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BEES IN THE AUSTRALIAN MUSEUM COLLECTION*

BY

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Family COLLETIDÆ.

Genus GONIOCOLLETES *Cockerell*.

1907. *Goniocolletes* Cockerell, Bull. Amer. Mus. Nat. Hist., xxiii, p. 231.

Orthotype.—*G. morsus* Cockerell, 1907.

GONIOCOLLETES MORSUS *Cockerell*.

1907. *Goniocolletes morsus* Cockerell, Bull. Amer. Mus. Nat. Hist., xxiii, p. 231. ♂. New South Wales.

Hab.—S. Australia. 2 ♂.

Genus PARACOLLETES *Smith*.

1853. *Paracolletes* Smith, Cat. Hym. B.M., pt. 1, p. 6.

I have included a series handed to me by Mr. A. J. Nicholson, of the University of Sydney, as it is more convenient to have the two lots dealt with in one place. Nicholson collected on four days in W. Australia, and obtained about 15 species of this group; not one of them identical with any species sent from the Australian Museum. This shows the extraordinary richness and variety of the fauna.

PARACOLLETES AMABILIS (*Smith*).

1879. *Lamprocolletes amabilis* Smith, Descr. New Sp. Hym., B.M., p. 9. ♀. Australia.

Hab.—Berowra, near Hawkesbury River, N.S.W., Dec. 11, 1923. 1 ♀ (T. G. Campbell).

PARACOLLETES AMABILIS *var. rufipes var. nov.*

A male, with the same data, is less than 8 mm. long; head dark blue green, but middle of front yellowish-green, clypeus black; antennæ entirely black; thorax dark blue-green; hair of head and

* References supplied by A. Musgrave, Australian Museum, Sydney.

thorax above fuscous; wings as in female, but nervures darker; anterior and middle knees, hind femora, and all the tibiæ and tarsi deep chestnut red; abdomen olive-green with brassy tints. This does not quite agree with *Lamprocolletes metallicus* Smith, which I have regarded as the male of *P. amabilis*. The red legs appear to separate it at once from *L. metallicus* and the hair of thorax differs. I will therefore name this male *P. amabilis* var. *rufipes* n. var., leaving it for the future to determine whether it represents a distinct race or species, and if so, whether the accompanying female, which I cannot separate from *P. amabilis*, should be associated with it.

PARACOLLETES METALLESSENS Cockerell.

1914. *Paracolletes metallescens* Cockerell, Ann. Mag. Nat. Hist., (8) xiv, p. 44. ♂, ♀. Yallingup, S.W. Australia.

Hab.—Eradu, W. Australia, September 8th, 1 ♀ (A. J. Nicholson). Another female, from King George's Sound (G. Masters), differs by the second cubital cell narrow, moderately contracted above, but this is probably only an individual variation. The recently described *P. semilucens* Cockerell is very like *P. metallescens*, but smaller, and especially known by the dull mesothorax without evident punctures. It is from Perth.

PARACOLLETES RUDISSIMUS *sp. nov.*

♂. Length about 7.3 mm.; black, including mandibles, antennæ, tegulæ and legs; hair of head and thorax long and abundant, pale ochreous on head and thorax above, creamy-white on face, and so dense as to cover surface (no black hair at sides); pleura with white hair; face very broad, front and vertex dull; flagellum comparatively short and thick (almost as in a female), not crenulated, apex shining; mesothorax and the broad scutellum dull, with a sort of honey-comb-like sculpture, as in *P. rudis* Cockerell; area of metathorax dullish, longitudinally plicate; wings hyaline, dusky at apex, stigma (which is slender) and nervures dark fuscous; basal nervure meeting nervules; cubital cells like those of *Nomia*, the second very small, contracted above, receiving recurrent nervure at or a little beyond middle; first very long, and third also long, strongly produced apically, receiving second recurrent about as far from end as first recurrent is from second intercubitus; legs slender, with white hair, abdomen dull, more shining beyond third segment, with little hair and no bands; hind margins of segments rather narrowly shining brown; venter shining, with a large polished basin or depression in middle of fifth sternite. The postscutellum has a distinct but low median tubercle.

Hab.—Wyalcatchem, W. Australia, Aug. 30, 1926 (A. J. Nicholson). Has much the aspect of a *Nomia*, but is related to

P. rudis Cockerell, based on a female from Swan River. It seems not to be the male of *P. rudis*, owing to various differences; yet the association is perhaps not impossible.

PARACOLLETES DENTIGER *Cockerell*.

1910. *Paracolletes dentiger* Cockerell, Trans. Amer. Ent. Soc., xxxvi, p. 199. ♀.

Hab.—King George's Sound, W. Australia. Both sexes.

PARACOLLETES PHILONESUS, *sp. nov.*

♀. Length about 9.5 mm.; not very robust, black, not metallic, though it is possible to imagine that the abdomen is very obscurely blue-black; hair of head and thorax loose and grey, but greyish black on vertex and dorsum of thorax, dull white on thorax in front, on sides of metathorax and middle of mesopleura; mandibles black, dark reddish apically; malar space obsolete; clypeus convex, highly polished, with scattered rather strong punctures; supraclypeal areas polished, elevated, with few punctures; scape long, shining and black; flagellum black, with a very obscure reddish tint beneath; mesothorax polished on disc, dull at sides, hardly punctured, the dull portion appears minutely reticulate under microscope; scutellum smooth and shining; postscutellum unarmed; area of metathorax shining, dull at extreme base; tegulæ dark rufo-piceus; wings hyaline, faintly brownish; stigma and nervures dark reddish fuscous; stigma well developed but slender; basal nervure meeting nervulus; second cubital cell much contracted above, receiving recurrent nervure about middle; third cubital not much produced, receiving recurrent nervure a short distance before end (more than half distance from first recurrent to second intercubitus); legs black, the tarsi with ferruginous hair on inner side (scopa of hind legs in type full of bright orange pollen, the grains triangular and not echinate); hair of hind knee dark fuscous; abdomen bandless, the surface dull and without punctures visible under a lens (the microscope shows minute lineolation and reticulation), the hind margins of tergite shining, entirely black; apex with soot-coloured hair, venter with pale hair.

Hab.—Mt. Gower, Lord Howe Island, Jan. 19, 1922 (A. R. McCulloch). A very ordinary looking species, but it is extremely interesting to see a bee from Lord Howe Island. In my tables it runs nearest to *P. metallescens* Cockerell from W. Australia, but is smaller, with surface of abdomen dull, and not metallic. It is also very close to the New Zealand *P. boltoni* Cockerell, but smaller, with dull abdomen, and much more black hair on thorax above. In the dull abdomen it is like *P. rudis* Cockerell, but that has the base of metathorax dull.

PARACOLLETES CHRYSOSTOMUS *sp. nov.*

♂. Length about 12 mm.; black, with the mandibles fulvous, dark at apex, the labrum fulvous; scape greatly swollen and light ferruginous, flagellum short and thick, ferruginous, blackened above; legs black, small joints of tarsi rufous, anterior femora with a pale stripe in front; anterior tibiæ pale fulvous in front and on inner edge, the fulvous invading the black of the outer face in middle; abdominal tergites 2 to 5 with narrow cream-coloured tegumentary bands; apical plate broad, apically red; face and front densely covered with very brilliant orange-golden hair, but the supra-clypeal area bare, with a large flattened polished impunctate surface; malar space large, shining; cheeks with very long pale yellow hair; thorax dorsally with long erect bright ferruginous hair; mesothorax and scutellum dull, without evident punctures; area of metathorax triangular, hairy, entirely dull; tegulæ black; wings hyaline, slightly greyish at apex, nervures black, stigma almost obsolete; basal nervure falling short of nervulous, first cubital cell hardly as long as the next two combined; second cubital cell much narrowed above, receiving recurrent nervure about middle; third cubital very broad above, receiving second recurrent nervure some distance from end; legs short and stout, with yellow hair, the anterior and middle tibiæ robust; middle basitarsi short and broad, with very long hair, hind basitarsi broad and parallel sided, the small joints of tarsi thick; hind femora with abundant very long yellow hair; hind tibiæ with dense creamy-white hair on inner side; first abdominal segment and middle of second with long pale fulvous hair, rest of abdomen dorsally almost nude, dull black, with fifth segment more shining, sericeous.

Hab.—Eradu, W. Australia, Sept. 8, 1926, 2 ♂ (A. J. Nicholson). This could as well be called *Anthoglossa chrysostoma*, but the exact limits of *Anthoglossa* are uncertain, as explained in Entomologist, Jan. 1906, p. 16. We may have to regard *Anthoglossa* as a subgenus of *Paracolletes*, and the present insect, with its peculiar legs and antennæ, might perhaps rank as a new subgenus. The characters of the comparatively short first cubital cell, and very broad second cubital, supposed to distinguish *Anthoglossa*, seem not to be of generic value. The male of *A. plumata* Smith, the type of the genus, while differing in venation and other characters from the species now described, agrees with it in the bright orange red hair covering the face. In my key, *P. chrysostomus* falls next to *P. marginatus* Smith, which is also an *Anthoglossa* if we accept that genus in the broader sense. *P. marginatus lucidus*, described below, differs from *A. sericea* Smith, in the dark tegulæ and the absence of "short changeable reddish pile" covering the abdomen, but in the fulvous fimbria and smooth shining clypeus with reddish margin it agrees with *A. sericea*. The accompanying male agrees with that of *P. marginatus*. It is thus evident that *sericea* and *marginatus* cannot be separated generically.

PARACOLLETES CALLURUS *Cockerell* 1914 *subsp. NIGRIOR nov.*

♀. Broader, with broader face; anterior part of thorax above without a broad white collar or band; wings less dusky; anterior tibiae deep chestnut red; abdominal venter dark red, known from other species by its black tegument, with end of abdomen (including fifth segment) densely covered with very bright ferruginous hair. Mesothorax and scutellum covered with rather short black hair, pleura with long white hair.

Hab.—King George's Sound, W. Australia.

PARACOLLETES LEAI *Cockerell*.

1912. *Paracolletes leai* Cockerell, Proc. Linn. Soc. N.S.W., xxxvii, p. 597. ♀. Ulverstone, Tasmania.

Hab.—Barrington Tops, N.S.W., 20.1.1927, ♀ (T. G. Campbell); National Park, Macpherson Range, Queensland, Dec. 18, 1926, ♀ (A. Musgrave).

PARACOLLETES MARGINATUS *Smith* 1879 *var. LUCIDUS n. var. or subsp.*

The ♀ (type of var.) has the caudal fimbria fulvous, the abdominal bands whiter, the clypeus highly polished, with few scattered punctures, its apical margin reddish.

Hab.—Geraldton, W. Australia, Sept. 4, 1926, ♀, ♂ (A. J. Nicholson).

PARACOLLETES IBEX *Cockerell*.

1914. *Paracolletes ibex* Cockerell, Ann. Mag. Nat. Hist., (8) xiii, p. 138. ♂. Windsor, Victoria.

Hab.—Wyalcatchem, W. Australia, Aug. 30, 1926, ♂ (A. J. Nicholson).

PARACOLLETES REBELLIS *Cockerell*.

1912. *Paracolletes rebellis* Cockerell, Ann. Mag. Nat. Hist., (8) ix, p. 379. ♂. Victoria.

Hab.—Moonbar, 3-3,500 ft., Monaro, N.S.W., March, 1889, ♂ (R. Helms).

PARACOLLETES NICHOLSONI *sp. nov.*

♀. Length nearly 7 mm.; black, shining, with thin erect white hair; disc of mesothorax with long black or dark grey hair, but vertex and scutellum with white; hair of face all white, no black at sides; abdomen little hairy, third and fourth tergites with very thin bands of white hairs, and a little pale hair at sides of first

two; hair at apex black; legs with white hair, the scopa on hind tibiæ white, remarkably large and loose; head broad; mandibles and antennæ black; clypeus convex, shining, but with numerous punctures; area of metathorax highly polished in middle, dull at sides; mesopleura shining; tegulæ brownish black; wings hyaline, with very dark brown stigma and nervures; stigma large; basal nervure falling short of nervulus; second cubital cell narrow, receiving recurrent nervure at or beyond middle; third cubital very broad above, receiving second recurrent nervure near end; the basal nervure is conspicuously arched; legs black, slender, ordinary; abdomen very finely and inconspicuously punctured, the first tergite highly polished.

Hab.—Five from Kojarena (type locality), Sept. 6, four from Eradu, Sept. 8, one from Geraldton, Sept. 4; all in W. Australia, 1926 (A. J. Nicholson). An inconspicuous little species, easily known from *P. nanus* (Smith) by the dark antennæ and the apical margins of tergites not testaceous.

PARACOLLETES PUSILLUS *sp. nov.*

♂. Size and appearance of *P. nicholsoni*; and I was at first sure that it must be its male, but this seems impossible, because the venation is strikingly different, the basal nervure conspicuously less arched, and the small second cubital cell receiving the recurrent nervure almost at its inner corner. Instead of the thin apical hair bands on tergites 3 and 4, tergites 4 and 5 are broadly white-pruinose at base. Antennæ dark, only moderately long; mandibles black; face narrow, the sides very densely covered with snow-white hair; clypeus dullish, punctured, the apical margin broadly shining and finely punctured; mesopleura shining; anterior femora with a large red patch in front; anterior tibiæ entirely red in front, but the tarsi dark; hind legs at base with very long white hair beneath; apical plate of abdomen small and dark.

Hab.—Geraldton, W. Australia, Sept. 4, 1926 (A. J. Nicholson). Easily known from *P. scitulus* Cockerell by the entirely black middle and hind legs, and from *P. minutus* Cockerell by the dark mandibles, only reddened at extreme apex.

PARACOLLETES ADVENA (*Smith*).

1862-64. *Andrena advena* Smith, Trans. Ent. Soc. Lond., (3) i, p. 60. ♀. Australia.

