of hind tarsi broad and flat, the hair on its inner side yellowish fuscous; apical projections of middle and anterior tibiæ tipped with red; hind spurs black; abdomen broad, with five white hair-bands; scopa white, black on last segment, and some black at extreme sides of third and following segments.

Hab. Queensland (*Gilbert Turner*, 295, Seaf. 3. 90).

Named after Mr. Chas. O. Waterhouse, of the British Museum. It has the general form of the American *M. latimanus*, Say.

Megachile quinquelineata, sp. n.

♀.—Length about 10 mm.

Similar to *M. Waterhousei*, but much smaller, and also differing as follows:—Snow-white abdominal bands narrower and more regular; apical dorsal segment with black bristles, and wholly without light hair or tomentum; mesothorax and scutellum with conspicuous long black hairs (as seen from the side), especially long on scutellum; anterior margin of mesothorax with white hair; hind spurs bright ferruginous; apical points of anterior and middle tibiæ not tipped with red; antennæ black, the flagellum pruinose; clypeus densely punctured all over; mandibles obsoletely 4-dentate, with a minute spot of glittering orange-fulvous tomentum

near the apex; tegulæ piceous; second r. n. meeting second (morphologically third) t.-c., or just falling short of it.

Hab. Queensland (*Gilbert Turner*, 374, and 326 Hy., Seaf. 3. 90).

Superficially like the European *M. apicalis*, Spinola.

Megachile nigrovittata, sp. n.

♂.—Length slightly over 8 mm.

A small narrow species, with the last three abdominal segments covered with orange tomentum, the apex briefly bituberculate; anterior coxæ with no distinct spines. This is superficially very like several other species, but may be readily known by the remarkable anterior legs, as follows:—Tibiæ shining black, with an apical creamy-white patch; tarsi white, broadly expanded, the first three joints forming a very large oblong structure, concave beneath, having on its upper surface a long black streak parallel with the anterior edge, tapering apically, and sending out two oblique branches anteriorly; there is also a dark red-brown band extending round the hind margin of the first joint only; beneath there are near the middle two oblong black spots, which show merely as bluish shades on the upper surface; fourth and fifth joints much smaller, but also broadened, the fifth with a lateral projection; the claws white and widely divergent; middle legs dark reddish, the tibia with a small light apical patch, the spur white, the basal joint of tarsus abruptly bent near the base; hind legs missing in type specimen; labrum long, anterior corners rounded. Face covered with yellowish-white hair; eyes light yellowish green; flagellum dull fulvous beneath. Wings hyaline; stigma pale, with a dark margin; recurrent nervures entering the extreme base and apex of second submarginal cell. Mesothorax very coarsely rugoso-punctate.

Hab. N.W. coast of Australia; 69. 50.

Nearest, perhaps, to *M. modesta*, Sm.

Megachile darwiniana, sp. n.

♂.—Length about 10 mm.

Black, with white and black hair. A species with much the form of the American *M. manifesta*, Cress. Thorax with a semicircle of white spots, one above each tegula and two (elongated) in the scutello-mesothoracic suture; abdomen with marginal white hair-bands. Head large; face densely

covered with yellowish-white hair; vertex with black hair and longer white ones intermixed; antennæ quite long, flagellum obscure ferruginous beneath; mandibles black, very shiny at apex; mesothorax dull, minutely rugoso-punctate; dorsum of thorax with much erect black hair, longest on scutellum; tegulæ rufo-piceous. Wings moderately dusky, stigma and nervures very dark reddish brown; recurrent nervures entering second submarginal cell quite (and equally) near base and apex; anterior coxæ with short broad spines; anterior femora bright ferruginous, sharply keeled below, and with some black and white hair at base; anterior tibiæ triangular in section, red, with the outer side (except the anterior apical corner broadly) black, the anterior corner having a pointed yellowish-white projection; anterior tarsi yellowish white, broadened and flattened, but not excessively so, and with a long posterior fringe, which is white at base and mainly golden-fulvous otherwise, some of the hairs tipped with fuscous; within, the second joint has a large black spot bordered with ferruginous, this also shows through on the upper side as a black spot; basal joint of middle tarsi densely covered with shining silver-white hair on the outer side and with an excessively long posterior fringe of white hairs, slightly mixed with fuscous; hind spurs black; hair on inner side of hind tarsi pale orange; dark parts of abdomen with black hair; sixth and broad apical margin of fifth segment covered with yellowish-white tomentum; sixth invisible from above and ending in two widely-separated teeth.

