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A May 1862

V. *Descriptions of New Species of Australian Hymenoptera, and of a Species of Formica from New Zealand.* By FREDERICK SMITH, Esq., Pres. Ent. Soc.

[Read June 4th, 1860.]

THE only species of ant which I have seen from New Zealand, excepting that described in the present paper, is the *Formica (Atta) antarctica* of White, in the Zoology of the Erebus and Terror; indeed, from inquiries that I have made of Dr. Sinclair and others who have long resided in that country, the *Formicidæ* appear to be insects extremely local or of rare occurrence in New Zealand. The species described in this paper derives its sole interest from the fact of its being the first true *Formica* that has been discovered; it was also the only species of ant forwarded by a relative, who undertook to collect the *Formicidæ* for me in the neighbourhood of Port Littleton. Amongst the *Hymenoptera* of Australia, the species of the genus *Pompilus*, and two of *Gorytes*, are, perhaps, as remarkable for their beauty and distinctiveness as any species belonging to those extensive genera. I have also added a new species to the rare genus *Paragia*. The fourteen new species of Australian bees, described in this paper, complete the enumeration of all that I am acquainted with from that country; six of these are in the collection of the British Museum, and for eight I am indebted to the liberality of John Lubbock, Esq.

*Formica advena.*

*F. luteo-fusca*, scapis antennarum pedibusque pallide testaceis; corporis pube sericea subtiliori; squama subovali, supra rotundata.

*Female*.—Fuscous-yellow, shining, covered with a thin fine cinereous pubescent pile; the flagellum slightly fuscous, with the tip pale; the anterior portion of the head and the mandibles paler than the vertex; the mandibles with fine acute teeth; a central impressed line runs upward from the clypeus to the middle of the vertex, terminating at the anterior ocellus, the ocelli minute. Thorax ovate. Abdomen fuscous, the scale of the peduncle incrassate, its superior margin rounded.

Length 2 lines.

Worker  $1\frac{1}{2}$  lines. In general colouring, like the female, but paler, the thorax being pale testaceous like the legs.

Hab. New Zealand.

In my own Collection.

The only species of ants which I have seen from New Zealand are one belonging to the genus *Myrmica*, one forming the genus *Orectognathus*, and the species here described belonging to the genus *Formica*; it was found near Port Littleton by a relative of mine resident at that place.

*Pompilus raptor.*

*P. niger, abdomine nitido, alis fuscis fasciâ ante apicem flavâ.*

*Female.*—Black; the anterior wings with a broad yellow fascia near their apical margins. Head with the clypeus transverse, and, as well as the base of the mandibles, sprinkled with a few rigid setæ; the tips of the mandibles ferruginous; the face and cheeks covered with silvery pile. The sides of the thorax, the legs and metathorax with a silvery silky reflection; the posterior margin of the prothorax curved; the metathorax somewhat obliquely truncate; the tibiæ exteriorly, and the tarsi, thickly set with short acute spines; the thorax has a thin fuscous pubescence above, that on the sides and beneath is cinereous; wings dark fuscous, with an orange-yellow fascia on the anterior pair, the width of the marginal cell, and from thence crossing the wing nearly to its posterior border. Abdomen shining, with a bright silvery silky reflection beneath, and at the posterior lateral angles of the first and second segments.

Length 9 lines.

Hab. Australia. (The neighbourhood of Sydney.)

In my own Collection.

*Pompilus molestus.*

*P. niger, pube cinerâ sericâ vestitus, alis fuscis fasciis duabus flavis; antennis, tibiis tarsisque ferrugineis.*

*Female.*—Black, and thinly covered with a silky cinereous pile; the antennæ ferruginous, with three or four of the apical joints black; the mandibles rufo-piceous at their apex; the vertex, and the pro- and mesothorax with rufo-fuscous reflection; the posterior margin of the prothorax curved; the tibiæ and tarsi dull, ferruginous and sparingly set with short acute spines; the wings fuscous, with two broad yellow fasciæ on the superior pair, their base sub-hyaline; the posterior wings sub-hyaline, with a fuscous

border at their apical margins. Abdomen slightly shining, covered with cinereous silky pile, which is most dense at the base of each segment.