Hab.—Kojarena, Sept. 6, and Eradu, Sept. 8, W. Australia, ♀ (A. J. Nicholson).

PARACOLLETES RUFIBASIS *sp. nov.*

♂. Length about 12 mm.; rather slender, black, with clypeus honey colour (black along lateral sutures); labrum and mandibles

(except sharp black apex) also honey colour; scape (not swollen) clear red; first abdominal tergite ferruginous basally, with broad black apex, and black along sides; second tergite red at base, with a variable amount of black, when (as in the type) the black is reduced to a transverse band, this is extended basad and angulate in middle, and there are rounded black marks at extreme sides; hind margins of tergites pale golden, narrowly on first, broader on the others, these golden bands very thinly covered with glistening white hair; basal half of venter largely light red. Face broad, eyes prominent, not hairy; face and front densely covered with long orange-golden hair; cheeks with long pure white hair; flagellum long, obscurely reddish beneath, normal at apex; vertex dull; thorax above (including tubercles) with fulvous hair, at sides and on metathorax with white hair, contrasting; mesothorax and scutellum dull, without evident punctures; area of metathorax dull hairy; pleura dull; tegulæ dusky testaceous; wings hyaline, slightly dusky; stigma nearly obsolete, nervures dark; basal nervure falling a little short of nervulus; second cubital cell broad below, receiving recurrent nervure in middle; third cubital much broader above than second, receiving second recurrent nervure some distance from end; femora black (anterior pair red in front), knees, tibiæ and tarsi bright ferruginous; middle femora very broad; hind tibiæ with silky white hair on inner side; hind basitarsi with creamy white hair on inner side; hind spurs short and pale; the second abdominal segment, seen from above, shows short white pile at the sides.

Hab.—Two from Eradu, W. Australia, Sept. 8, 1926 (A. J. Nicholson). Runs in my table next to *P. callander* Cockerell, but easily separated by the colour of the abdomen. This is another species which might be placed in *Anthoglossa*, and it has the relatively short first cubital cell. It is also related to *Andrenopsis flavorufus* Cockerell, which has only two cubital cells.

PARACOLLETES CARINATUS (*Smith*).

1853. *Lamprocolletes carinatus* Smith, Cat. Hym. B.M., i, p. 11.
♀. New Holland.

Hab.—Tasmania. Two females.

PARACOLLETES PLUMOSUS (*Smith*).

1853. *Lamprocolletes plumosus* Smith, Cat. Hym. B.M., i, p. 12.
♀. Swan River.

Hab.—Geraldton, W. Australia, Sept. 4, 1926, 3 ♀, 1 ♂ (A. J. Nicholson). Smith described the same species as *bicolor*. The Geraldton male has the tarsi and a large part of the tibiæ red, as Smith indicates for *bicolor*.

PARACOLLETES MEGACHALCEUS *Cockerell*.

1913. *Paracolletes megachalceus* Cockerell, Ann. Mag. Nat. Hist., (8) xii, p. 374. ♀. Clarence River, N. S. Wales.

Hab.—Raymond Terrace, near Newcastle, N.S.W. ♀ (A. F. D'Ombraïn). The specimen is in bad condition with the dorsal hair of thorax rubbed off. A feature of this species is the prominent tubercle on the supraclipeal area.

PARACOLLETES CHALYBEATUS (*Erichson*).

1842. *Andrena chalybeata* Erichson, Arch. f. Naturg., viii, i, p. 268. ♀.

Hab.—♀. Jindabyne, N.S.W.; 3,000 ft., March, 1889 (R. Helms); Tasmania. This is *P. providus* (Sm.), and is not the species which Smith identified as *chalybeatus*.

PARACOLLETES DIODONTUS *sp. nov.*

♀. Length about 13 mm.; head broad, dark blue, with clypeus and supraclipeal area black; mandibles black; clypeus broad and low, rugosopunctate, glistening; antennæ black; face, cheeks and occiput with long white hair, vertex with black hair; thorax black, with anterior (broadly) and posterior margins of mesothorax green; scutellum greenish; pleura dark blue; mesothorax and scutellum shining, with scattered punctures; postscutellum with a very large median bidentate process, on the under side of which is long pure white hair; area of metathorax short, smooth and polished; tegulæ black; wings dilute fuliginous, pallid basally, stigma and nervures very dark, stigma small but not obsolete; basal nervures meeting nervulus, second cubital very broad, receiving recurrent nervure at or a little before middle; third cubital not quite as broad above as second, receiving second recurrent near end; legs black, with white hair on femora, black on tibiæ and tarsi; scopa of hind tibiæ large, black on outer side, pure white on inner; abdomen black, with first segment greenish basally, the very broad depressed margins of the segments beautifully green; on first segment bluish green, on the other yellowish green; apex with a large brush of black hair, venter with much pure white hair, and fourth segment with a very thin band of white hairs; second and third segments before the margin dull and very finely punctured, fourth and fifth with more distinct punctures.

Hab.—Two from Eradu, W. Australia, Sept. 8, 1926 (A. J. Nicholson). Closely related to *P. vigilans* (Smith), but separated by the metallic head, green-banded instead of green abdomen, flagellum not fulvous beneath, and darker wings. *P. subvigilans* Ckll. is also a similar species, but the process on postscutellum is quite different.

PARACOLLETES ROBUSTUS *sp. nov.*

♀. Length 12.3 mm.; black, very robust, head and thorax with long white hair, black on vertex, and broadly tipped with black on thoracic dorsum; mandibles black, broadly rufescent apically; malar space linear; sides of face with long white hair, and no black; flagellum obscurely rufescent beneath; face very broad; clypeus shining but densely punctured; supraclypeal area polished, with a few punctures; mesothorax and scutellum dull, with small punctures; postscutellum unarmed; area of metathorax somewhat shining, but not polished; tegulæ obscure reddish; wings brownish, nervures reddish fuscous; stigma almost obsolete; basal nervure falling a little short of nervulus; second cubital cell very broad, receiving recurrent nervure about middle; first cubital shorter than the other two combined; third cubital receiving second recurrent nervure very near its end; legs black, small joints of tarsi red, and anterior tibiæ in front; and hind tibiæ and basitarsi entirely dark red; scopa of hind tibiæ shining white; abdomen broad, dull, with extremely minute punctures; margins of second to fourth tergites with narrow thin glistening white hair bands; hair at apex black; venter with much white hair.

Hab.—Two from King George's Sound, W. Australia. Runs in my key exactly to *P. tenuicinctus* Ckll., and at first sight appears to be that species, but it is easily distinguished by the very broad apical plate of abdomen, which has no median raised line, and the perceptibly narrower face. The clypeus is less coarsely and densely punctured, and so more shining. *P. advena* (Smith), also related, has the apical plate of abdomen narrow, with converging sides, but there is no raised line.

PARACOLLETES PHANERODONTUS *sp. nov.*

♀. Length 14.3 mm.; head and thorax black, but disc of mesothorax suffused with green; mandibles black; flagellum obscurely reddish beneath toward apex; legs black; abdomen shining steel blue, without spots or bands, the apical hair black; head and thorax with long white hair, rusty black on vertex, disc of mesothorax, and scutellum, but a band of white between mesothorax and scutellum; postscutellum with a stout sharp spine. Malar space very short; clypeus dullish, strongly punctured, slightly green; sides of front dull, but a polished space behind each lateral ocellus; mesothorax and scutellum shining, with rather sparse distinct punctures; area of metathorax shining, the transverse carina obtuse; tegulæ piceous; wings clear, very faintly brownish, stigma and nervures dark reddish brown; stigma small but distinct; basal nervure meeting nervulus; second cubital cell broad, receiving recurrent nervure much before middle; third cubital receiving second recurrent a moderate distance from end; abdomen polished, hardly punctured; venter with white hair. Tibial scopa white on inner side.

Hab.—King George's Sound, W. Australia. Related to *P. subvigilans* Ckll., but the abdomen is differently coloured and the wings are much clearer. It may perhaps rank as a subspecies, but the appearance is very different. From *P. dentiger* Ckll. it is easily known by the smooth polished abdomen.

PARACOLLETES PAVONELLUS *sp. nov.*

♀. Length about 9.3 mm.; head dark green, with clypeus and supra-clypeal area black; thorax dull black, the mesothorax greenish in anterior middle; pleura faintly greenish; legs black with hind tibiæ (except base above) and tarsi clear ferruginous; abdomen beautiful peacock green with a dullish sericeous surface, the apical depressions of tergites black. Mandibles black, rufus at apex; malar space large, polished; clypeus shining but well punctured, flattened in middle; flagellum obscure reddish beneath; hair of head and thorax long, dull white, black on vertex and thoracic dorsum; mesothorax and scutellum dull, without evident punctures; post-scutellum unarmed; area of metathorax somewhat shining; tegulæ dark rufous; wings brownish hyaline, stigma and nervures dark brown; stigma small but distinct; basal nervures meeting nervulus; second cubital cell broad, receiving recurrent nervure distinctly before middle; third cubital receiving second recurrent a moderate distance from end; hind tibial scopa pale clear reddish, some black hairs just below knee; hind basitarsi slightly dusky apically; abdomen without hair bands; apical hair black, but scanty; apical plate very large and broad; venter with long pale reddish hair on middle of second segment, and short hair on those beyond.

Hab.—King George's Sound, W. Australia. Runs in my table next to *P. viridicinctus* Ckll., but the abdomen quite differently coloured. In the colour of the abdomen it resembles *P. boroniae* Ckll., which is much larger, with quite different tibial scopa. There is also some resemblance to *P. amabilis* (Smith).

PARACOLLETES VELUTINUS *sp. nov.*

♂. Length about 11 mm.; black, slender wings unusually short, anterior wing about 7 mm.; hair of head and thorax long, fulvous, rich and bright on face and thoracic dorsum, becoming whitish on cheeks and under side of thorax; head broad, face broad, but eyes distinctly converging below; mandibles black, malar space obsolete; scapa long and black; flagellum slender, reaching as far as base of wings, clear ferruginous beneath; mesothorax moderately shining, not evidently punctured, the disc highly polished; scutellum broad and rather flattened, moderately shining, with a slight median sulcus; area of metathorax highly polished; tegulæ obscure rufous; wings clear; stigma very narrow, with dark margin; nervures dark fuscous; basal nervure meeting nervulus; second cubital cell very broad, receiving recurrent nervure much before middle; third cubital

receiving second recurrent a moderate distance from end; legs slender with long yellow hair; more than apical half of anterior femora, their tibiae and tarsi entirely, apex of middle femora, middle tibiae in front and behind, hind tibiae in front, and middle and hind tarsi, all bright ferruginous; abdomen shining, very minutely punctured, hind margins of segments not discoloured; first two tergites covered all over with thin erect pale fulvous-tinted hair; tergites 3 to 5 with a very broad basal band (variously overlapped by the segment before) of fine pale brown velvet-like tomentum; venter polished, with little hair, but hind margin of fourth sternite with a fringe of bright red hair.

Hab.—Eradu, W. Australia, Sept. 8, 1926 (A. J. Nicholson). Runs in my table to the vicinity of the much smaller *P. abnormis* Ckll., but also suggestive of *P. aurescens* Ckll., *P. aurifrons* Smith, and *P. colletellus* Ckll. The last resembles it in the tomentose bases of the tergites, but is smaller and different in various ways.

PARACOLLETES HELMSI *sp. nov.*

♂. Length about 12 mm.; slender, head and thorax black, with a very slight greenish suffusion on mesothorax; abdomen blue green, moderately shining, not evidently punctured, but microscopically reticulate; hair of head and the thorax long, abundant and erect (long and outstanding on face), dull whitish, but dark fuscous on vertex, upper part of sides of face, and (more grey) on scutellum and adjacent parts; face very broad; mandibles black, obscurely reddened apically; malar space well developed; clypeus dull, closely punctured, shining between the punctures apically; antennae entirely black; flagellum long but rather thick, the sutures impressed; mesothorax dull, shining on disc, weakly punctured; scutellum with a slight median groove, on each side of which it is shining; area of metathorax dull; mesopleura dull; tegulae rufotestaceous, not brightly coloured; wings ample, hyaline, stigma and nervures ferruginous; stigma large; basal nervure almost meeting nervulus; second cubital cell broad below, narrower above, receiving recurrent nervure about the middle; legs mainly reddish-black, with thin, long pale hair, all the tarsi clear chestnut red; anterior tibiae clear red in front, hind tibiae distinctly reddened; abdomen without bands; hair at apex grey.

Hab.—Kosciusko, N.S.W., 5,000 ft., March, 1889 (R. Helms). Runs in my table next to *P. castaneipes* Ckll., which has the face covered with appressed silvery hair. It is really more like a large edition of *P. chalybeatus* (Erichs.), with much dark hair on head and thorax. No doubt it is a mountain form.

PARACOLLETES CARINATIFRONS *sp. nov.*

♀. Length about 10.4 mm.; black, with the depressed hind margins of the abdominal segments lively rufous, and the last

antennal joint bright ferruginous below; mandibles dark red apically; disc of clypeus forming a polished basin, with a median keel, which extends upward to middle ocellus; hair of cheeks and under side of thorax white; face with white hair on each side, not dense; vertex and dorsum of thorax with thin rusty coloured hair, more blackish on scutellum; stigma slender but well developed, rich chestnut red; basal nervure meeting nervulus; second cubital cell very broad, receiving recurrent nervure a little beyond middle; third cubital very broad above, shaped about as in *P. incanescens*, but broader above; anterior basitarsi on inner side with long very bright copper red hair. Runs in my key to *P. incanescens* Ckll., to which it is very closely allied, differing thus: narrower and less robust, the abdomen conspicuously narrower with hind margins of tergites red; area of metathorax transversely striate (as in *P. perpolitus* Ckll.); tegulæ rufous; hair of tubercles and sides of thorax all white; wings browner. It is close to *P. perpolitus* Ckll., based on the male from W. Australia, but the wings differ, and considering the very different locality it does not seem possible that it is the female of *P. perpolitus*. *P. speculiferus* Ckll. is also allied.