Hab. Port Darwin (*J. J. Walker*, 750).

Megachile cygnorum, sp. n.

♂.—Length 10 mm. or a little more.

Shape of *M. darwiniana*, but with the pubescence, especially of the abdomen, decidedly pale ochreous and the abdominal hair-bands broad. Eyes light green, with a little red suffusion in front; antennæ long, flagellum dull fulvous beneath; face densely covered with yellowish-white hair; hair of vertex long and light ochreous, but some admixture of black on mesothorax and scutellum; mandibles black, with a dark red spot near the apex; mesothorax densely rugoso-punctate; tegulæ dark brown. Wings rather dusky, nervures piceous. Anterior coxæ with rather short flattened spines; anterior femora light orange-fulvous, greatly flattened and keeled, with long yellowish-white hair beneath; anterior tibiæ triangular in section, short, orange-

red, with a large black patch on the basal half outside; anterior tarsi resembling those of *M. darwiniana*, but no black spots show on the outer side, and on the inner there are black spots on the first and second joints; middle tarsi with shining creamy-white hair on the outside and a long white fringe behind; hind spurs black; abdomen with two apical teeth, wide apart.

Closely allied to *M. darwiniana*, but certainly distinct.

Hab. Swan R., "69. 50."

Megachile Gahani, sp. n.

♂.—Length 11 mm.

At first sight just like *M. cygnorum*, but showing many differences in detail, as follows:—Hair of face yellower, it might be called pale golden; front not covered with hair; tegulæ ferruginous; dark parts of abdomen without black hair, but instead with a fine fulvous tomentum; the broad abdominal hair-bands and the fine tomentum covering sixth and nearly all of fifth segments quite orange; the apical teeth closer together and merely low-pyramidal in outline; the anterior femora strongly elbowed beneath at base, the base in front also having five or six obliquely-placed fine black lines (*cygnorum* has some greyish lines); anterior tibiæ with the lower outer margin angled, and the outer face with two black patches, basal and apical; anterior tarsi light yellow, the end of the fringe largely black; no spots visible on outer side, but the second segment is mainly black beneath, the first being without a spot; hair on middle tarsi (arranged as in *cygnorum* and *darwiniana*) light yellow; hind spurs dark reddish.

Hab. "New Holland, 44. 4."

Named after Mr. C. J. Gahan, of the British Museum.

Megachile Kirbyana, sp. n.

♂.—Length not quite 10 mm.

Superficially much like *M. darwiniana*, the pubescence being white, with black on vertex, but the anterior legs are simple. Hair of face perfectly white; a slight admixture of fuscous on front; clypeus extremely densely punctured; mandibles black, faintly reddish at apex; flagellum dull red beneath; cheeks and vertex rather broad, distance from hind ocellus to margin of occiput greater than distance to opposite hind ocellus; mesothorax dull, minutely rugoso-punctate, with a good deal of white pubescence; a little fuscous hair

at extreme sides of scutellum; a small spot of white hair behind tegulæ, but no spots in the scutello-mesothoracic suture; tegulæ dark rufous. Wings slightly dusky, nervures black; second r. n. joining second s.m. at extreme apex; all the tibiæ and tarsi, and anterior femora except at base, deep but bright chestnut-red, the tarsi with a good deal of white hair. Abdomen with a large patch of white hair at each side of first and second segments, third to fifth with hair-bands, that on second weak in middle; sixth covered with white hair, its apical margin red, and irregularly dentate, with about four prominent rounded teeth (in the type specimen there are two teeth on one side, but on the other one, the outer, tooth, and the place of the inner one minutely crenulate); the extreme antero-lateral corners of the sixth segment have a sharp thorn-like tooth; the subapical ventral region shows two long dark red divergent teeth or spines. Anterior coxæ with rather short spines.