Length 9 lines.

Hab. Australia (near Sydney).

In my own Collection.

*Gorytes bellicosus.*

*G. niger, clypeo antennarum scapo subtus flavo, linea prothorace et subscutello segmentis duobus abdomineque rufo-flavis.*

*Female.*—Black, slightly shining, and with two yellow fasciæ on the abdomen. Head rather narrower than the thorax; the clypeus, scape of the antennæ in front, and their apex, yellow; the anterior margin of the clypeus traversed by a groove, the groove black; the face with a short thin silvery pubescence; the vertex with a sparing pale fulvous pubescence. Thorax: the collar with a narrow interrupted yellow line; the suture at the base of the scutellum consute; the metathorax obtusely rounded, with a deep longitudinal central channel, the inclosed space at its base coarsely striated longitudinally, the sides rugose, and with a thin griseous pubescence; the wings sub-hyaline, with the anterior margin of the superior pair fuscous; the tibiæ and tarsi dull ferruginous, stout, and spinose; the anterior tarsi ciliated, the claw-joint enlarged, with the claws simple, and a large pulvillus produced between their fork. Abdomen: a sub-interrupted yellow fascia a little before the apical margin of the first segment; the second segment swollen at the sides, the third with a yellow fascia on its apical margin; the sixth segment ferruginous at the apex, shining, and faintly punctured.

Length  $6\frac{1}{2}$  lines.

Hab. Adelaide.

In my own Collection.

*Gorytes eximius.*

*G. niger, clypeo antennarum scapo subtus flavo, abdomine fasciis tribus flavis, tibiis basi tarsisque ferrugineis.*

*Female.*—Black; the abdomen with orange bands, the legs annulated with yellow and white. The clypeus, basal joint of the flagellum and the scape, yellow; the latter with a fuscous spot behind. The thorax closely punctured; a narrow yellow line on the collar, and the tegulæ yellow; an orange spot on the clypeus; the metathorax obtusely rounded and rugose; the inclosed space at its base longitudinally striated; the suture at the base of the

scutellum simple; the wings sub-hyaline, the anterior margin of the superior pair dark fuscous; the anterior tibiæ, tarsi and apex of the femora pale yellow, nearly white, the tibiæ and tarsi with a ferruginous stain outside; the intermediate legs are similarly coloured, but have also the tips of the joints of the tarsi dark-coloured; the posterior tibiæ are yellow at their base, the tarsi white, with the tips of the joints black. Abdomen: the first segment orange, with the extreme base black; the second segment with a broad orange fascia on its apical margin, slightly emarginate in the middle; the third segment with a narrower yellow fascia; the tip of the abdomen ferruginous.

Length  $4\frac{1}{2}$  lines.

Hab. Australia (Adelaide?).

In my own Collection.

*Paragia deceptor.*

*P. nigra, aurantiaca multipicta; abdominis segmentis tribus flavo-fasciatis.*

*Female.*—Black, variegated with orange-red. The head closely punctured; the anterior margin of the clypeus slightly rounded, with a large semi-circular orange spot at its base; a transverse subquadrate spot between the antennæ, and a minute line behind the eyes, orange. Thorax somewhat square in front, the anterior margin slightly curved; the prothorax orange in front, slightly interrupted in the middle; a spot beneath the wings, a short, narrow line over the tegulæ, an oblong spot in the middle of the mesothorax, extending to the base of the scutellum, and the latter, orange-red; the metathorax truncate, the truncation finely rugose, with the lateral margins narrowly orange; the tibiæ and tarsi orange-red, the tarsi palest. Abdomen silky, particularly so beneath; the first segment with a minute spot on each side, the second with a broad band at its base, the third with a similar band at its apical margin, the fourth with a narrow band also at its apical margin, orange-red; the band on the second segment is emarginate in the middle, and also on each side of its basal border; the apical margin of the fifth segment and the sixth entirely rufo-piceous. The wings sub-hyaline, with the anterior border of the superior pair dark fuscous.