Hab.—Sydney, N.S.W. (C. Gibbons). K49023.

PARACOLLETES ALBOVITTATUS *sp. nov.*

♀. Length about 9 mm.; black, shining, the hind margins of the abdominal tergites obscurely brown; hair of head and thorax long and loose, rather dull white (a broad band of white hair on each side of face), on vertex, disc of mesothorax and scutellum stained with pale brownish; mandibles black; malar space obsolete; clypeus extremely densely punctured, with a smooth median line, well developed only on upper half; supraclypeal area prominent and shining in middle; antennæ black, the flagellum very faintly brownish beneath; front and vertex shining; mesothorax and scutellum highly polished, with sparse small punctures, numerous along hind margin of scutellum; area of metathorax polished and shining; posterior truncation strongly concave, forming a basin; pleura shining; tegulæ brownish black; wings brownish; stigma rather small and narrow, dark reddish; nervures dark fuscous; basal nervure falling short of nervulus; second cubital cell broad below, narrower above, receiving recurrent nervure before the middle; third cubital receiving second recurrent a moderate distance from end; legs, black with mainly pale hair, whitish even on inner side, of tarsi; hind tibial scopa white, some black hair below knees (pollen collected round end spinulose, doubtless of Compositæ); abdomen broad, highly polished, but sides and bases of tergites duller; first three segments with a lateral elevation before the depression; segments 2 to 4 with rather broad pure white hair bands, broadly interrupted on 2 and 3, entire on 4; apical tuft large, dark chocolate colour, a tuft of white hair at each extreme side; venter with white hair.

Hab.—Eradu, W. Australia, Sept. 8, 1926 (A. J. Nicholson). In my table it runs to *P. subviridis* Ckll., but the abdomen is not at all greenish, and the hair bands are much wider than in *P. subviridis* or the related *P. advena* (Sm.). It is a unique little species.

PARACOLLETES OPACULUS *sp. nov.*

♀. Length about 9 mm.; rather robust, black, the abdomen very faintly greenish; hair of head and thorax white, pure white at sides of face, long and white on vertex very scanty, with a few scattered dark hairs, on thoracic dorsum; mandibles black; malar space linear; clypeus flattened, dull, very densely and rather coarsely rugosopunctate; supraclypeal area very densely punctured at sides, with a little shining space in middle; front dull; flagellum with apical part strongly reddened beneath; mesothorax and scutellum entirely dull without evident sculpture, but the microscope shows excessively dense, contiguous, minute punctures; area of metathorax dull, with a median transverse elevation; mesopleura dull; tegulæ piceous, very dark; wings dilute brownish, stigma and nervures piceous, stigma small but distinct; basal nervure just falling short of nervulus; second cubital cell narrowed above, receiving recurrent nervure about middle; third cubital receiving second recurrent very near end; postscutellum with a small tubercle; legs black, with pale hair, anterior knees rufescent; the hind femora and tibiæ in type carry a large amount of very bright reddish-orange pollen; middle basitarsi broadened; abdomen broad, dull, without hair-bands, the hind margin of third segment testaceous, the margin of fourth with a little pale hair; under the microscope the surface of the abdomen shows very minute piliferous punctures; hair of fifth and sixth segments greyish-black, with white at each side of fifth; venter with white hair.

Hab.—Geraldton, Sept. 4, 1926 (A. J. Nicholson). Runs to *P. tuberculatus* Ckll., but easily known by the rough opaque clypeus. Also related to *P. obscuripennis* Ckll.

PARACOLLETES FRIESEI *Cockerell.*

1929. *Paracolletes friesei* Cockerell, Amer. Mus. Novit. No. 343, 8th March, 1929, p. 2.

1929. *Paracolletes friesei* Cockerell, Mem. Queensland Mus., ix, 3, 29th June, 1929, p. 306. ♀. King George's Sound, W.A. (Full description.)

Hab.—Female. King George's Sound, W.A. Topotype. The thorax has bright red hair above, but the cheeks, pleura and metathorax have white hair; abdomen shining steel blue shading into green; vertex with sooty hair.

Genus ANDRENOPSIS *Cockerell.*

1905. *Andrenopsis* Ckll., Trans. Amer. Ent. Soc., xxxi, p. 363.

ANDRENOPSIS VELUTINUS sp. nov.

♀. Length about 6 mm., head and thorax black, abdomen black and chestnut red; first tergite dull black with the hind margin broadly red; second the same; third red with a very large transverse black patch, and a black spot at each extreme side; fourth similar, but the black patch not so well defined; hind margin of fourth pale yellowish, almost golden; fifth reddish with dusky apex; no hair bands, but much pure white hair beneath. Mandibles dark, faintly reddish subapically; face very broad, with thin white hair; clypeus somewhat shining with scattered large punctures; antennæ entirely dark; scape long; flagellum short and subclavate; mesothorax and scutellum dull; thorax dorsally and tubercles covered with short velvety yellow-brown hair; area of metathorax somewhat shining, without distinct sculpture (the microscope shows very minute punctures, as dense as possible, confluent in lines); tegulæ dark rufopiceous; wings greyish hyaline; stigma fairly large, dark reddish; nervures fuscous; basal nervure meeting nervulus; only two cubital cells, the first longest; first recurrent nervure joining second cubital cell very near base, second more remote from apex; legs black, with silvery white hair; anterior and middle knees red; apical plate red, broadly truncate. The claws have an inner tooth, and the hind tibial scopa is loose and beautifully plumose.

Hab.—Kojarena, W. Australia, Sept. 6, 1906 (A. J. Nicholson). The second species of the genus, easily known by its much smaller size.

ANDRENOPSIS FLAVORUFUS Cockerell.

1905. *Andrenopsis flavorufus* Ckll., Trans. Amer. Ent. Soc., xxxi, p. 364. ♂. Australia.

Hab.—Sydney, N.S.W., two males (C. Gibbons, K49004). Previously known only from the unique type in the British Museum, labelled "Australia." The mouthparts have not been described, but it can now be said that the maxillary palpi are slender, six-jointed, the first short and stout, the next four longer and about equal in length, but successively more slender, the last longer and very slender; mentum very long; labial palpi four-jointed, first joint stout, second about as long, but more slender, third stoutest, fourth slender and longest; tongue colletiform, short and deeply emarginate. Nothing is known of the habits of this genus, and the female is unknown.

*Family PROSOPIDIDÆ.**Genus EURYGLOSSA Smith.*

1883. *Euryglossa* Smith, Cat. Hym. B.M., pt. 1, p. 17.

EURYGLOSSA FLAVOPICTA Smith.

1879. *Euryglossa flavopicta* Smith, New Sp. Hym., B.M., p. 14. ♀, Champion Bay, W.A.

Hab.—King George's Sound (G. Masters). ♀. This pretty little species is subject to variation, and it may be that more material will indicate racial groups. The present specimen differs from one from Brisbane in having a black stripe at each side of upper part of clypeus, the discal yellow stripes on mesothorax not connected by a cross stripe posteriorly, the scutellum with a large central black mark, the area of metathorax entirely black, and the stigma pale orange.

The Brisbane insect (Mem. Queensland Mus., v, 1916, p. 199) may stand as variety *ornatula* n. var. The stigma is hyaline in middle with a broad very dilute sepia margin; there is a transverse band connecting the yellow discal stripes of mesothorax posteriorly. A very closely related form is *E. euxantha* Perkins, from Port Darwin, which differs in the details of the markings, having, however, the cross band connecting the yellow stripes on mesothorax posteriorly. It has the front of the head below the ocelli dull, whereas in *ornatula* it is shining, and it lacks the two large black clairform stripes descending from the lateral ocelli down the front in *ornatula*.

EURYGLOSSA CAMPBELLI *sp. nov.*

♀. Length about 7 mm., not very robust; black, with pale yellow markings, the yellow parts being the mandibles, labrum, clypeus (except a small spot at each side), broadly triangular supra-clypeal mark (separated by a black line from clypeus), band-like parallel-sided lateral face-marks along orbits (ending obliquely, the point mesad, some distance above level of antennæ); narrow line going down front from middle ocellus; small spots at base and apex of scape, broad band behind eyes, borders of pronotum, and all of tubercles, narrow lateral margins of mesothorax, scutellum, axillæ, postscutellum, broad transverse band just below wings, sides of thorax posteriorly anterior trochanters, much of apical part of their femora, their tibiæ except a black stripe on outer side, middle trochanters, their femora, except a black keel below and an apical dot behind, their tibiæ in front, hind trochanters, their femora except a small apical mark, large triangular mark on each side at base of second abdominal tergite, large transverse marks (incised behind at margin) at lateral bases of third and fourth segments, much smaller marks at sides of fifth. Venter and hind tibiæ black; tarsi dull reddish; face broad; front dull; flagellum ferruginous beneath; mesothorax and scutellum dull, the latter with two faint spots; base of metathorax dullish; tegulæ dull reddish; wings dusky hyaline; stigma dilute brown, with darker margin, nervures pale; first recurrent nervure joining second cubital cell a short distance from base; abdomen moderately shining; apical plate very narrow.

Hab.—Almaden, North Queensland, April 25, 1928 (W. D. Campbell). A distinct species, something like *E. quadrimaculata* Smith, but easily distinguished by the markings. The hind tibiæ have short pale hair, but no scopa.

EURYGLOSSA RAINBOWI *sp. nov.*

♀. Length about 8 to 8.3 mm.; robust, with broad abdomen; head and thorax shining black, with little hair; mandibles black; flagellum rather narrowly ferruginous beneath except at base; face broad, convex, very highly polished, the clypeus with a few scattered punctures, the supraclypeal area with none; front polished, with widely scattered punctures; cheeks small; mesothorax dullish anteriorly, posteriorly polished, hardly punctate (the microscope shows a tessellate surface and scattered very small punctures); scutellum like disc of mesothorax; area of metathorax shining, but not polished, the surface microscopically tessellate; mesopleura with rather large punctures; tegulae piceous, posteriorly pallid; wings dusky hyaline; stigma ferruginous with dark margin, nervures dark fuscous; a rather faint cloud at apex of wing; basal nervure falling short of nervulus; second cubital cell very large, receiving recurrent nervures about equally far from base and apex; legs black, with thin pale hair, but anterior and middle knees pale, anterior tibiae broadly pale reddish (a sort of honey colour) in front; all the tarsi very obscurely reddish; abdomen broad, dullish, dusky or clear red, not banded; the tergites are more or less dusky in middle, especially posteriorly, and at the extreme sides are heavily blackened, the black areas alternating with pallid ones; venter red suffused with blackish.

Hab.—Blackwood, South Australia, Nov., 1912. 2 ♂ (W. J. Rainbow). Close to *E. edwardsii* Ckll., but without the patches of white hair seen in that species.

EURYGLOSSA AUREOPICTA *sp. nov.*

♀. Length about 7 mm.; robust; head and thorax black, dullish, the punctures excessively minute; mandibles castaneous, darker apically; clypeus black, polished, sparsely punctured; lateral face marks large, orange (reddened by cyanide in type), shaped like stout feet on tip-toe, filling space between clypeus and orbits, ending broadly above about half way up front, and widely separated from orbits; hair of head and thorax thin, greyish; scape entirely bright orange; flagellum ferruginous, dusky above; area of metathorax dull, without evident sculpture (the microscope shows excessively fine transverse lineolation); tegulae and a pair of conical callosities at base of anterior wing opaque very bright orange-yellow; tubercles large, orange; wings hyaline, slightly milky, stigma dark reddish; second recurrent nervure meeting outer intercubitus; legs very dark reddish brown, with pale hair, ends of tarsi clear red; abdomen broad, dull, obscurely bluish-green, the hind margins of the segments piceous.

Hab.—King George's Sound, W.A. Easily known by the opaque bright orange tegulae and orange scape.

*Genus EURYGLOSSIDIA Cockerell.*1910. *Euryglossidia* Cockerell, Ann. Mag. Nat. Hist., (8) vi, p. 358.*EURYGLOSSIDIA CYANESCENS sp. nov.*

♀. Length about 5.5 mm.; head and thorax black, with thin white hair; abdomen with first three segments very bright ferruginous red, with a faint purple lustre, the second tergite with an oval black spot on each side; remaining tergites dark with a strong bluish or blue-green lustre, the apical tuft of hair black; mandibles reddened apically; flagellum thick (subclavate), bright ferruginous beneath; face very broad, with thin white hair; clypeus somewhat shining, finely punctured; supraclypeal area highly polished, brilliant; front dull; mesothorax and scutellum closely punctured, shining between the punctures; postscutellum shining; area of metathorax dull, with very delicate radiating striæ; tubercles with much white hair; metathorax on each side with a very conspicuous stiff fringe of white hair; tegulæ shining rufous; wings dilute brownish, stigma dark brown, nervures paler; basal nervure falling a little short of nervulus; second cubital cell extremely long, the first recurrent nervure ending as far from its base as about 1.25 times first intercubitus, second recurrent very near its apex; legs black basally, knees, tibiæ and tarsi bright chestnut red, hind basitarsi blackened, the hair on their inner side shining creamy-white; hind spur with three long sharply pointed (aculeate) branches, and the apex long and very sharply pointed.

Hab.—Kojarena, W. Australia, Sept. 6, 1926 (A. J. Nicholson). A very pretty little species, closely allied to *E. simillima* (Smith), but known by the red tibiæ.

EURYGLOSSIDIA MASTERSI sp. nov.

