AMERICAN MUSEUM NOVITATES

Number 343 Published by THE AMERICAN MUSEUM OF NATURAL HISTORY New York City March 8, 1929

59.57,99 (94)

BEES, CHIEFLY AUSTRALIAN SPECIES, DESCRIBED OR DETERMINED BY DR. H. FRIESE

BY T. D. A. COCKERELL

Some years ago, the American Museum obtained from Dr. Friese a series of Australian bees, many of them representing species he had described, and labeled "Typus." As I am preparing a work on the bees of Australia, it seems desirable to review these specimens, and state the results when these are of any special significance. Mr. Herbert F. Schwarz, transmitting the collection, has kindly added a number of *Megachile* in his possession, which, he states, will be placed in the American Museum. A few specimens from New Guinea have also been sent.

Hylæoides concinnus var. **collaris** Friese

This is not a subspecies, but a variety with a pair of widely separated red marks on the prothorax above.

Paracolletes semipurpureus (Cockerell) and var. **frenchi,** new variety

NEW SYNONYM.—*Lamprocolletes cupreus* var. *minor* Friese. This differs from *P. semipurpureus* var. *b.* Cockerell (Rutherglen, Victoria; French) by the dull, much less shining, abdomen, the area of metathorax yellowish green, hind basitarsi broader basally, and mandibles all dark.

The var. *b.* may be called var. **frenchi,** new variety.

Paracolletes crassipes Smith

NEW SYNONYM.—*Paracolletes australis* Friese. Adelaide, Sydney, and Melbourne.

Paracolletes thornleighensis Cockerell

NEW SYNONYM.—*Lamprocolletes nigriventris* Friese. The type locality (Thornleigh, New South Wales) is the same for both names. Friese described only the ♂, but I find a ♀ (Sydney, Sept. 14, 1906) correctly determined by him as conspecific. It is distinctly larger than one in my collection. Working over this species, I was astonished to find (equally in my specimen and that from Friese) that the eyes are sparsely hairy. Yet there is no affinity with the genus *Trichocolletes*, as shown by the stigma and other characters.

Paracolletes friesei Cockerell

This was recently described from a specimen in the Queensland Museum, from King George's Sound, W. Australia. It is easily recognized by the very dense bright-ferruginous hair on thorax above, the white hair of sides of face and cheeks, and the shining blue-green abdomen. *P. fervidus* Friese (not Smith) is the same species; the specimen in the American Museum has the abdomen darker than in my type.

Paracolletes maorium Cockerell

A female of this species, labeled "N. Holl., Riedtm.,"[1] carries a name proposed by Friese, but apparently not published, indicating a blue abdomen, though as a matter of fact the abdomen is green. My type was labeled New Zealand, but there is perhaps some doubt as to the true habitat of the species.

Paracolletes providellus cærulescens, new variety

This male was labeled *Lamprocolletes cærulescens* Friese, but the name seems not to have been published. It comes from Como, N.S.W., Nov. 1, 1902 (W. W. Froggatt). It is a variety of *P. providellus* Cockerell, closely related to *P. providellus bacchalis* Cockerell, from the type of which it differs as follows: the legs all rather dark red, including femora; abdomen shining steel-blue with hind margins of segments conspicuously dusky reddish. If *bacchalis* be considered a separate species, this is a variety of *bacchalis*. A female labeled *L. cærulescens*, with dark stigma and hind margins of segments not reddish, is *P. versicolor* Smith. It is a singular thing that the hind basitarsi, seen from in front, show bright-ferruginous hair, but seen from behind, clear white. This female is from Lebra, N.S.W. (W. W. Froggatt).

Paracolletes perminutus, new species

♀.—Length about 7 mm.; black, with the mandibles chestnut-red, except basally, flagellum dusky ferruginous beneath except at base. Hairs of head and thorax white, scanty and short, very short dorsally, occiput with rather long clear white hair; clypeus dull and excessively densely punctured, with a smooth median line, not extending to lower margin; face broad, facial quadrangle about square; vertex closely punctured. Mesothorax shining, with very distinct punctures, which are rather widely separated on disc; scutellum with large punctures and a median sulcus; base of metathorax not polished, but with a sharp transverse keel, above which the area exhibits about five well-spaced plicæ on each side; tegulæ dark rufous. Wings quite clear, stigma very pale dull yellowish, with a dark border, nervures fuscous; basal

[1]This collector was also in New Zealand; see *Hylæus fijiensis*.

nervure meeting nervulus; second cubital cell narrow, receiving recurrent nervure a little beyond middle; third cubital cell broader above than second. Legs dark brown, with white hair, scopa of hind legs white; hair on inner side of hind basitarsi dark, not brightly colored. Abdomen broad, shining, thinly white-pruinose, without bands or spots; hind margins of second and following segments obscurely reddish; apical tuft black; venter without long hair.