Length 6 lines.

Hab. Australia.

In my own Collection.

This species closely resembles the *P. Australis* of Saussure, but I think the differences warrant their separation: an extensive series might prove it to be an extreme variety.

Fam. ANDRENIDÆ, Leach.

Genus LAMPROCOLLETES, Smith.

1. *Lamprocolletes venustus*.

*Female*.—Black, the abdomen with a silky gloss. The face densely clothed with long, pale golden-coloured pubescence, that on the cheeks is white; the scape of the antennæ ferruginous; the labrum and mandibles rufo-testaceous, the latter rufo-piceous at their apex. Thorax thinly clothed above with pale ochraceous pubescence, on the sides and beneath it is nearly white; the tips of the femora, the tibiæ and tarsi ferruginous. Abdomen: the margins of the segments with narrow fasciæ of a golden lustre, and thinly sprinkled with pale hairs.

Length  $4\frac{1}{2}$  lines.

South Australia—Lower Plenty.

In the Collection of the British Museum.

2. *Lamprocolletes cladocrus*.

*Male*.—Black, shining, and finely punctured, the pubescence griseous and most dense on the face and thorax; that on the latter is beautifully plumose, resembling downy feathers; on the face it is nearly white; the antennæ bipectinate, that is, with a double row of teeth, two on each joint; each tooth has two or more teeth or branches within, all the teeth fringed with erect hairs. The wings hyaline and iridescent, the nervures dark brown; the legs obscurely testaceous, the claw-joint of the tarsi pale, the claws bifid, the calcaria white. Abdomen shining, and having an obscure æneous tinge; the margins of the segments depressed and obscurely rufo-piceous.

Length  $4\frac{1}{4}$  lines.

Hab. Australia—Sydney.

In the Collection of the British Museum.

This species is at present unique in the National Collection; it is certainly the most remarkable bee that I have seen, and the only instance, to my knowledge, of a bee having pectinated antennæ; such an occurrence, indeed, in the Aculeate *Hymenoptera* is only known in two or three instances, as in *Psammotherma flabellata* amongst the *Mutillidæ*, and again in *Ctenocerus Klugii* in the *Pompilidæ*; there is also a modification of it in one or two other species of *Pompilidæ*.

## Genus EURYGLOSSA, Smith.

1. *Euryglossa ephippiata*.

*Female*.—Head and thorax black, the latter blood-red above; the abdomen nigro-æneous. The head closely and finely punctured; the clypeus shining, with scattered punctures; the mandibles with their apex rufo-piceous, rounded at the tips, not toothed. The thorax above, the scutellum and post-scutellum red; the wings fusco-hyaline; the nervures black. Abdomen of a dark olive-green, with an obscure silky gloss.

Length  $4\frac{1}{4}$  lines.

Hab. Adelaide.

In the Collection of the British Museum.

2. *Euryglossa bicolor*.

*Female*.—The head and thorax black, the abdomen red. The head and thorax shining, finely and distantly punctured; the face and vertex with a thin, pale golden-coloured pubescence, that on the cheeks cinereous. The wings sub-hyaline, their nervures pale testaceous. The abdomen ferruginous, with the base and a transverse waved stripe across each segment fuscous.

Length 4 lines.

Hab. Adelaide.

In the Collection of the British Museum.

## Genus DASYCOLLETES, Smith.

*Dasycolletes rubellus*.