♀. Length 9 mm.; head and thorax black, abdomen chestnut red, with a purple lustre; mandibles reddened apically; flagellum obscure reddish beneath; tegulæ rufotestaceous; wings reddish-hyaline, stigma dusky rufous, nervures paler; anterior femora apically, and their tibiæ entirely, ferruginous, legs otherwise dark with pale hair; tarsi red at tip; hair at apex of abdomen dark fuscous; a distinct caudal plate. This is so much like *E. purpurascens* Ckll. that I was about to consider it identical, but the following differences are decisive: clypeus convex, not flattened on disc; scutellum more closely punctured, with no median depression; anterior tibiæ red; stigma shorter, being more obtuse apically; nervures much paler; first recurrent nervure reaching second cubital cell at a distance from base equal to about two-thirds first intercubitus; outer intercubitus regularly curved.

Hab.—King George's Sound (Geo. Masters).

EURYGLOSSIDIA VIRIDESCENS *sp. nov.*

♀. Length about or nearly 6.5 mm.; head and thorax black, the extremely large dullish area of metathorax slightly greenish; abdomen ferruginous, rather dusky or fairly bright, with the fourth segment and beyond dark olive green, the red segments with a transverse dusky subapical band, that on the second conspicuously undulate; extreme sides of second tergite with a large oval black spot; mandibles, labrum and clypeus black; flagellum clear red beneath except at base; tegulæ rufotestaceous; wings clear; stigma large, dusky red, nervures fuscous; legs mainly black, with white hair (tibial scopa white), anterior and middle knees red; tibiæ more or less reddish at base and apex; tarsi brown. Face very broad, with thin white hair; clypeus moderately shining, with conspicuous punctures; supraclypeal area elevated, shining, faintly greenish; front and vertex dull; mesothorax slightly shining, the punctures very minute, not clear under a lens; scutellum conspicuously shining; basal nervure meeting nervulus; second cubital cell long and produced apically, as usual in genus; first recurrent nervure received about as far from base as three-fourths first intercubitus; second recurrent meeting or almost meeting outer intercubitus; abdomen with the red parts dull, the others shining; apical tuft brown; venter reddened, with white hair.

Hab.—Geraldton, W. Australia, Sept. 4, 1928. 3 ♀ (A. J. Nicholson). Distinct by the coloration of abdomen and the venation.

EURYGLOSSIDIA NIGRESCENS *sp. nov.*

♂ (type). Length nearly 6 mm.; very slender, with narrow abdomen and extremely long antennæ; head and thorax black with thin long white hair, abundant on face (but not concealing surface), cheeks and occiput; mandibles black with tip red; malar space obsolete; facial quadrangle longer than broad, eyes distinctly converging below; clypeus shining, with large irregular punctures; front and vertex dull; scape rather short, shining black; flagellum very long, ferruginous beneath, dusky (but not black) above; mesothorax small and dull; scutellum and postscutellum microscopically sculptured all over the suture between them with a series of shining foveæ; area of metathorax very large, sharply defined, with an extremely fine microscopic reticulation; tegulæ reddish; wings clear hyaline, beautifully iridescent, stigma rufous with a dark margin, nervures fuscous; basal nervure nearly meeting nervulus; second cubital cell long, receiving first recurrent nervure at a distance from base equal to about half first intercubitus; second recurrent received almost at end; legs black, with knees, anterior tibiæ (dusky behind), middle and hind tibiæ at base and apex, and tarsi, ferruginous; abdomen very dark brown, in some lights faintly greenish, the hind margins of tergites 2 to 4 more or less pallid; venter with thin glittering white hair.

♀ more robust and a little longer; face broad, with the white hair at sides conspicuous; supra clypeal area shining, slightly greenish, with widely scattered punctures; antennæ short as usual in this sex, the slightly clavate flagellum clear ferruginous beneath except at end; legs darker, but anterior tibiæ entirely pale red in front; abdomen robust, with a dullish surface, very obscurely greenish; apex with dark fuscous hair; apical plate broad, narrowly truncate.

Hab.—Geraldton (type locality), W. Australia, Sept. 4, 1926, 2 ♂, 1 ♀ (A. J. Nicholson); Eradu, W. Australia, Sept. 8, 1926, 2 ♂ (A. J. Nicholson). Very distinct by the size and colour. There is a striking resemblance between the genus *Euryglossidia* and the South African genus *Strandiella* Friese. I believe there is some real affinity.

EURYGLOSSIDIA ERADUENSIS sp. nov.

♀. Length about 9 mm. (but abdomen is extended in type), long and narrow; dark green, the clypeus black, and the entirely dull mesothorax almost black; hair of head and thorax thin and white; face very broad, facial quadrangle broader than long; mandibles black, a little reddish apically; malar space obsolete; clypeus shining, but strongly and rather closely punctured, the punctures tending to be in rows; supraclypeal area polished, impunctate; antennæ rather long and slender, scape very long, curved, flagellum slender, very obscurely reddish beneath apically; front and mesothorax dull; scutellum dull, extremely closely and finely punctured, the punctures just visible under a lens; area of metathorax semi-lunar, dull, microscopically reticulate, and at sides with fine plicæ; tegulæ dark rufous; wings reddish hyaline; stigma dusky red, very obtuse at end; nervures fuscous; basal nervure nearly meeting nervulus; second cubital cell very long, longer below than first, receiving first recurrent nervure at a distance from base greater than length of first intercubitus, and second recurrent very near apex; legs black, with pale hair, tarsi reddened at tips; spur of anterior tibia peculiar, with a broad lateral translucent plate, and beyond that four sharp lateral spines; abdomen dullish, with microscopical transverse lineolate-reticulate sculpture; apex with fuscous hair; apical plate large.

Hab.—Eradu, W. Australia, Sept. 8, 1926 (A. J. Nicholson). Easily known by the size, colour and venation. A key to the species of *Euryglossidia* will appear later in my synopsis of Australian bees.

Genus GNATHOPROSOPIS *Perkins, subg.* SPHÆRHYLÆUS nov.

1912. *Gnathoprosopis* Perkins, Ann. Mag. Nat. Hist., (8), ix, p. 104.

Orthotype.—*Prosopis euæantha* (Ckll. 1910) = *Prosopis æanthopoda* Cockerell 1910, nom. præocc.

Large bees, with globose male scape and large processes at sides of third abdominal sternite, but mandibles elongate (not abbreviated as in *Gnathoprosopis*); basal area of metathorax strongly rugose, hardly defined; stigma small; first recurrent nervure ending at base of second cubital cell; first abdominal segment very large; end of abdomen retracted, hairy. Type the following:

GNATHOPROSOPSIS (SPHÆRHYLEUS) GLOBULIFERA *sp. nov.*

♂. Length 12 mm.; black, very robust, the thorax and abdomen above with thin short brown hair, but vertex, and abdominal segments beyond the third, with erect rather coarse black hair; apical part of abdomen slightly purplish; mandibles rather long and slender, black, bidentate; malar space almost obsolete; clypeus black, narrow, obtusely ridged in middle; sides of face (except lower end) up to level of middle ocellus, and front right across, bright chrome yellow; scapes developed into a pair of enormous yellow globular structures, which between them occupy the whole width of the face, and posteriorly fit into reddish depressions in the front; flagellum short, dark above, bright ferruginous beneath; mesothorax and scutellum dull, excessively minutely and closely punctured; the only yellow on thorax is on the tubercles, narrow upper border of prothorax (interrupted) and a small spot on the dark brown tegulæ; area of metathorax rugose; wings hyaline, slightly dusky, stigma and nervures piceous, basal nervure falling just short of nervulus; legs very dark brown, anterior tibiæ bright ferruginous in front; abdomen strongly punctured, moderately shining; third ventral segment on each side with a very large lamina, rounded anteriorly and produced into a stout spine posteriorly.

Hab.—King George's Sound (K.48307). One of the most remarkable bees yet discovered.

GNATHOPROSOPSIS AMICULINA *Cockerell.*

1916. *Gnathoprosopis amicula* Ckll., Mem. Q'land Mus., v, p. 198. ♂, nec Smith, 1879.

1922. *Gnathoprosopis amiculina* Ckll., Mem. Q'land Mus., vii, iv, p. 265. ♀, ♂, Brisbane, Q.

Hab.—Burrenjuck, Feb., 1911. ♂.

GNATHOPROSOPSIS AMICULA (*Smith*).

1879. *Prosopis amicula* Smith, Descr. New Sp. Hym., B.M., p. 19. ♀, Champion Bay.

Hab.—One Tree Hill, Brisbane, Q., Dec. 12, 1925, 2 ♀, 1 ♂ (A. Musgrave); Sydney, Sept., Oct., 2 ♂. This species was described from the female. In 1916 I described what I considered

to be the male, but it proved later to be a distinct species (*G. amiculina* Ckll.). I now have the real male before me, agreeing with the female in size, general appearance, sculpture of thorax and venation. It has the face shining as in *G. amiculiformis* (Ckll.), and is in fact very like that species, but the tibiæ are entirely bright orange-yellow; the hind femora are black with the apex yellow, the other femora are all yellow except at base; mandibles yellow; third abdominal sternite with a pair of small protuberances.

Genus MEROGLOSSA Smith.

1853. *Meroglossa* Smith, Cat. Hymen., B.M., i, p. 33, n. 11.

MEROGLOSSA DESPONSA (*Smith*).

1853. *Prosopis desponsa* Smith, Cat. Hymen., B.M., i, p. 31, n. 48. ♀, Australia.

Hab.—Sydney, ♀ (C. Gibbons).

MEROGLOSSA KELVINI (*Cockerell*).

1912. *Prosopis Kelvini* Cockerell, Ann. Mag. Nat. Hist., (8) x, p. 489. ♀, Brisbane, Q.

Hab.—Hornsby, March 5, 1919, ♂ (C. Gibbons). The specimen is peculiar for having the yellow on prothorax narrower, and well separated from that of tubercles, and the abdomen very obscurely reddish. This species has been placed in *Prosopis* or *Hylæus*, but it must be transferred to *Meroglossa*.

Genus PALÆORHIZA Perkins.

1908. *Palæorhiza* Perkins, Proc. Hawaiian Ent. Soc., ii, p. 29.

PALÆORHIZA (HETERORHIZA) HEDLEYI *sp. nov.*

♂. Length about 9 mm., anterior wing 7.7 mm.; black, rather robust, with light (not bright) yellow markings; face long and narrow, malar space large; mandibles black, labrum with a small yellow spot; clypeus very long, yellow with a narrow median keel, on each side of which is a groove; lateral edges of clypeus very narrowly black, and at each side of lower half this black is broadened into a shining depression; lateral face marks long and narrow, extending to top of eyes, abruptly narrowing at sides and front; a yellow stripe from ocelli to clypeus broadened at lower end; posterior orbits bordered by yellow; scape yellow in front, reddened behind; especially at base; flagellum dark, obscurely reddish beneath; mesothorax and scutellum closely punctured, the mesothorax dull; area of metathorax large, with strong longitudinal and radiating fluting; pleura finely and closely punctured, but shining;

sides of metathorax dull and excessively closely and minutely rugosopunctate; yellow markings of thorax including upper margin of prothorax, tubercles, four stripes on mesothorax, the lateral ones marginal, stripes covering axillæ and sides of scutellum, post-scutellum except a quadrate black space in middle, two spots on area of metathorax, vertical bar below tubercles, transverse bar (narrowly broken) just below wings and another on lower part of mesopleura; tegulæ dark reddish, with a yellow spot; wings brown, quite dark, stigma and nervures dark; basal nervure meeting nervulus a little on outer side; second cubital cell moderately narrower above, receiving the recurrent nervures some distance from base and apex; anterior and middle trochanters and femora light red in front, the femora with a pale yellow apical spot; hind trochanters and femora black (except apical yellow spot of latter), the trochanters swollen; on the inner side the anterior femora are yellow from base to apex; anterior tibiæ yellow with a black stripe behind, but their tarsi dark; middle tibiæ reddish in front, black behind, pale yellow at base, the tarsi dark; hind tibiæ black with a yellow basal spot, their tarsi with red hair on inner side abdomen shining, finely and weakly punctured, the segments beyond the second with a fine pruinose pubescence; first segment with a large V-shaped yellow mark on each side, second with a transverse bar on each side, third with smaller marks, and fourth with still smaller; apex appearing broadly truncate, with a small spine at each corner. One specimen has the markings red, but this is due to cyanide.

Hab.—Murray Island, Torres Straits, 1907 (Chas. Hedley and A. R. McCulloch, K.28377). Three males, and another from the same source in the Queensland Museum. This belongs to the subgenus *Heterorhiza* Ckll., easily known by the fluted area of metathorax. The other species of this group are *P. melanura* (Ckll.), *P. denticauda* (Ckll.), and *P. longiceps* (Friese). The absence of red on the abdomen, with the presence of the V-like marks easily distinguish *P. hedleyi*.

Genus HYLÆUS *Fabricius*.

1793. *Hylæus* Fabricius, Ent. Syst., ii, p. 302.

HYLÆUS MUSGRAVEI *sp. nov.*

♂. Length about 10·5 mm.; robust, head and thorax black, the head very faintly metallic; abdomen deep rich purple shaded with green, very finely punctured; mandibles black, ordinary; face narrow, the very high clypeus (except lower edge), and broad lateral face marks bright orange, the lateral marks ending in a broad somewhat oblique truncation just above level of antennæ; supraclypeal area black; front and vertex entirely dull, cheeks with thin white hair; antennæ moderately long, entirely black, scape thick, but not

remarkable; mesothorax dull, rugulose, scutellum more shining; scutellum with a large triangular orange spot in middle, post-scutellum with a smaller spot; tubercles large and flattened, orange; upper border of prothorax with a pair of orange lines; extreme base of metathorax with strong plicæ, the depressions between them shining, the lower part of the triangular area dull, without evident sculpture; tegulæ very dark brown; wings hyaline, faintly dusky; first recurrent nervure meeting intercubitus; legs black, anterior tibiæ light in front; apex of abdomen bidentate, the two structures very close together, obtuse apically; ventral segments 2 to 4 with white hair-bands.

