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Descriptions and Records of Bees.— VI.

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Descriptions and Records of Bees.—VI.

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

Paracolletes moretonianus, sp. n.

♂.—Length about 11 mm.

Black, with red legs and pale yellow and golden pubescence. The general appearance of the insect closely simulates *Nomia semiaurea*, Ckll., but it is easily known from that species by the dull, very minutely and densely punctured first abdominal segment, the second and following segments

granular instead of strongly punctate, the triangular second submarginal cell, &c.

Head large, nearly circular seen from in front; inner orbits parallel; facial quadrangle somewhat longer than broad; mandibles pale yellowish ferruginous with the apex black; face densely covered with yellow hair; scape red; flagellum black, its last joint strongly curved inwards, forming a sort of stout hook; hair of thorax ochreous, somewhat darker and redder above, that on postscutellum long; mesothorax and scutellum excessively closely punctured; area of metathorax triangular, smoothish and shining, its margin minutely beaded, or that effect is produced by little cross-lines; tegulae ordinary, light ferruginous. Wings dusky; nervures and stigma ferruginous, rather dark; stigma very small; apex of marginal cell away from costa; b. n. meeting t. m. on the distad (apical) side; second s.m. triangular, narrowed nearly to a point above, receiving the first r. n. just before its middle; third s.m. very oblique, receiving the second r. n. at a moderate (variable) distance from its end. Legs clear red, with abundant, but mostly short, very pale yellowish hair; coxae black, and hind femora blackened behind; hind femora somewhat incrassate, with a posterior keel; hind tibiae incrassate; basal joint of hind tarsi bent. Abdomen black, with the hind margins of the segments broadly ferruginous; the whole dorsal surface, but especially the hind margins (not, however, forming bands), with a thin beautifully golden tomentum; apical plate broad and dark, truncate with rounded edges; penultimate ventral segment with a median longitudinal tomentose elevation.

Hab. Moreton Bay, Australia (F. Smith collection, 79. 22). Another is labelled Queensland (F. Smith collection, 79. 22).

Paracolletes moretonianus is so like a *Nomia* that I at first took it for one. In reality, it appears to be closely allied to *P. venustus* (Smith), from which it differs by its larger size, red femora, &c. It should probably be separated generically from *Paracolletes*.

Paracolletes bimaculatus (Smith).

♂.—Perth, W. Australia; 93–198, collected by H. W. J. Turner.

The specimen has the tibiae largely suffused with black. The male genitalia of this species are rather striking, the stipites and sagittae being very large. The former have the basal half broad, the apical half narrow, like a finger, and not hairy. The latter, taken together, present a sort of

broadly-pyriform outline, the inner apical corner of each being provided with a short spine, as it appears from above, or lamella, as seen from the side. There is nothing which can be said to differ essentially from the type of genitalia found in *Colletes*. The third submarginal cell is remarkably large, and the wings are very hairy.

Paracolletes flavomaculatus, sp. n.

♂.—Length about 9 mm.

Slender, shining black; eyes converging below; facial quadrangle much longer than broad; face covered with very light yellowish hair, dense and with a silky lustre at sides; mandibles dark; clypeus with large punctures; antennæ ordinary, black, the flagellum faintly brown beneath; cheeks bearded with white hair; vertex and occiput, and also the shining sparsely punctured mesothorax, with black hair; scutellum (except anterior middle) and middle of post-scutellum covered densely with long, erect, bright, light orange-fulvous hair, and tubercles covered with hair of the same colour; metathorax and pleura with sparse dull white hair, but there is a patch of black just under the wings; area of metathorax with a slight transverse ridge; tegulæ shining piceous. Wings dusky hyaline; stigma fairly large, dark reddish; nervures dark brown; b. n. falling a little short of t. m.; first r. n. joining second s.m. very near its base; second r. n. joining third s.m. a short distance from its apex; third s.m. having at least twice the area of second. Legs slender, piceous, with rather long thin pale hair. Abdomen narrow, shining black, punctate, the apical part with black hair, but no hair-bands; apical plate strongly fringed with hair; at the base of the penultimate ventral segment is a thick suberect fringe of hair, shortest in the middle.

Hab. Australia (no other particulars known); from the F. Smith collection; 79. 22.

By the venation and the black hair on thorax, this is nearest to *P. argentifrons* (Smith); but it is easily distinguished by the patch of fulvous-yellow hair on the scutellum.

Paracolletes cupreus semipurpureus, subsp. n.

♀.—Length about $9\frac{1}{2}$ mm.