*Female*.—The head and thorax black, and clothed with beautiful plumose pubescence; the clypeus strongly punctured and shining; the head opaque, and finely and longitudinally rugose. Thorax slightly shining, very closely and delicately punctured, with stronger scattered punctures intermixed; the scopa on the posterior tibiæ silvery-white beneath and fuscous above; the legs obscure rufo-fuscous, and clothed with glittering pale pubescence; the wings hyaline and iridescent, the nervures testaceous, the costal nervure nearly black. Abdomen ferruginous; its apical segment black; the apical margin of the fifth segment and the sides of the sixth with sooty-black pubescence: the margins of the segments beneath fringed with pale pubescence.

Length  $4\frac{1}{2}$  lines.

Hab. South Australia—Lower Plenty.

In the Collection of the British Museum.

## GENUS ANTHOGLOSSA, Smith.

*Anthoglossa sericea.*

*A. nigra*, thorace pedibusque pallide fulvescente tectis, segmentis abdominis apice pallide testaceo late fasciatis.

*Female*.—Black; the sides of the face with a line of snow-white pubescence, on the vertex it is slightly fuscous; the anterior margin of the clypeus and the mandibles rufo-piceous, the tips of the latter black; the flagellum fulvous beneath. The thorax densely clothed with short pale pubescence on the disc, on the sides and beneath it is cinereous; the tibiæ and tarsi rufo-piceous, their pubescence pale fulvous; the wings sub-hyaline, the tegulæ pale testaceous. Abdomen subovate and covered with a short changeable reddish pile; the apical margins of the segments narrowly testaceous; the fifth segment fringed with fulvous pubescence, as well as the sides of the sixth; the segment itself being rufo-testaceous.

Length 5 lines.

From the Collection of J. Lubbock, Esq.

## GENUS PROSOPIS, Fabr.

*Prosopis metallicus.*

*P. nigro-cærulea*, nitida et delicatule punctata, faciei scutello et post-scutello flavis.

*Female*.—Black; the clypeus and face on each side bright yellow. Thorax closely and finely punctured; the tubercles, scutellum and post-scutellum yellow; wings slightly smoky, the nervures black; the two recurrent nervures uniting with the two transverse cubital nervures. Abdomen: obscurely nigro-æneous, very finely and closely punctured.

Length  $3\frac{1}{2}$  lines.

*Male*.—Shining nigro-æneous; the clypeus, the face on each side of it, an angular spot above the clypeus and the scape in front cream-coloured. Thorax closely and finely punctured; a large spot beneath the wings, the scutellum and post-scutellum bright yellow; wings sub-hyaline and iridescent, the nervures piceous, the stigma pale testaceous; the anterior tibiæ in front, a line on the femora outside near their apex, a line in front of the intermediate and posterior tibiæ and femora, yellow. Abdomen finely and closely punctured; the apical segments beneath fringed with black pubescence.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

## Genus NOMIA, Latr.

*Nomia argentifrons.*

*N. nigra*; capite thoraceque punctatis subopacis, faciei pube argentata; abdomine nigro-cæruleo, segmentis apicalibus albomarginatis.

Head, thorax and legs black, the abdomen black; the scape of the antennæ in front, the apex of the clypeus, the mandibles and anterior tibiæ in front pale rufo-testaceous, the flagellum fulvous beneath; the claws of the tarsi testaceous; the face, cheeks and hinder margin of the vertex clothed with white pubescence; the thorax on the sides and the sutures of the scutellum white; wings hyaline, faintly clouded at their apical margins, the nervures black, the posterior femora incrassate, the tibiæ incrassate and broadly expanded at their apex. Abdomen: the apical margin with white fasciæ, the first broadly interrupted.

Length 4 lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

## Genus ANDRENA, Fabr.

*Andrena advena.*

*A. nigra glabriuscula*; abdomine nitido fasciis interruptis albis; scopa versicolori.