Hab.—King George's Sound (K.37253). A very distinct species, running in my (MS.) key to *P. xanthaspis* Ckll., but much larger with scutellum and postscutellum only spotted. Named after Mr. A. Musgrave, who has made many contributions to Australian entomology.

HYLÆUS HONESTUS (*Smith*).

1879. *Prosopis honesta* Smith, Descr. New Sp. Hym. B.M., p. 19, n. 7. ♂, Tasmania.

Hab.—Tasmania, ♂. The wings are somewhat dusky.

HYLÆUS MOROSUS (*Smith*).

1879. *Prosopis morosa* Smith, Descr. New Sp. Hym. B.M., p. 26, n. 27. ♀, Australia.

Hab.—Hornsby, March, 1909, ♀ (C. Gibbons).

HYLÆUS METALLICUS (*Smith*).

1862. *Prosopis metallicus* Smith, Trans. Ent. Soc. Lond. (iii), i, 2, p. 59. ♀, ♂, Australia.

Hab.—Berowra, near Hawkesbury River, N.S.W., Dec. 11, 1923, ♂. One has the abdomen more conspicuously metallic than the other, but they are otherwise identical. They are 8.5–9 mm. long, which seems rather large, but they agree with Smith's description (of the supposed ♀, which is a male) and my notes of Smith's type.

HYLÆUS PERPLEXUS (*Smith*).

1853. *Prosopis confusa* Smith, Cat. Hymen. B.M., i, p. 30. ♀ (not Nylander).

1854. *Prosopis perplexa* Smith, Cat. Hymen. B.M., ii, p. 421, nom. nov. New Holland.

Hab.—French's Forest, N. Sydney, Nov. 7, 1922, ♀ (A. Musgrave).

This is certainly very near to *H. metallicus* Smith.

HYLÆUS AMATIFORMIS *sp. nov.*

♀. Length about 9.5 mm.; black, with broad cuneiform lateral face marks, tubercles, scutellum and postscutellum very bright deep orange; abdomen dark obscure green, the hind margins of the segments black. The upper border of prothorax has minute hardly noticeable yellow dots, almost exactly like the Queensland *H. amatus*, but certainly distinctly the following characters; larger (*H. amatus* less than 9 mm.); upper part of clypeus dullish, smooth, not striate; lateral face marks broader; abdomen obscure green instead of steel blue. It is also near *H. perplexus* Sm.

Hab.—King George's Sound (K.37234).

HYLÆUS GRACILICAUDIS *sp. nov.*

♀. Length about 9 mm.; black, rather slender, the abdomen quite narrowly tapering at end; pubescence almost lacking, but long dark hairs on apical part of abdomen; apical half of middle tibiæ, and their basitarsi, posteriorly with a conspicuous band of shining white hair; hind femora apically behind with such a band, and the same on posterior edge of apical half of hind tibiæ; head ordinary, black, with broad orange lateral marks, filling space between clypeus and eye, and truncate (slightly emarginate) a short distance above level of antennæ; clypeus high, with large not very dense punctures; flagellum ferruginous beneath; mesothorax dull, with scattered very weak punctures (under the microscope they appear strong, on a very minutely tessellate surface); the following parts are bright orange; thickened and elevated upper border of prothorax (not joining tubercles), tubercles, scutellum, and large triangular spot on postscutellum; basal area of metathorax extremely short, not distinctly defined or sculptured (the microscope shows very small shining basal pits); posterior truncation entirely dull; tegulæ dark rufous; wings clear hyaline, stigma and nervures dark reddish; basal nervure falling a little short of nervulus; first recurrent nervure ending near apex of the extremely long first cubital cell; legs black, anterior tibiæ red in front; abdomen shining with small scattered punctures (the microscope shows two sizes, those visible under a lens, and excessively minute ones); venter normal, except that first sternite is swollen in the middle.

Hab.—King George's Sound (K.48293). Nearest to *H. daveyi* Ckll., from Victoria, but known by the rufous tegulæ, orange of postscutellum reduced venation, and other characters.

HYLÆUS TASMANI (*Cockerell*).

1929. *Hylæus simillimus tasmani* Ckll., Mem. Queensland Mus., ix, 3, p. 313. ♀, Tasmania.

Hab.—Tasmania, ♀. I described this as a race of *H. simillimus* Smith, but it is probably a distinct species, as the area of meta-

thorax is not rugose, but large and somewhat shining; the microscope shows excessively fine lines and reticulations. Also, the lateral face marks do not end on the orbital margin above, but are distinctly separated from it. The type locality of *H. simillimus* is Moreton Bay. The type of *H. tasmani* had the yellow on post-scutellum reduced to a transverse median mark, but in the new specimen this yellow area is much larger, leaving only the sides black. It is a large, robust insect, with very stout abdomen, which is closely punctured.

HYLÆUS GIBBONSI *sp. nov.*

♀. Length about 9 mm.; rather robust, black, with very little pubescence, but conspicuous white hair at sides of thorax posteriorly, a patch of bright white hair on inner face of middle tibiæ near apex, and white hair on inner face of posterior tarsi, conspicuous as a bright white line from behind; light markings chrome yellow (on thorax reddened by cyanide in type), consisting of lateral face marks, carrot-shaped in outline, rounded above at level of antennæ, pointed below, reaching about half way down sides of the very long clypeus; on thorax only the thickened collar and the tubercles are yellow, the yellow of collar narrowly but evidently separated from that of tubercles; tegulæ very dark brown; wings hyaline, with dark stigma and nervures, basal nervure falling short of nervulus, recurrent nervures joining second cubital cell about equally distant from its base and apex; legs black; abdomen pure black. Head elongated, with large malar space, clypeus not punctured (as seen under the lens), but with a median longitudinal raised line; under the microscope the clypeus and supra-clypeal area are seen to have a remarkable structure of dense longitudinal striæ, and the clypeus also widely spaced minute punctures; flagellum clear ferruginous beneath except basally; mesothorax dullish, very minutely and densely punctured; scutellum very finely and closely punctured, but more shining; area of metathorax rugose; abdomen finely and closely punctured, the microscope shows the first two tergites with the surface minutely transversely lineolate, and the punctures much smaller and less closely placed than on the mesothorax and scutellum. Mandibles long enough to reach well beyond middle of clypeus. Abdominal venter not modified.

Hab.—Sydney, N.S.W. (C. Gibbons) (K.49012). Runs in my table next to the much smaller *H. amiculiformis* Ckll.

HYLÆUS NUBILOSUS SUBNUBILOSUS (*Cockerell*, 1910).

Hab.—Sydney, N.S.W., 2 ♂ (C. Gibbons). Meade-Waldo placed this species in *Palæorhiza*. It is not a typical member of *Hylæus* or *Palæorhiza*.

HYLÆUS CHRYSOGNATHUS (*Cockerell*).

1910. *Prosopis chrysognatha* Ckll. Journ. New York Ent. Soc., xviii, p. 102. ♀, ♂.

Hab.—Hornsby, ♂ (C. Gibbons).

HYLÆUS FREDERICI (*Cockerell*).

1853. *Prosopis similis* Smith, Cat. Hymen. B.M., i, p. 26 (nec. Fab. 1793).

1905. *Prosopis frederici* Ckll. Ann. Mag. Nat. Hist., (7) xvi, p. 403, nom. nov.

Hab.—King George's Sound, ♀. The specimen is peculiar for having a small broken yellow line on upper border of prothorax.

HYLÆUS INDECISUS *sp. nov.*

♀. Length about 6.3 mm.; head and thorax black, abdomen dusky red; mandibles dark red except at base and tip; labrum dark red; clypeus entirely black, dull, finely longitudinally striate and minutely punctured; lateral face marks represented by short yellow lines close to orbits opposite antennæ, but no other face marks; antennæ clear ferruginous, the scape slightly dusky in middle; no light marks on thorax except a pair of short cream coloured stripes on upper border of prothorax; mesothorax dull; scutellum dull, more or less shining at each side; tegulæ very dark reddish; wings hyaline, stigma and nervures light rufotestaceous; second cubital cell long, receiving first recurrent nervure near base; femora black except knees; anterior tibiæ pale yellowish red in front; middle and hind tibiæ dark, slightly pale at base and apex, the hind ones yellowish-white at base; tarsi clear ferruginous; abdomen red, variably dusky, not banded, its form robust and pyriform.

Hab.—Sydney, N.S.W., 2 ♀ (C. Gibbons). This species caused me some perplexity, because it so greatly resembles *Euryglossa semicastanea* Ckll., that I had placed it among the *Euryglossa*. However, it has no appreciable malar space, and does have a small and narrow but quite distinct pygidial plate, whereas *E. semicastanea* has a short but evident malar space, and no pygidial plate; nevertheless, the resemblance is astonishing. The stigma is exactly alike in the two bees, and while the second cubital cell is considerably longer in the type of *H. indecisus* than in the *Euryglossa*, the cotype has it as in the latter. It is difficult to believe that these bees are not closely related.

Genus HYLEOIDES *Smith*.

1853. *Hyleoides* Smith, Cat. Hymen. B.M., i, p. 32, n. 10.

HYLEOIDES CONCINNA (*Fabricius*).

1775. *Vespa concinna* Fabricius, Syst. Entom., p. 367, n. 21. New Holland.

Hab.—Cheltenham, Dec. 13, and National Park, Dec. 20, both N.S.W. (C. Gibbons). First collected by Banks on Captain Cook's first expedition and described by Fabricius as a wasp, which it much resembles.

HYLEOIDES ZONALIS *Smith*.

1853. *Hyleoides zonalis* Smith, Cat. Hymen. B.M., i, p. 33, n. 2. ♀, Australia.

Hab.—Two from Gayndah, Queensland. Smith says the tubercles are yellow, but they are black, with a large quadrate orange patch immediately behind them.

Family ANDRENIDÆ.

Genus NOMIA *Latreille*.

1805. *Nomia* Latreille, Hist. Nat. Crust. et Ins., xiii, p. 369, n. 411.

NOMIA FROGGATTI *Cockerell*.

1911. *Nomia froggatti* Ckll., Proc. Linn. Soc. N.S.W., xxxvi, p. 165. ♀, Solomon Islands.

Hab.—Lavoro Plantation, Guadalcanal I., Solomon Is., Sept., 1927, 1 ♂, 1 ♀ (C. E. Hart).

NOMIA PULCHRIBALTEATA *Cameron* 1901 *subsp. PAPUANA nov.*

♀. Length about 10 mm.; robust, black, the hind margins of abdominal tergites 1 to 4 with narrow pale tegumentary bands, more or less suffused with emerald green (the bands of *N. ellioti* Sm. are more than twice as broad); clypeus dull, with a median and lateral keels; supraclypeal area also keeled; hair of face and thoracic dorsum pale ochreous; of cheeks, pleura and sides of metathorax white; antennæ black, scape long; mesothorax and scutellum dull, closely punctured; scutellum obtusely bigibbous, but not tuberculate; postscutellum with a pair of stout pointed teeth; area of metathorax very short, transversely ridged laterally; tegulæ black with pallid margin; wings greyish hyaline, not at all reddish, with a vague dusky apical cloud; second cubital cell receiving recurrent nervure at or a little beyond middle; legs black with pale hair, light reddish on inner side of hind tarsi; abdomen well but shallowly punctured; apex with fuscous hair.

Hab.—Kokodato, Isurava, British New Guinea, June 14, 1921 (E. O. Pockley).

Typical *N. pulchribalteata* Cameron comes from New Britain, and has strongly reddish wings. I possess only the male, but on comparison feel sure that the New Guinea insect is at least a subspecies. In *N. pulchribalteata* the teeth on postscutellum are more slender, and divergent, the area of metathorax has cross-ridges in middle at base (the surface at this point in *papuana* dull, without any ridges), and the scutellum is bituberculate. It is thus not improbable that the discovery of the male will show *papuana* to be a distinct species.

NOMIA KURANDINA Cockerell 1910 *subsp. FORTIOR nov.*

♂. Larger, fully 10 mm. long; antennæ and tegulæ entirely black; clypeus practically all pallid brownish; mesothorax shining between the punctures; inner apical lobe of hind tibiæ broadly yellowish ferruginous; seen from above the abdomen appears constricted between the first and second segments, and in the constriction is dense white hair; broad band of white hair on third segment not overlapped by long pale hairs; apex with coarse black hair. The dark apical spots on anterior wings are large and very conspicuous.

Hab.—Gundamaian, Port Hacking, N.S.W., Jan. 30-31, 1925 (T. G. Campbell). In the closed apical lobe of hind tibia, but not otherwise, this resembles the form from Mackay, which Friese called *N. macularis*.

NOMIA FERRICAUDA Ckll. 1913 *subsp. MUSGRAVEI nov.*

♀. Third abdominal segment all black, with the broad band of appressed hair greyish white; fourth segment black at base, and more broadly at sides, the abdomen beyond this red; area of metathorax not so large, and not so distinctly and regularly cross-ribbed.

Hab.—Como near Sydney, N.S.W., Nov. 7, 1923 (A. Musgrave and T. G. Campbell).

NOMIA FLAVOVIDIS Ckll. 1905 *subsp. EXCELLENS nov.*

♂. Larger or at least more robust; hind femora considerably stouter, hind tibiæ very broad and thick; femora apically, and hind ones in greater part, ferruginous; tibiæ and tarsi red, with pure white hair. Head and thorax hardly metallic but the pleura conspicuously green; abdomen obscurely green, dull and extremely densely punctured, the hair bands white, on a brassy surface; flagellum very dark brown above, ferruginous beneath; tegulæ extremely bright apricot colour; stigma and nervures dusky reddish; two very conspicuous spots of white pubescence in front of scutellum.