Freemantle, W. Australia, Aug. 20, 1906 (Frank).

This is *Lamprocolletes minutus* Friese, but I had earlier given that specific name to a related species. The first abdominal segment is smooth and highly polished, this feature and the color of the stigma indicating that this cannot be the female of *L. minutus* Cockerell. It is very probable, as Meade-Waldo suggested years ago, that *L. halictiformis* Cockerell is the female of *L. minutus* Cockerell. The species now described is very like *L. halictiformis*, agreeing in respect to the red mandibles, but differing in that the clypeus is shorter and more densely punctured, the face narrower, lateral ocelli much nearer eyes, mesothorax less densely punctured, abdomen without white hair-bands, and wings clear hyaline, not grayish. The polished base of abdomen is also highly distinctive. This is not *P. nanus* Smith, by the character of area of metathorax, and apical margins of abdominal segments not being pale testaceous.

Paracolletes ventralis (Friese)

Dasycolletes ventralis Friese, Sydney, N.S.W., Sept. 14, 1906 (Frank). A striking and distinct species, which Friese describes in two and a half lines.

♀.—Length about 12.5 mm.; rather narrow; black, without metallic colors; tegulæ rufofulvous. Wings dilute reddish fuliginous, stigma and nervures dusky yellowish ferruginous. Hair of head and thorax mostly short and very scanty, black. Abdomen above practically nude, no long hair on first tergite, no bands, hair at apex black, but ventral segments with large and dense cream-colored fringes, and extreme sides with some glittering pale-golden hair, situated on margins of tergites. Mandibles with hardly visible reddish color apically; facial quadrangle broader than long; clypeus with dense coarse punctures, and no smooth line; supraclypeal area with an elevated polished median ridge; antennæ short, flagellum obscurely reddish; vertex very coarsely punctured; cheeks small. Mesothorax with extremely large punctures, irregular and widely separated on disc, the surface between them shining; median sulcus very deep; mesopleura shining, with sparse punctures; area of metathorax large, triangular, convex, highly polished, without sculpture or transverse keel. Basal nervure meeting nervulus; second cubital cell strongly contracted above, receiving recurrent nervure much beyond middle; marginal cell obliquely truncate at end; stigma well developed; third cubital cell extremely broad above. Legs with mainly black hair, but the extremely long hair of inner side of hind tibiæ pale fulvous; hair on inner side of hind basitarsi pallid; tarsi with small joints red. First two abdominal segments highly polished, hardly punctured; the others dull, with very minute punctures, except the broad shining hind margin.

There is some resemblance to *P. obscurus* Smith, as judged by the description, but I have *P. obscurus*, and it is not closely allied.

Paracolletes punctiventris, new species

The collection contains a specimen labeled *Lamprocolletes punctiventris* Friese, ♂, Sydney, N.S.W., Sept. 14, 1906. Apparently the description has not been published.

♂.—Length about 8.5 mm.; head and thorax shining black, with the clypeus very dark reddish; legs and abdomen dark brownish; hair of head and thorax long, quite abundant, dull white, tinged with brown on vertex, thin on face, not at all hiding surface of clypeus. Head broad, eyes converging below; mandibles bidentate, very obscurely reddish apically; clypeus with the disc very broadly flattened, polished, sparsely punctured, with a low median ridge; antennæ submoniliform, the flagellum obscurely reddish beneath; a shining space in front of ocelli. Mesothorax shining, the disc posteriorly almost impunctate; scutellum shining, irregularly punctured; area of metathorax triangular, convex, highly polished, not sculptured, but very obtusely transversely ridged; mesopleura shining; tegulæ clear rufo-testaceous. Wings clear, faintly brownish, stigma (which is large) and nervures ferruginous; basal nervure meeting nervulus; second cubital cell receiving recurrent nervure in middle; marginal cell narrowly produced apically; third cubital very broad above. Legs with white hair. Abdomen shining, very distinctly punctured, first segment with thin white hair, second to fourth at sides with weakly developed white hair-bands, not conspicuous; fifth sternite with a stiff fringe of long pale hair, especially long at sides.

This is extremely close to *P. incanescens* Cockerell, agreeing in the general structure, the clypeus, area of metathorax, venation, etc. I thought it might be a local race, but the ventral fringe on abdomen, with the differences in color, indicate a closely allied but separable form. The area of metathorax is not transversely striate, as it is in *P. speculiferus* Cockerell and *P. perpolitus* Cockerell. Friese omitted it when publishing his Australian bees in 1924, I suppose doubting its validity. It was probably collected by Frank.