Hab. Fremantle (*J. J. Walker*, 1937).

Very distinct by the armature of the abdomen &c. Named after Mr. W. F. Kirby, of the British Museum. The locality is in Western Australia.

Megachile tomentella, sp. n.

♂.—Length about 8 mm.

Black, with a parallel-sided abdomen; one of the small *Heriades*-like forms, superficially similar to *M. nigrovittata* and *M. rhodura*.

Face with perfectly white hair; mandibles black, bidentate; flagellum beneath pruinose and very faintly brownish; vertex broad and very densely punctured, distance from hind ocellus to edge of occiput much greater than distance to opposite hind ocellus; mesothorax and scutellum extremely densely punctured; tegulæ piceous. Wings hyaline, with black nervures. Legs black, with pale pubescence; anterior tarsi simple; spurs white; claw-joints mainly ferruginous; abdomen very strongly punctured, the bases of the second and third segments depressed; no hair-bands, but fifth segment and base of sixth covered with orange tomentum, a few orange hairs also on hind margin of fourth; apex of sixth broadly emarginate. Anterior coxæ without spines.

Hab. Swan River, "69.50."

Allied to *M. erythropyga* (but hair of face quite a different colour) and to *M. canifrons* (but end of abdomen different).

Megachile rhodura, sp. n.

♂.—Length 9 mm.

Black, with parallel-sided abdomen; much like *M. tomentella*, but fifth and sixth segments, and hind margin of fourth, with the tegument light red, the fine tomentum (which also is scattered over fourth segment) cream-colour; a conspicuous spot of white pubescence above and behind the tegulæ; stigma and nervures very dark reddish, stigma comparatively large. Hair of face pure white; flagellum dark reddish beneath; mandibles black, the inner tooth rudimentary; anterior coxæ without spines; apex of abdomen emarginate.

Hab. Queensland (*Gilbert Turner*, 422, Ridg. 12. 93).

Megachile Austeni, sp. n.

♂.—Length about $10\frac{1}{2}$ mm.; expanse of wings about 17 mm.

Pubescence mainly white, but it is long and black on scutellum, mesothorax, and vertex, and partly on front; face covered with white hair, with small black hairs mixed on clypeus; antennæ very long, black; mandibles black, 4-dentate; mesothorax very densely punctured, its anterior border with greyish-white pubescence and a tuft of the same above and behind the tegulæ; metathorax and pleura with much white hair, a little black just below the wings; tegulæ black or brown-black. Anterior wings with the apical half mostly dilute fuliginous; nervures black. Legs black, with mainly white hair; anterior tarsi simple; anterior coxæ with short spines, almost hidden by white hair; hind spurs light reddish brown; hind tibiæ with a conspicuous band of white hair on outer edge; hind tarsi slender; abdomen short and parallel-sided, with white marginal hair-bands only at the sides of the segments; some white tomentum at base of fifth segment and sides of sixth; apex of sixth emarginate; marginal bands of venter entire.

Hab. "Australia, 92. 16"; it is marked also 323 Hy., and is evidently one of Mr. Gilbert Turner's Queensland captures.

Named after Mr. E. E. Austen, of the British Museum. It is just possible that it is the male of *M. suffusipennis*. *M. Blackburnii*, Froggatt, seems to be allied, but it has clear wings, and there is no mention of any black hair.



Cockerell, Theodore D. A. 1906. "Descriptions and records of bees. XI." *The Annals and magazine of natural history; zoology, botany, and geology* 17, 527–539.

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