Hab.—Sydney, N.S.W. (C. Gibbons). Perhaps a distinct species. We now know eight forms of this group of *Nomia*, and it

is difficult to say whether all should be treated as races of one (in which case *N. ænea* Smith, from Port Essington, would be the name of the species), or as a series of closely related species.

NOMIA MÆRENS Smith 1875, *subsp.* *ULONGENSIS* nov.

♂. Length 10·5 mm.; entirely black, except that the anterior tibiæ are dusky red in front, the other tibiæ variably red at base and apex, the hind tibiæ obscure or rather clear red or brown, with a dusky area on outer side, the tarsi are dull reddish, and the tegulæ deep chestnut red. The male of *N. mærens* Smith has not been described, but this insect differs from it structurally only in the usual sexual characters, and I should refer it to typical *N. mærens*, but for the conspicuous red tegulæ. The area of metathorax with fine cross ridges, is exactly the same. The following characters of the male should be noted; mandibles and clypeus entirely black, the latter coarsely punctured; antennæ long, entirely black; hind femora swollen, shining, not appreciably curved; hind tibiæ stout, trigonal, the anterior edge bulging, but no apical lobe; abdomen parallel-sided, finely and closely punctured, tergites 2 to 5 with narrow white hair bands, not very conspicuous, otherwise they are beset with erect black hair; venter flat. The wings are dusky hyaline, the outer margin a little darker, especially the apex. Stigma small and dusky red, as in *N. mærens*.

Hab.—Ulong, East Dorrigo, N.S.W., Feb.-April, 1923, 6 ♂ (W. Heron).

NOMIA AURANTIFER SWAINSONIÆ Cockerell.

1921. *Nomia aurantifer swainsoniæ* Ckll., Mem. Queensland Mus., vii, 3, p. 82. ♂, ♀, National Park, Queensland.

Hab.—Two of each sex; Sydney (C. Gibbons). In Hacker's Catalogue (Hacker, Mem. Queensland Mus., vii, 3, 1921, p. 132), *N. lutesfaciata* Friese is placed under this form; it belongs to *N. aurantifer* proper.

Genus HALICTUS Latreille.

1804. *Halictus* Latreille, Nouv. Dict. H.N., xxiv (tab.), p. 182.

1805. *Halictus* Latreille, Hist. Nat. Crust. et Ins., xiii, p. 364, n. 409.

HALICTUS PERAUSTRALIS Cockerell.

1904. *Halictus peraustralis* Cockerell, Ann. Mag. Nat. Hist., (7) xiv, p. 211. ♀, S. Australia.

Hab.—National Park, N.S.W., Dec. 23, 1906, ♀ (C. Gibbons). This resembles a small Eumenid wasp.

HALICTUS BLANDULUS sp. nov.

♀. Length nearly 6 mm., broad and robust; head and thorax black, thinly but conspicuously hairy, the hair greyish white, very faintly yellowish dorsally; mandibles reddened apically; flagellum obscurely reddish beneath; tegulæ rufotestaceous; wings hyaline, strongly iridescent, stigma dull testaceous; outer recurrent and intercubitus obsolescent; legs dark rufous, with much dark reddish brown except the broad apical margin, apex with very pale, slightly yellowish hair. Head ordinary, face broad, but orbits converging below; clypeus and supra clypeal area shining, with sparse distinct punctures; front dull, but a crescentic shining space in front of middle ocellus; mesothorax and scutellum shining, but distinctly and quite closely punctured; scutellum with a median sulcus; area of metathorax large, dull, with a fine uniform granular sculpture (under microscope fine irregular rugæ, the spaces between them very delicately reticulate or lineolate); hind spur of hind tibia with two distinct obtuse teeth, and others minute and rudimentary.

Hab.—King George's Sound, W.A. Resembles *H. clarigaster* Ckll., but abdomen much broader and duller, and flagellum not distinctly red beneath. Easily known from *H. ewarti* Ckll. by the dull abdomen, colour of legs and sculpture of thorax.

HALICTUS LAVOROENSIS sp. nov.

♀. Length about 7 mm., but anterior wings short, hardly 5 mm.; head and thorax shining yellowish green or golden green, the mesothorax, especially posteriorly, with strong coppery tints, the vertex bluish green, not brilliant, the scutellum highly polished, almost impunctate; tegulæ very dark reddish; wings hyaline, with large black stigma; first recurrent nervure meeting second intercubitus; outer intercubitus and recurrent obsolescent; trochanters black; femora black, red at apex, and middle and hind ones more or less red at base; tibiæ and tarsi clear bright ferruginous; abdomen dark olive green, highly polished, without bands, the caudal rima red; venter with a scopa of long curled hairs. Head broad; face very broad; mandibles red; face with a slight coppery suffusion; clypeus shining, with strong punctures; front with longitudinal striæ, not at all transverse in front of middle ocellus; antennæ black, a little reddened at apex; mesothorax with scattered fine punctures on a very delicately lineolate surface, and minute branched hairs; pleura finely striate (plicatulate); area of metathorax coarsely reticulate, the areas between the ridges shining.

Hab.—Lavoro Plantation, Guadalcanal I., Solomons, July-Sept., 1923, 2 ♀ (C. E. Hart).

Allied to *H. cæterus* Ckll., but in front below ocelli without transverse striæ, femora broadly reddened at apex, mesothorax with coppery tints, and abdomen with a ventral scopa. I thought to name it after its discoverer but there is already an *H. hartii* Robertson.

HALICTUS CRETINICOLA Friese.

1909. *Halictus cretinicola* Friese, Ann. Mus. Nat. Hung., vii, p. 190.
♂, ♀, New Guinea.

Hab.—Mt. Lamington district, Northern Division, Papua, May, 1927, ♀ (C. T. McNamara). Exceedingly close to the Australian *H. urbanus* Smith, but the face is narrower, obscure green, the area of metathorax is shorter, and the first abdominal tergite has the hind margin shining brown.

HALICTUS BURSARIÆ Cockerell.

1916. *Halictus bursariæ* Cockerell, Mem. Queensland Mus., v, p. 203. Caloundra, Q. ♂.

Hab.—Mt. Tambourine, Queensland, Dec. 19, 1925, 6 ♂ (A. Musgrave and G. P. Whitley).

HALICTUS EBORACENSIS Cockerell.

1918. *Halictus eboracensis* Cockerell, Mem. Queensland Mus., vi, p. 117. ♂, Ebor, N.S.W.

Hab.—Barrington Tops, N.S.W., Jan. 20-24, 1927, 3 ♀ (T. G. Campbell).

HALICTUS BICINGULATUS Smith.

1853. *Halictus bicingulatus* Smith, Cat. Hym. B.M., i, p. 57. ♀.

Hab.—National Park, N.S.W., 1.12.1906, ♀ (C. Gibbons).

HALICTUS SEDUCTUS Cockerell.

1914. *Halictus seductus* Cockerell, Ann. Mag. Nat. Hist., (8), xiii, p. 512. ♀, Windsor, Victoria.

Hab.—Launceston, Tasmania, 7.11.1915, ♀ (F. M. Littler).

HALICTUS LANARIELLUS Cockerell.

1916. *Halictus lanariellus* Cockerell, Proc. Acad. Nat. Sci. Philad., p. 373. ♀, Yarrowin, N.S.W.

Hab.—Middle Harbour, N.S.W., Dec. 30, 1905, ♂ (C. Gibbons). This was described from the female. The male with the same sculpture, area of metathorax, etc., is a little over 7 mm. long, quite slender, without hair-bands on abdomen. The clypeus has a large white transverse apical spot; antennæ long, black, with the flagellum very faintly brownish beneath; mesothorax polished but with distinct punctures; stigma dull ferruginous; tegulæ rufopiceous; legs slender, entirely dark.

HALICTUS SEMINITENS sp. nov.

♀. Length about 7.3 mm.; fairly robust, black, including mandibles, antennæ and legs; tegulæ very dark reddish, almost black; wings greyish-hyaline, stigma and nervures dark fuscous; face very broad; clypeus short and convex, moderately shining, not at all sulcate, and with irregular punctures; supraclypeal area dull; hair of head and thorax thin and dull white; mesothorax in middle polished, with not very dense punctures, but the anterior corners are broadly quite dull (cross-striated under microscope), the dull patch triangular, with its acute posterior corner almost reaching scutellum, the dull sharply separated from the polished area; scutellum large and flattened, not at all sulcate, shining, very minutely punctured; tubercles pointed; white tomentum of post-scutellum only conspicuous when seen from the side; area of metathorax very large, without any shining rim, its surface very delicately and minutely lineolate, the middle portion more or less reticulate; mesopleura dullish, first recurrent nervure joining second cubital cell near end; outer recurrent and intercubitus weakened; legs with white hair; hind basitarsi with a conspicuous red apical tuft; abdomen moderately shining, very finely punctured, second segment at base with lateral white hair-patches, third and fourth with basal bands of white tomentum; venter with long glittering white hair, not forming a curled scopa.

Hab.—Wyalcatchem, W. Australia, Aug. 30, 1926, 2 ♀ (A. J. Nicholson). Very like *H. orbatus* Smith, *H. instabilis* Ckll., and *H. imitans* Ckll. but easily known by the contrasting polished and dull areas on mesothorax. The dark tegulæ are also distinctive.

Genus PARASPHECODES Smith.

1853. *Parasphcodes* Smith, Cat. Hym. B.M., i, p. 39.

PARASPHECODES TOOLOOMENSIS Cockerell 1929 var. *MUSGRAVEI* var. nov.

♀. Has the head, mesothorax and metathorax entirely black, while the scutellum and postscutellum are clear bright ferruginous. The prothorax is red, but the pleura black slightly suffused with red; antennæ black, with the flagellum obscurely reddish beneath, legs red; abdomen with the basal half dark reddish, the apical half black. Whether this represents an individual variation or a subspecies it is impossible to say at present.

Hab.—National Park, Macpherson Range, Queensland, Dec. 22, 1926 (A. Musgrave).

PARASPHECODES LICHATUS Smith.

1853. *Parasphcodes lichatus* Smith, Cat. Hym. B.M., i, p. 40. ♀, West Australia.

Hab.—Eradu, W. Australia, Sept. 8, 1926, 3 ♀ (A. J. Nicholson). Kojarena, W.A., Sept. 6, 1 ♀ (A. J. Nicholson).

Family MELETIDÆ.

Genus CROCISA *Jurine*.

1807. *Crocisa* Jurine, Litt. Leitg. (Erlangen) Intile. Blatt., p. 164.
1807. *Crocisa* Jurine, Nouv. Méth. Class. Hymenopt., p. 239.

CROCISA GEMMATA *Cockerell*.

1911. *Crocisa gemmata* Ckll., Proc. Linn. Soc. N.S.W., xxxvi, p. 166. ♀, ♂, Solomon Is.

Hab.—Lavoro Plantation, Guadalcanal I., Solomon Is., 1925 (C. E. Hart); Buoi (Bougainville), Buka Passage, Sept. 2, 1922 (E. O. Pockley); Suvai, Bougainville, Sept. 26, 1922 (E. O. Pockley).

CROCISA CÆRULEIFRONS *W. F. Kirby*.

1883. *Crocisa cæruleifrons* Kirby, Proc. Zool. Soc. Lond., p. 343. ♀, ♂, Maroe, Timor Laut.

Hab.—Two females collected by E. O. Pockley in British New Guinea. Koitaki, 5-12.5.1921; Sogeri to Port Moresby, July 26, 1921.

CROCISA QUARTINÆ *Gribodo*.

1884. *Crocisa quartinæ* Gribodo, Bull. Soc. Entom. Ital., xvi, p. 272. ♀, ♂, Mackay, Cooktown, Queensland.

Hab.—Two males collected by E. O. Pockley; Urikituru, British New Guinea, 22.6.1921. One has the abdominal markings rich violaceous blue; the other has them almost emerald colour, and has the anterior lateral spots of the mesothorax confluent with the anterior marginal band, which also is continuous with the median mark, the latter appearing merely as a backwardly directed process from the band. In both, the band on the second tergite is narrowly interrupted. This is a more robust insect than *C. cæruleifrons*, with the basal band of the abdomen not or hardly interrupted, and the posterior black incision in this band subtriangular, not produced laterally as in *C. cæruleifrons*. *C. quartinæ* was described from Celebes, but Friese (1909) cites several localities in New Guinea.

Species of *Crocisa* from Mt. Lamington district and Fly River, New Guinea, appear to have been in alcohol, and are quite unfit for study. Collectors should be warned not to put bees in any liquid.

Family ANTHOPHORIDÆ.

Genus ANTHOPHORA *Latreille*.

1804. *Anthophora* Latreille, Hist. Nat. Crust. Ins., xiv, p. 45.

ANTHOPHORA SAPIENS *Cockerell*.

1911. *Anthophora sapiens* Ckll., Proc. Linn. Soc. N.S.W., xxxvi, p. 167. ♀, Solomon Is.

Hab.—Lavoro Plantation, Guadalcanal I., Solomon Islands, Sept., 1927, 16 ♂ (C. E. Hart). This species was described from the females, though in the original publication the sign is printed upside down. The male has the scape broadly light in front; clypeus light with a broad black mark on each side coming to a sharp point a little more than half way down. The blade of the maxilla is fully 4.5 long, while in the female it is less than 4. The nearest relative is *A. aurata* Friese, from New Pomerania, but that has much darker hair on the thorax.

ANTHOPHORA VIGILANS *Smith*.

1860. *Anthophora vigilans* Smith, Proc. Linn. Soc., Zool., iv, p. 92, n. 1. ♀, Celebes.