Similar to *P. cupreus* (Sm.), but the caudal fimbria is brown-black (not pale fulvous), the hair of the abdomen beneath is white, and the stigma and nervures are amber-

colour. Other characters are: abdomen brilliant crimson-purple, with some golden tints; clypeus with large well-separated punctures on a shining ground; mesothorax olive-green, strongly punctured; second s.m. broad, receiving the first r. n. about its middle; third s.m. not very much larger than second, receiving the second r. n. very near its end; sides of metathoracic enclosure with numerous raised lines; hind spur of hind tibia pectinate with five long spines; all the tarsi, hind tibiæ, parts of the other tibiæ, and the knees red.

Hab. Queensland (*Gilbert Turner*, Ridg. 11. 93, 863).

The typical *P. cupreus* came from Adelaide; it is very likely that the Queensland insect should be regarded as a distinct species, but it has all the principal characters of *cupreus*, and for the present I treat it as a subspecies. Its colours remind one of some of the Neotropical species of *Augochlora*.

Paracolletes plumosellus, sp. n.

♂.—Length $7\frac{1}{2}$ mm.

Expanse of wings about 16 mm.; head and thorax bluish green, the mesothorax with large punctures, the surface between the punctures minutely sculptured but shining; abdomen with a strong purple lustre, the hind margins of the segments dark reddish; apical plate broadly rounded, deep red with a hyaline margin; hair of head and thorax abundant, strongly plumose, dull white with little yellowish tint, that on the scutellum greyish; antennæ rather long, entirely dark, the third joint with a little protuberance beneath; tegulæ shining rufous. Wings hyaline, stigma and nervures ferruginous; b. n. meeting t. m.; second s.m. little narrowed above, receiving the first r. n. well before its middle; third s.m. receiving second r. n. very near its end; stigma rather large. Legs slender, very dark reddish, with pale hair.

Hab. "New Holland, 44. 4."

In all respects this is very similar to *P. plumosus* (Sm.), described from a female. Were it not that the venation differs somewhat, I should think *plumosellus* to be the male of *plumosus*; and as it is, I am not wholly without doubt. Australian students must settle the matter by collecting the sexes together.

Paracolletes cæruleotinctus, sp. n.

♂.—Length about 9 mm.

Slender, the abdomen narrow; head and thorax green,

with tints of blue, with abundant long pale yellowish hair (yellowest on face), but the scutellum and hind part of mesothorax (except its hind border) with black hair; facial quadrangle much longer than broad; mandibles dark, rufescent apically; antennæ long, dark, the third and last three joints more or less reddish beneath; vertex and front strongly punctured, with blue tints, a small shining smooth space on each side of the ocelli; mesothorax shining olive-green, with very strong punctures; area of metathorax triangular, shining, without any transverse ridge or keel; pleura yellowish green, very closely and strongly punctured; tegulæ shining piceous. Wings clear, iridescent; nervures and stigma very dark red-brown; stigma rather large; marginal cell long, narrowly obliquely truncate at apex; b. n. falling short of t. m.; second s.m. broad, especially below, receiving the first r. n. well before its middle; third s.m. receiving the second r. n. a short distance before its end. Legs metallic yellowish green; the anterior tibiæ yellowish ferruginous in front; all the claw-joints largely red; spurs dark. Abdomen shining and strongly punctured, blue-green, with splendid purple tints on the first two segments; hair of abdomen pale to a little beyond middle of third segment, beyond that black or almost, the black hair at apex quite abundant; apex ending in a broad fan-shaped plate; last ventral segment shining, raised in the middle, and having on each side a conspicuous tuft of hair.

Hab. Queensland (Gilbert Turner, "Seaf. 1, 91; 433"). Two specimens.

A very distinct species, not closely allied to any yet described; best known by the narrow, brilliantly coloured and strongly punctured abdomen.

Paracolletes amabilis (Smith).

Described from "Australia," no particular region being mentioned. A female before me is labelled Queensland, 72, 18. The venation differs a little from the type; the b. n. falling a little short of the t. m., and the second r. n. entering the third s.m. a short distance before its end. The abdomen is olive-green. The insect agrees so well with *amabilis* in all its more obvious characters, that I presume it is not to be separated, notwithstanding the difference in venation.

Paracolletes carinatus, sp. n.

♂.—Length about 8 mm.

Rather slender; head, thorax, and abdomen olive-green;

anterior and middle femora black, with the extreme apex red; hind femora, and all the tibiae and tarsi, rather dark chestnut-red; antennae dark, long, but the flagellum has a hoary pruinosity, and is reddish beneath at apex; clypeus olive-green, shining, with sparse punctures; mandibles bidentate, slightly reddish towards the apex; mesothorax shining and sparsely punctured on middle, but anteriorly duller with large, closer punctures. Wings hyaline, faintly dusky at apex; stigma yellowish ferruginous, nervures dark fuscous; second s.m. considerably narrowed above, receiving the first r. n. just before its middle; second r. n. meeting third t.-c.; b. n. falling a little short of t. m.; tegulae shining dark ferruginous; pubescence pale, with dark hairs on vertex and scutellum (not very well seen, as the insect has been in some liquid); area of metathorax with a strong, sharp, transverse keel; ventral surface of abdomen normal.