*Female*.—Black, the face and cheeks with cinereous pubescence, that on the vertex fuscous; the clypeus strongly punctured. Thorax: the sides and beneath thinly clothed with cinereous pubescence, that on the disc and on the scutellum fuscous; the posterior tibiæ have the scopa fuscous; wings hyaline and iridescent, the nervures black. Abdomen: oblong-ovate, the second, third and fourth segments with a narrow white marginal fascia, the apical fimbria black.

Length  $5\frac{3}{4}$  lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

## Genus SCRAPTER, St. Farg.

1. *Scrapper carinata.*

*S. capite thoraceque nigris, abdomine ferrugineo apice nigro.*

*Female*.—Head, thorax and legs black, smooth and shining; the clypeus rounded in front, and with a sharp, elevated carina down the centre; the flagellum rufo-piceous beneath. Thorax:



wings hyaline and iridescent, the tegulæ rufo-testaceous; the tibiæ and tarsi obscure rufo-piceous, the anterior tibiæ pale in front. Abdomen ferruginous; the apical margin of the first segment slightly fusco-ferruginous, the second more broadly so; the following segments entirely fusco-ferruginous.

Length  $3\frac{1}{2}$  lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

## 2. *Scapter bicolor*.

*S. capite thoraceque nigris, abdomine ferrugineo basi nigro, alis hyalinis.*

*Female*.—Head and thorax black; abdomen ferruginous, with the base fuscous; a fuscous spot in the middle of the three following segments at their extreme lateral margins. The flagellum obscurely fulvous beneath; tips of the mandibles ferruginous; the clypeus with scattered punctures; the tibiæ and tarsi ferruginous, and thinly covered with cinereous pubescence.

Length 4 lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

Fam. APIDÆ, Leach.

Genus MEGACHILE, Latr.

## 1. *Megachile ustulata*.

*M. nigra, abdomine pube ferrugineâ vestito, alis fuscis.*

*Female*.—Head, thorax and legs clothed with black pubescence, the face on each side of the clypeus with cinereous pubescence, the clypeus broadly truncate; the mandibles stout, rugose and opaque black; wings fuscous, darkest along the anterior margin of the superior pair; the intermediate and posterior tarsi clothed with fulvous pubescence; the abdomen clothed above and beneath with bright fulvous pubescence, longest and palest beneath.

Length  $6\frac{3}{4}$  lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

## 2. *Megachile senex*.

*Female*.—Black, shining and finely punctured; the head anteriorly, the cheeks, the thorax on the sides and beneath, as well

as the legs, clothed with cinereous pubescence; the clypeus more strongly punctured than the rest of the body, its anterior margin emarginate; the mandibles very stout and bidentate. The wings smoky, darkest at their apical margins, with the nervures black; the spines at the apex of the tibiæ and the claws of the tarsi rufotestaceous, the tips of the latter black; the tibiæ have exteriorly a short fuscous pubescence, on the tarsi within it is fulvous. Abdomen with shades of violet and green, without marginal fasciæ, and clothed beneath with bright fulvous pubescence.

Length  $5\frac{3}{4}$  lines.

Hab. Australia, Richmond River.

In the Collection of the British Museum.

Of this very marked and easily distinguished species there are two specimens in the Museum, which are in the finest possible condition; the absence of abdominal fasciæ is unusual in this genus.

### 3. *Megachile modestus.*

*Female.*—Black; very closely and finely punctured and sub-opaque; the sides of the face, the thorax on the sides and beneath, and a little tuft behind the tegulæ, white; wings sub-hyaline; the legs thinly covered with white pubescence. Abdomen: the posterior margin of the segments with narrow white fasciæ; the apical segment with short, pale fulvous pubescence, beneath clothed with white pubescence.

Length  $4\frac{1}{2}$  lines.

*Male.*—Closely resembles the female, but has the two basal joints of the anterior tarsi white, flattened and expanded; the terminal segment of the abdomen truncate at the apex, with a minute tooth at the extreme base of the lateral margins.

Length  $4\frac{3}{4}$  lines.

Hab. Australia.

From the Collection of J. Lubbock, Esq.

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