Hab.—Four females from New Guinea; Mt. Lamington district, July, 1927 (C. T. McNamara), and Koitaki, May 5-12, 1921 (E. O. Pockley). This extends from Celebes and Amboina to New Guinea. The New Guinea specimens have the tegument of the legs very dark, and the abdominal bands vary from a warm light reddish brown to more or less pale green. Comparison with a good series from Celebes might indicate racial differences deserving recognition.

A. vigilans has been regarded as a variety of *A. zonata* L., although it looks very different. It is really very close to *A. cingulata* Fabr., which Friese wrongly calls *A. cincta* Fabr., the latter name really pertaining to an African species. A female from the Mt. Lamington district, New Guinea, July 23-24, 1927 (C. T. McNamara) has green bands, and is extremely like Australian *A. cingulata*, only the bands are rich emerald green, quite a different shade of colour. Although I am convinced that this is only a variety of *A. vigilans*, it is so distinct in appearance that it deserves a name, as follows:

ANTHOPHORA VIGILANS *var. MCNAMARÆ var. nov.*

♀. In general like *A. cingulata*, but abdominal bands broad and very bright emerald green glistening but not very shiny, more or less overlaid at base with golden hairs; eyes black or dark brown; hair on outer side of hind tibiæ bright ferruginous, with no apical white tuft. The hair of the thorax above is bright ferruginous; on pleura pallid, but not white. The clypeus has a pale reversed T, and the scape has a light mark in front, wings dusky.

ANTHOPHORA ZONATA (*Linne*).

1758. *Apis zonata* Linne, Syst. Nat. Ed., x, p. 576.

Hab.—Buna to Saputa, British New Guinea, June 5, 1921, ♀ (E. O. Pockley). This has white hair on outer side of hind tibiæ, and agrees with *A. zonata* which I have from Formosa.

Family MEGACHILIDÆ.

Genus CÆLIOXYS Latreille.

1809. *Cælioxys* Latreille, Gen. Crust. et Ins., iv, p. 166.

CÆLIOXYS WEINLANDI Schulz.

1904. *Cælioxys weinlandi* Schulz, Berlin Ent. Zeitschr., xlix, p. 235.
New Guinea.

Hab.—Mt. Lamington, Papua, May, 1927, ♂ (C. T. McNamara).

CÆLIOXYS SMITHII Dalla Torre.

1860. *Cælioxys intrudens* Smith, Proc. Zool. Soc. Lond., iv, Suppl.,
p. 132. ♀ (nec p. 92), Batchian.

1896. *Cælioxys smithii* Dalla Torre, Cat. Hym., x, p. 493.

Hab.—Mt. Lamington, Papua, May, 1927, ♂ (C. T. McNamara);
abdomen octodentate, as Friese has described.

Genus LITHURGUS Berthold.

1825. "Lithurge" Latreille, Fam. Nat. Regne Anim., p. 463. Mono-
type *Centris cornuta* Fab. Vernacular only.

1827. *Lithurgus* Berthold, in Latreille, Nat. Fam. Thierr., p. 467.
Monotype *Centris cornuta* Fabr.

1829. *Lithurgus* Latreille, in Cuvier, Le Regne Animal, 2nd Ed., v,
p. 350.

LITHURGUS SCABROSUS (Smith).

1858. *Megachile scabrosa* Smith, Journ. Linn. Soc. Lond., Zool., iii,
p. 134, n. 2. ♀, Aru.

Hab.—Daru, Papua, Feb. 20, 1923, 2 ♀ (Cowley).

LITHURGUS SCABROSUS FROGGATTI (Cockerell).

1929. *Lithurgus scabrosus* Cockerell, Ann. Mag. Nat. Hist., x, (3)
p. 197 (re synonymy).

Hab.—Malekula, New Hebrides, 2 ♀. These differ from the
original specimen (from Epi) in the more evident, though exces-
sively fine, abdominal bands. The wings are conspicuously dusky,
and might be described as dilute fuliginous.

This was described as a variety of *L. albofimbriatus* Sichel. It
agrees with *L. scabrosus* Smith from New Caledonia and Mindanao
(Philippine Is.) in having the first recurrent nervure enter the
extreme basal corner of the second cubital cell, whereas in *L. albo-*

fimbriatus from Tahiti and the Hawaiian Islands, it goes distinctly beyond the corner, leaving an appreciable interval. On this basis the form from Vavau, Tonga Is., is *L. scabrosus*, but it has quite dusky wings. One from Apia, Samoa, should be *L. albofimbriatus*.

Perkins and Cheesman (1928) treat *L. albofimbriatus* (described from Tahiti) as a synonym of *L. scabrosus* (Sm.), which originally came from the Aru Islands. It is, however, noteworthy that they describe a new *L. brachipes*, based on a male collected in Samoa in 1875. It is possible that there are several species in this group, which will be separated when the males have been studied; but as matters now stand, it is difficult to define more than one valid species.

LITHURGUS ATRATIFORMIS *Cockerell*.

1905. *Lithurgus atratiformis* Ckll., Ann. Mag. Nat. Hist., (7) xvi, p. 295. ♀.

Hab.—One ♂, Fly River, New Guinea (Geo. Soc. Exp.).

LITHURGUS RUBRICATUS *Smith*.

1853. *Lithurgus rubricatus* Smith, Cat. Hym. B.M., i, p. 146. ♀, Australia.

Hab.—Byfield, near Yeppoon, Q., Oct., 1924. A small female (A. Musgrave).

LITHURGUS FORTIS *sp. nov.*

♀. Length 13 to 17 mm.; black, robust, with entirely black ventral scopa; tongue extremely long; prominence on face large, tuberculate, with a transverse arched keel; clypeus rugose, apically with a beard of long dull red (a sort of purplish red) hair; front and sides of face above with red hair, vertex with thin black hair; antennæ short, black; cheeks with long red hair; mesothorax and scutellum bare, entirely dull, the mesothorax transversely rugose; sides of thorax with much long red hair, but a little dark hair behind the hind wings; area of metathorax shining, with a transverse concavity; tegulæ black; wings smoky, second cubital cell receiving first recurrent at extreme base; legs with black hair, long red hair on anterior trochanters; abdomen above shining, very minutely punctured, wholly without bands; hair at apex dense and black.

Hab.—Solomon Islands, 18 ♀. Type from Lavoro Plantation, Guadalcanal Island, Sept., 1927 (C. E. Hart, K.57715). Seven others come from the same place; five from Banoni, Bougainville, Oct. 20, 1922 (E. O. Pockley); five are simply marked Solomon Islands (C. M. Woodford). A very distinct species, easily known by the black ventral scopa, and red hair on thorax.

Genus MEGACHILE *Latreille*.

1802. *Megachile* Latreille, Hist. Nat. Fourmis, p. 434.

MEGACHILE NIDULATOR *Smith*.

1864. *Megachile nidulator* Smith, Journ. Linn. Soc. Zool., viii, p. 92, n. 4. ♀, N. Guinea.

Hab.—Mt. Lamington district, Northern Division, Papua, July, 1927, 1 ♀ (C. T. McNamara).

MEGACHILE PRETIOSA *Friese*.

1908. *Megachile albobasalis* Friese, Nova Guinea, v, Zool., tab. xv, f. 13. ♀, Queensland (*nec* Smith, 1879).

1909. *Megachile pretiosa* Friese, Ann. Mus. Nat. Hung., vii, p. 251. ♀, Cairns, Q.

Hab.—New Guinea: Mt. Lamington, May, 1927, 8 ♀ (C. T. McNamara); Mt. Lamington district, July, 1927, 3 ♀ (C. T. McNamara); Urikituru to Sogeri, June 22, 1920 (E. O. Pockley); Iorabiwa to Urikituru, June 21, 1921 (E. O. Pockley); Koitaki, May 5-12, 1921 (E. O. Pockley). The type of *M. pretiosa* was said to come from Cairns, Q.; I have not seen it from Australia.

MEGACHILE HERTLEI (*Friese*).

1914. *Xylocopa bryorum* var. *hertlei* Friese, Tijds. Ent., lvii, 61. ♀, Finschafen, New Guinea.

Hab.—New Guinea: Mt. Lamington, May, 1 ♀ (C. T. McNamara); Mt. Lamington district, July, 5 ♀ (C. T. McNamara);

MEGACHILE LACHESIS *Smith*.

1860. *Megachile lachesis* Smith, Journ. Proc. Linn. Soc. Zool., iv, Suppl., p. 133, n. 2. ♀, Batchian.

Hab.—Suvai, Bougainville, 27.9.1923 (E. O. Pockley); and the following from New Guinea: Mt. Lamington, May, 5 ♀, 1 ♂ (C. T. McNamara); Koitaki, May 5-12 (E. O. Pockley); Mabu Duan, April 6 (E. O. Pockley); Kevema, March 20 (E. O. Pockley); Urikituru to Sogeri, June 22 (E. O. Pockley).

MEGACHILE USTULATA *Smith*.

1862. *Megachile ustulata* Smith, Trans. Entom. Soc. Lond., (3) 1, 2, p. 61, n. 1. ♀, Australia.

Hab.—National Park, Macpherson Range, Q.; Dec. 18-24, 1926 (A. Musgrave). One is also labelled R. Illidge.

MEGACHILE MYSTACEA (*Fabricius*).

1775. *Apis mystacea* Fabricius, Syst. Entom., p. 385, n. 41. New Holland.

Hab.—Sydney, N. S. Wales (C. Gibbons); Rockhampton, Q. Oct., 1924 (A. Musgrave). This is another of the species discovered by Banks on Captain Cook's first expedition.

MEGACHILE HENRICI *Cockerell*.

1907. *Megachile henrici* Cockerell, The Entom., xl, p. 223. ♀.

Hab.—Sydney, N. S. Wales (C. Gibbons).

MEGACHILE INSULARIS *Smith*.

1858. *Megachile insularis* Smith, Journ. Proc. Linn. Soc. Zool., iii, p. 134, n. 3. ♀, Aru.

Hab.—Mt. Lamington, Papua, May, 1927, 1 ♀ (C. T. McNamara). The wings are darker than in the typical form from the Aru Islands. The Australian *M. pictiventris* Smith is closely allied.

MEGACHILE NIGROHIRTA *Friese*.

1909. *Megachile placida* Smith var. *nirgohirta* Friese, Ann. Mus. Nat. Hung., vii, p. 250. New Guinea; New Britain; Roon Is.

Hab.—Mt. Lamington district, Papua, July, 1927, 1 ♀ (C. T. McNamara). Described as a variety of *M. placida* Smith, but I believe a distinct species.

MEGACHILE ALBOMARGINATA *Smith*.

1879. *Megachile albomarginata* Smith, Descr. New Sp. Hymen., p. 66, n. 16. ♀, New Caledonia.

Hab.—New Caledonia, 1 ♀ (Dr. Maileret).

MEGACHILE AUSTRALIS *Lucas*.

1876. *Megachile australis* Lucas, Ann. Soc. Entom. France, (5) vi, p. 303. ♀, New Caledonia.

Hab.—New Caledonia, 3 ♀ (Dr. Maileret).

MEGACHILE BIROI *Friese*.

1909. *Megachile biroi* Friese, Ann. Mus. Nat. Hung., vii, p. 235. ♀, ♂, Milne Bay, New Guinea.

Hab.—Mt. Lamington, Papua, May, 1927, 4 ♂ (C. T. McNamara).

MEGACHILE HACKERI *Cockerell*.

1913. *Megachile hackeri* Cockerell, The Entomologist, xlvii, p. 166.
♂, ♀, Brisbane, Stradbroke Is., Queensland.

Hab.—Sydney, N.S.W., 2 ♀ (C. Gibbons).

MEGACHILE QUINQUELINEATA *Cockerell*.

1906. *Megachile quinque-lineata* Cockerell, Ann. Mag. Nat. Hist.,
(7) xvii, p. 534. ♀, Queensland.

Hab.—Byfield, near Yeppoon, Q., Oct., 1924, ♀ (A. Musgrave).

MEGACHILE CETERA *Cockerell*.

1912. *Megachile cetera* Cockerell, Ann. Mag. Nat. Hist., (8) ix,
p. 220. ♀, N. S. Wales and Victorian localities.

Hab.—Botanical Gardens, Sydney, Nov. 6, 1912, ♀ (A. Musgrave).

MEGACHILE RUFAPICATA *sp. nov.*

♀. Length about 9 mm.; black, of parallel-sided type; sixth abdominal tergite and sternite rather dark red, but fifth entirely black; ventral scopa entirely pure white. Head broad, with very conspicuous triangular lateral patches of dense pure white, the triangles with the broad base on the anterior orbits, the apex at the antenna; mandibles black, elongated, without distinct teeth; clypeus very broad, extremely densely punctured, the marginal region shining, the margin without teeth, except a feeble indication of a median denticle; supra clypeal area heavily punctured except on disc, whence it is smooth and polished; flagellum dull red beneath; front dull, very densely punctured; vertex and cheeks very broad, lower anterior part of cheeks shining; hair of head and thorax scanty, but long white hair on scutellum and metathorax; mesothorax dull, excessively densely punctured; scutellum shining, with large separate punctures; area of metathorax dull; tegulae black; wings clear, with dark stigma and nervures; second cubital cell very long, receiving recurrent nervures about equally distant from base and apex; legs black, with pale hair, white on inner side of hind tarsi; abdomen well punctured, moderately shining, with weak pale bands, and a white patch at each side of first segment; second and third segments with a transverse median area which is polished and sparsely punctured.

Hab.—Almaden, North Queensland, April 25, 1928 (W. D. Campbell). In the tables this runs to *M. apicata* Smith, and is in fact closely allied, differing by the broader face (broadening rather than narrowing below), the shining scutellum with sparse large punctures, the apical segment of abdomen not black in middle, etc.

MEGACHILE OCULIPES *Cockerell*.

1910. *Megachile oculipes* Cockerell, Ann. Mag. Nat. Hist., (8) vi, p. 363. ♂, Townsville, Queensland.