Hab. Queensland (Gilbert Turner, Ridg. 11. 91, 704).

This is so much like *P. amabilis* that it might be taken for its male, but for the sharp keel of the enclosure of metathorax. This character allies it to *P. carinatus* (Sm.), but the general coloration suffices to distinguish it from that species.

Paracolletes viridicinctus, sp. n.

♀.—Length a little over 8 mm.

Head and thorax black; abdomen black with the depressed hind margins of the segments broadly brassy green; hair of thorax light grey, but that on the scutellums, mesothorax (except in front), and vertex (but not occiput) mainly black; hair at apex of abdomen thick and black; venter with three long greyish-white fringes margining the segments, and a fourth yellowish. Legs black, the hind tarsi very dark reddish, with the first joint broadened and flattened; hair of legs mainly pale, the hind femora above with a large crest of curled white strongly plumose hair, but the knee capped with black hair; hind tibiae with light hair except on the upper surface, where is much black; hind spur pectinate with many (7 or 8) slender spines; clypeus smooth and bare, shining, with sparse distinct punctures; antennae black; front dull; mesothorax shining, but dull in front, scarcely punctured; area of metathorax rather shining but granular, with a median longitudinal groove, but no transverse keel; tegulae shining black. Wings yellowish, stigma and nervures red-brown; b. n. meeting t. m.; second s.m. broad,

receiving the first r. n. at or a little beyond its middle ; third s.m. receiving second r. n. a short distance from its end.

Hab. Tasmania ; 51. 153.

In some ways like *P. versicolor* (Sm.), but the colour of the abdomen is different, and there are other differences. It is also allied to *P. chalybeatus* (Erichson), and I have wondered whether it could be a colour-variety of that species ; but at present there is no reason for assuming this.

Paracolletes spatulatus, sp. n.

♂.—Length slightly over 8 mm.

Broad, with rather the shape of a female ; head and thorax black ; abdomen dark bluish green, or rather yellowish green toward the apex, the hind margins of the segments not reddened. Legs black, the tibiæ stained with red beneath, and the hind tarsi reddened at extreme base ; hair of legs pale, but on inner side of the tarsi orange-fulvous. Mandibles strongly bidentate, reddened only at apex ; clypeus shining, with well-separated punctures ; antennæ dark, but flagellum greyish pruinose ; hair of head and thorax light grey, but on vertex, middle of mesothorax, and scutellums there is a good deal of black ; mesothorax and scutellum shining ; area of metathorax dull, without any distinct transverse keel ; tegulæ shining black. Wings clear, nervures and stigma dark red-brown ; b. n. meeting t. m. ; second s.m. broad, receiving first r. n. about its middle ; third s.m. receiving second r. n. near its end ; end of abdomen with some sooty hair, and terminating with a rounded ferruginous spatulate plate, near the base of which, on each side, is a little tooth-like projection.

Hab. Blackheath, New South Wales, 1895 (*W. W. Froggatt*, 183).

Allied to *P. chalybeatus* (Erichson).

Paracolletes providellus, sp. n.

♂.—Length about $7\frac{1}{2}$ mm.

Abdomen not narrow ; head and thorax shining black ; abdomen shining dark bluish green, with the hind margins of the segments broadly reddish ; hair of head and thorax greyish white, a little black or blackish on vertex and scutellums ; clypeus shining, with well-separated punctures ; antennæ dark ; middle of mesothorax scarcely punctured, very shiny ; area of metathorax dull and granular, with no sharp transverse keel. Legs black, with light hair, that on inner side of tarsi yellowish ; tegulæ dark rufous. Wings

hyaline, slightly stained with reddish; stigma dark reddish, nervures fuscous; b. n. not quite meeting t. m.; second s.m. strongly narrowed above, and receiving the first r. n. about its middle; third s.m. receiving the second r. n. a short distance before its end. Hair at apex of abdomen all pale; venter normal.

Hab. "Australia" (no more precise locality known), 56. 94.

A second specimen ("Australia," 66. 64) is a little smaller, with much lighter (reddish amber) stigma and nervures, and no dark hair on vertex or scutellums; it is perhaps a distinct species. By the reddened hind margins of the abdominal segments, this resembles *P. providus* (Sm.) and *P. frontalis* (Sm.). The dark mandibles &c. readily separate it from *frontalis*; from *providus* it appears to be distinguished by several details, but as that species is known only in the female, it is perhaps not quite certain that *providellus* may not be its male.