Hab.—King George's Sound, Western Australia, ♂.

MEGACHILE FULVOMARGINATA *Cockerell*.

1906. *Megachile fulvomarginata* Cockerell, Ann. Mag. Nat. Hist., (7) xvii, p. 531. ♀, Queensland.

Hab.—Almaden, Chillagoe district, North Queensland, April, 1927, ♀ (W. D. Campbell). Closely related to *M. relictæ* Cockerell, but easily separated by the long mandibles, the edge fringed with fulvous hair, the orbits diverging below, etc.

MEGACHILE CARTERI *sp. nov.*

♀. Length 8.7 mm.; black, robust, but of parallel-sided type; ventral scopa white with a faint creamy tint, short and black on last segment; sides of face, cheeks, tubercles and metathorax with conspicuous white hair; clypeus with short inconspicuous fuscous hair, appearing black in sharp contrast with the dense white hair in angles between clypeus and eyes; vertex, mesothorax, and scutellum with very inconspicuous short fuscous hair; face broad, eyes slightly converging below; eyes dark brown; mandibles very short and broad, rather obscurely quadridentate; clypeus dull, very densely and coarsely punctured, with no smooth median line; apical margin of clypeus shining, in middle with a very small shallow emargination, and a pencil of pale orange hair projecting below each side of the emargination; supraclypeal area shining, with strong irregular punctures; front entirely dull; antennæ entirely black; vertex with large distinct punctures; mesothorax and scutellum dull and very closely punctured, the scutellum excessively closely and finely; area of metathorax dull; tegulæ black; wings dilute brownish, stigma and nervures black; second cubital cell very long, receiving first recurrent nervure further from base than second from apex; legs black with pale hair, dense and white on outer side of mid tarsi; red on inner side of hind tarsi; hind basitarsi somewhat broadened, but not nearly as broad as the tibiæ; abdomen finely punctured, first segment with a patch of white hair at each side, segments 2 to 5 with very narrow (not broadened laterally) pure white hair-bands, failing in middle on second; sixth segment abruptly descending, not conspicuously hairy. Hind basitarsi fringed posteriorly with chocolate coloured hair.

Hab.—Kuranda, North Queensland (H. J. Carter).

Near to *M. simplex* Smith, differing by lack of white hair on clypeus and of pale pruinose pubescence covering apex of abdomen;

and the bands of the abdomen are narrower at sides. There is no black hair at sides of scopa. Named after the eminent coleopterist who collected it.

MEGACHILE PAPUANA *sp. nov.*

♀. Length about 11 mm.; black with elongate-cordiform abdomen; ventral scopa white with a faint creamy tint, black on last segment, and at extreme sides of others; mandibles entirely black; flagellum ferruginous beneath; face and front with much long pale yellow hair, vertex with black hair, but edge of occiput with a little yellow; cheeks and pleura with long white hair; thorax above with thin dark hair, conspicuous on scutellum, but the margins of the mesothorax with pale yellow hair, and two pale yellow marks on mesothorax anteriorly; tegulæ black; wings dusky; legs black, with pale hair; hair on inner side of middle tarsi brilliant orange red, but on inner side of hind tarsi darker red, but appearing brown in some lights; abdomen with narrow slightly yellowish bands; last tergite appearing bare, with a vaguely indicated broad band of short pale hair across the middle.

Hab.—Mt. Lamington, Papua, May, 1927 (C. T. McNamara). I have not described this at greater length because it is in most respects identical with the common Australian *M. macularis* D.T. It differs by the darker wings, the last tergite not pale haired at base, and the abdominal bands narrower. It is also very close to *M. australis* Lucas from New Caledonia but is easily separated by the yellowish pubescence. *M. captionis* Ckll. is also related, but not so closely. I hoped at first to identify this with *M. chyzeri* Friese, but the face is different, and the mandibles are not red at end.

MEGACHILE MCNAMARÆ *sp. nov.*

♀. Length about 9 to 9.7 mm.; black, including mandibles, antennæ and tegulæ; wings rather dilute fuscous, shining, violaceous, paler basally; scopa rather short and dense, entirely chocolate colour, but glistening, so that in some lights it appears pale brown; abdomen with narrow white hair-bands developed only at sides, so that they are little visible in dorsal view, and they may be absent beyond the third segment; hair on inner side of tarsi orange ferruginous; hind femora and tibiæ posteriorly with short white hair, producing a silky effect. Eyes dark brown; mandibles rather short, feebly bidentate; clypeus entirely dull, with excessively dense, partly confluent punctures, and a more or less distinct median raised line or carina, lower edge straight; vertex shining, with distinct punctures, neither vertex nor cheeks very broad, cheeks with confluent punctures; mesothorax and scutellum densely punctured, scutellum rather prominently bulging posteriorly; area of metathorax entirely dull; head and thorax with very little hair, but conspicuous pale hair on tubercles and metathorax, and forming a

white band just below the wings from tubercles to metathorax; abdomen shining, delicately punctured, last segment obliquely descending, not hairy; second cubital cell very long, receiving second recurrent nervure nearer apex than first to base.

Hab.—Mt. Lamington district, Papua, July, 7 ♀ (C. T. McNamara).

Peculiar for the short, stiff, chocolate coloured ventral scopa and the dark wings. I do not know any closely allied species.

Family XYLOCOPIDÆ.

Genus MESOTRICHIA Westwood.

1838. *Mesotrichia* Westwood, Trans. Ent. Soc. Lond., ii, 2, p. 112.

MESOTRICHIA FINSCHIANA (Friese).

1914. *Xylocopa provida* var. *finschiana* Friese, Tijds. Entom., vii, p. 61. ♀, New Britain.

Hab.—Elima to Oivi, 10.6.21, British New Guinea, ♀ (E. O. Pockley). Described from New Britain, as *Xylocopa provida* var. *finschiana*. The first intercubitus lacks the lower third. This is certainly very close to *M. perkinsi* (*Xylocopa perkinsi* Cameron), but that appears to be larger (24 mm.) and Cameron says that the upper and lower halves of the recurrent nervure form an angle at their junction, which is not true of our insect.

MESOTRICHIA BRYORUM (Fabricius).

1775. *Apis bryorum* Fabricius, Syst. Ent., ii, p. 381. ♂, New Holland.

Hab.—Seven females from New Guinea, Mt. Lamington, May (C. T. McNamara); Mabu Duan, April 6, and Sogeri to Port Moresby, July 26 (E. O. Pockley), and Port Moresby.

Genus LESTIS Lepelletier.

1825. *Lestis* Lepelletier, Encycl. Méthod. Insect., x, p. 795.

LESTIS ÆRATA Smith 1851 var. GIBBONSI var. nov.

♂. Black band on middle of thorax in front broader; thorax above yellowish green, the shining disc of mesothorax golden green; abdomen shining yellowish green, with strong pink and lilac suffusion; first segment with a band of peacock green along hind margin.

Hab.—National Park, N.S.W., 2.8.1914 (C. Gibbons).

Family CERATINIDÆ.

Genus ALLODAPE, *Lepelletier*.

1825. *Allodape*, *Lepelletier*, *Encycl. Méthod. Insect.*, x, p. 18.

ALLODAPE SIMILLIMA *Smith*.

1854. *Allodape simillima* *Smith*, *Cat. Hymen. B.M.*, ii, p. 229, n. 3.
♀, Australia.

Hab.—Two ♀ from Berowra, N.S.W., Dec. 11 (T. G. Campbell), differ greatly in size, but fall in the series I have at present as *A. simillima*. This series is so diversified that I suspect a mixture of species. Field observations and male specimens are urgently needed.

ALLODAPE UNICOLOR *Smith*.

1854. *Allodape unicolor* *Smith*, *Cat. Hymen. B.M.*, ii, p. 230, n. 6.
♀, Australia.

Hab.—Two from Murray Island, Torres Straits.

Genus EXONURA *Smith*.

1854. *Exonura* *Smith*, *Cat. Hymen. B.M.*, ii, p. 232, n. 20.

EXONURA BICOLOR *Smith*.

1854. *Exonura bicolor* *Smith*, *Cat. Hymen. B.M.*, ii, p. 232, n. 1.
♀, Tasmania.

Hab.—Middle Harbour, N.S.W., Dec. 30, 1905, ♀ (C. Gibbons).

EXONURA ALBOLINEATA *sp. nov.*

♀. Length about 5.5 mm.; head and thorax shining black; abdomen broad, dusky red, the base of the first tergite black, and second and third tergites with poorly defined blackish bands; labrum and mandibles red; clypeus with a very narrow creamy-white band, a little enlarged at the lower end, and surmounted by an inconspicuous transverse bar at upper; small elongate lateral face-marks next to eyes; scape light in front; flagellum entirely dark, hardly brownish beneath; tubercles black, fringed with white hair; wings hyaline; stigma large, ferruginous; nervures pale; legs black, anterior tibiae red in front, and their tarsi rather dusky red; hind basitarsi with much stiff black hair.

Hab.—Ulong, East Dorrigo, N.S.W. (W. Heron). Easily known by the combination of linear clypeal stripe, lateral face-marks, dark tubercles and legs.

Family APIDÆ.

Genus TRIGONA Jurine.

1807. *Trigona* Jurine, Nouv. Méth. Class. Hymen., p. 245.

TRIGONA PLANIFRONS Smith.

1864. *Trigona planifrons* Smith., Journ. Linn. Soc. Zool., vii, p. 93, n. 2. Worker. New Guinea.

Hab.—New Guinea, 19 workers. Fly River (Geo. Soc. Exp.); Mt. Lamington district, July, 1927 (C. T. McNamara); Mt. Lamington, May, 1927 (C. T. McNamara). Some are labelled No. 5. Compared with *T. canifrons* Smith, the face and front appear bare and polished, not hoary with pubescence, but in the proper light it is seen that the surface is thinly white-pruinose. There is a red spot at extreme base of antennæ. Clypeus sometimes reddish. This is the largest black species in the New Guinea fauna, the length being about or almost 6 mm. It was discovered by Wallace.

TRIGONA CINCTA Friese.

1898. *Trigona cincta* Friese, ex Mocsary mss. Termes Fuzeteck, xxi, p. 430. New Guinea.

Hab.—New Guinea, 15 workers. Mt. Lamington district, July, 1927 (C. T. McNamara); Mt. Lamington, May, 1927 (C. T. McNamara). Easily known by the very small size and pale yellow or whitish markings.

TRIGONA CINCTA Friese subsp. PERCINCTA nov.

Hab.—This name is proposed for the larger (about 5 mm. long) Australian race, found at Hermannsberg, Finke River. See Trans. Amer. Ent. Soc., xxxvi (1910), p. 247.

TRIGONA SAPIENS Cockerell.

1911. *Trigona sapiens* Ckll., Proc. Linn. Soc. N.S.W., xxxvi, p. 176. Worker, Solomon Island.

Hab.—Eleven workers from New Georgia, W. Solomons, 1925 (J. H. L. Waterhouse).

This may not be separable from *T. laviceps* Smith. I find that the front may be hairy, as described, or it may be so thinly pubescent that it seems nearly hairless. One specimen has the abdomen and hind part of the thorax reddish brown, but it is evidently immature. In fully matured specimens the abdomen is shining black.

Smith described *T. laviceps* from Malacca and New Guinea, and said that the abdomen was ferruginous, or (in his Latin description) chestnut red. At Oxford I found in the Wilson Saunders collection

T. laviceps from the Aru Islands, and the abdomen was reddish black. It seems probable that two species have been confused under this name. The male of *T. sapiens* has not been described, but I refer here eight from Lavoro Plantation, Gaudalcanal Is., Solomons (C. E. Hart). The face is narrower than in the female, the orbits strongly converging below; scape black, red at each end; flagellum long, black. The third antennal joint is extremely short; the flagellum joints have a minute reticular or scale-like sculpture. The end of the abdomen shows on each side a very long filiform lateral process, creamy-white at end (stipites); while from the extreme apex project laterally, at right angles to the axis of the body, a pair of long structures (sagittæ), broad basally, but tapering apically and very sharply pointed.

TRIGONA LAMINGTONIA *sp. nov.*

Worker. Length 6.5 mm.; head and thorax shining black, the metathorax red; abdomen narrow, shining, bright ferruginous, with the apical margins of the segments narrowly but conspicuously blackened; tubercles red; tegulæ dark rufo-piceous; wings dusky (blackish not yellowish), stigma large and black; legs black, tarsi more or less reddened at tips; hind tibiæ very broad, with a fringe of black hair. Head large, face broad, not conspicuously hairy, but looked at obliquely from above the sides of the face appear greyish from fine tomentum; mandibles pale red, darker at apex, apical margin rounded, but the inner corner with a prominent tooth; malar space well developed, but broader than long; flagellum light ferruginous beneath, very dark above; scape black, red at extreme base, and slightly so at apex; mesothorax polished, more or less reddened along hind margin; dark hair of scutellum very thin and short.

Hab.—Two workers. Type from Mt. Lamington, May, 1927 (C. T. McNamara); the other Mt. Lamington district, July, 1927 (C. T. McNamara) New Guinea. Nearest to *T. flaviventris* Friese, but shining, the clypeus not yellowish, and the abdomen with linear dark bands.

TRIGONA CARBONARIA *Smith.*

1854. *Trigona carbonaria* Smith, Cat. Hymen. B.M., ii, p. 414, n. 44. Worker. Australia.

Hab.—Ourimbah, N.S.W., Nov., 1906 (C. Gibbons); National Park, N.S.W., Dec. 17, 1905 (C. Gibbons).

CORRIGENDA.

Page 76, line 11. For *Gnathophyrne* read *Gnathophryne*.

Page 178, line 22. For *pumilis* read *pumilio*.

Page 218, line 7. For *Gnathopropsis* read *Gnathoprosopis*.

Page 236, line 18. For *nirgohirta* read *nigrohirta*.