Paracolletes obscuripennis, sp. n.

♂.—Length about 9 mm.

Black, the abdomen very faintly ochreous, somewhat as in *P. chalybeatus*; pubescence (somewhat spoiled from immersion in a liquid) pale, dense and yellowish (perhaps partly stained) on face, but black on vertex and upper part of front, and largely so on mesothorax and scutellum. Legs black with pale hair, the tarsi slightly rufescent; tegulae dark reddish, clouded with fuscous. Wings rather light fuliginous throughout, the stigma and nervures dark; stigma large; b. n. not quite meeting t. m., or rather meeting it a little on one side; second s.m. broad (narrower, but not narrow, above), receiving first r. n. about its middle; third s.m. receiving second r. n. near its end. Mandibles dark, bidentate; antennae dark, faintly reddened at apex; maxillary palpi with the first four joints subequal, and the fifth shortest, the last three more slender than the first three; mesothorax shining, sparsely punctured; area of metathorax large, dullish, humped in the middle, but with no transverse keel; abdomen without hair-bands; the hair near the apex is black; venter normal.

Hab. Tasmania; no other particulars known.

This has the form and appearance of *P. viridicinctus*, but it is known from that and from *P. chalybeatus* by its dark wings. In *P. viridicinctus* the metathoracic area is short, and the posterior lateral margin is a simple grooved line,

almost straight, but slightly curved inwards; in *P. obscuripennis* the area is large, and the posterior lateral margin has a conspicuously beaded appearance and is quite strongly curved outwards.

Paracolletes colletellus, sp. n.

♂.—Length 8 mm.

Black, very pubescent, the face densely covered with light yellow hair; vertex and occiput with yellow hair like the face, but cheeks with abundant white hair, long below, forming a large beard; mandibles black basally, rufous apically, the apical tooth long and sharp, the inner very small; flagellum clear red beneath, including the last joint; head broad, orbits converging below; vertex rather dull; hair of thorax ochreous above, lighter, but not a pure white, below; mesothorax shining, but rather closely punctured; area of metathorax somewhat shining, ridged transversely; tegulae shining fulvous. Wings hyaline and iridescent, stigma and nervures ferruginous; b. n. falling a little short of t. m.; second s.m. large and square, except for the fact that the second t.-c. is bent inwards for its upper half; first r. n. joining second s.m. at its extreme base; second r. n. joining third s.m. at its apex. Legs with pale yellowish hair; femora dark, reddened at the knees; tibiae and tarsi clear ferruginous, but all the tibiae with a large black median patch. Abdomen with the basal half or more of the segments grey-tomentose, and the apical margins broadly yellowish hyaline, the junction of the hyaline with the black reddened; ventral segments 2 to 5 with the hind margins apparently deeply excavated or concave in the middle, but the excavations are filled in by hyaline membrane, so that the actual hind margins of the segments are straight.

Hab. Adelaide River, Australia (*J. J. Walker*, 5518, 5520); two, collected on the 'Penguin' Expedition.

There is some resemblance to *P. punctatus* (Sm.), known only in the female, but it does not seem likely that this is its male. *P. colletellus* has all the appearance of a small *Colletes*, such as *C. fodiens*, Kirby.

Paracollotes semilautus, sp. n.

♂.—Length about 8 mm.

Black, hairy, the hair in general cinereous or whitish, but the long hair of the face (abundant but not dense enough to hide the surface) is mixed with black on the clypeus and black at the sides, and there is black also on the front and

vertex and on the scutellum; head large, subquadrate, with broad cheeks, which are obtusely angled behind; facial quadrangle much broader than long, the eyes nearly parallel; mandibles dark, the extreme apex reddened; clypeus with many but not very strong punctures; flagellum dark reddish beneath; mesothorax hairy, but shining; scutellum very shiny, sparsely punctate, not obscured by hair; area of metathorax dullish, not transversely carinate, posterior lateral margins curved outwards. Legs dark dull red, with light hair; tegulæ shining dark reddish. Wings clear, faintly dusky at apex, nervures and stigma amber-colour; b. n. meeting t. m., but not quite squarely; t. m. bent at its lower end; second s.m. about twice as broad below as above, and receiving the first r. n. about its middle; third s.m. receiving second r. n. a short distance from its end. Abdomen hairy, shining, the hind margins of the segments rufescent; the hair at apex more or less fuscous, but not black.

Hab. "Australia," 58. 168.

Easily known by the very broad face, with black hair at the sides.