Paracolletes rufoæneus (Friese)

Dasycolletes rufoæneus Friese, ♂, Adelaide, Sept. 21, 1906 (Frank). This is extremely like *P. bimaculatus* (Smith), with the same hairy wings, small second and very large third cubital cells, and dusky spots at sides of second abdominal segment. It differs from the type of *P. bimaculatus* in the venation; the second cubital cell receives the recurrent nervure not far from its end, the basal nervure falls a little short of nervulus, and the second recurrent nervure meets the outer intercubitus. The following particulars may be added to the original description.

Pure white hairs of cheeks very long, contrasting with the yellow of face and vertex; labial palpi with first joint dark, the others pale yellowish, sharply contrasting; clypeus dull in middle, but shining around the sides, with evident punctures; supraclypeal area shining; front and vertex dull, as also mesothorax and scutellum, except that the latter is shining anteriorly; a shining spot beneath wings; area of metathorax dull, with a pronounced transverse ridge; flagellum very long, black; tegulæ small, dark reddish. Wings brownish hyaline; stigma large, dull ferruginous, nervures fuscous; second cubital cell triangular, coming almost to a point above. Knees, tibiæ, and tarsi dusky rufous, the anterior and middle tibiæ with a large black spot behind. First abdominal segment dark, with a brassy tint, its hind margin red; extreme apex of abdomen dusky.

Paracolletes franki, new species

♀.—Length a little over 12 mm.; black, robust, shining, flagellum red beneath except at base, legs obscure reddish. Head large, facial quadrangle broader than long; mandibles black, long, curved, falciform, the inner tooth far from the apex; malar space short but evident; labrum prominent, with a large tuft of reddish hair projecting below; clypeus convex, highly polished, without sculpture; front dullish, sides of vertex shining; face and cheeks with white hair, on face tinged with yellow, and yellowish hair on occiput, but front and vertex with black hair. Mesothorax polished, with scarcely evident scattered weak small punctures, median sulcus strong; scutellum highly polished; area of metathorax with a transverse keel, above which the surface is shining, without sculpture; hair of mesothorax and scutellum short and black, of thorax in front very pale yellowish, becoming fulvous on tubercles; pleura with dull white and metathorax with long fulvous-tinted hair, the latter covering the sides, not forming a definite fringe; tegulæ black, very faintly reddish posteriorly. Wings long and ample, brownish hyaline, stigma (well developed) and nervures dusky reddish; basal nervure meeting nervulus; second cubital cell broad but narrowing above, receiving recurrent nervure in middle; third cubital very large, receiving second recurrent some distance from end. Legs with mostly white hair, tinged with reddish on inner side of tarsi, the ample scopa of hind tibiæ shining white in front, and dark fuscous posteriorly, hind basitarsi with hair very bright ferruginous seen from in front, but posteriorly shining reddish-white. Abdomen broad, shining, hardly punctured, hind margins of segments broadly, very obscurely reddish; first segment with loose pale hair, the others (especially at sides) with thin pruinose pale pubescence, but no bands; apex with black hair; venter with much pure white hair.

Adelaide, Australia, Sept. 21, 1906 (Frank).

Friese identified this doubtfully with *P. cinereus* (Smith), which is, however, quite different, with coarsely punctured clypeus. There is some resemblance to *P. argentifrons* (Smith), but it is not close. It is also a little like *P. fervidus subdolus* Cockerell.

Paracolletes fulvescens (Smith)

♀.—Waikana Bay, New Zealand (Schauinsland). Determined by Friese as *P. hirtipes* (Smith). When I examined Smith's types, I thought *hirtipes* and *fulvescens* were forms of one species, but more material is desirable. As noted by Smith, the ocelli of *P. fulvescens* are in a slight curve instead of in a triangle as in *P. crassipes* Smith, the type of *Paracolletes*.

Paracolletes mimulus Cockerell

♀.—Adelaide, Sept. 21 (Frank). Sent as "*P. cupreus* Smith?"

Paracolletes melbournensis Cockerell

♀.—Alexandra, Victoria, 1903. Sent as "*P. cupreus* Smith?" Two males, also marked "*P. cupreus* Smith?", come from Ararat, Victoria. The male is very like *P. plumosus* Smith, but the hair of head and thorax is strongly fulvous-tinted, black on vertex and disc of thorax; face (including clypeus) green; abdomen green; antennæ entirely dark; tegulæ rufotestaceous. For an account of the real *P. cupreus*, based on Smith's type, see Trans. Amer. Ent. Soc., XXXI, p. 345.

Paracolletes festivus, new species

♂.—Size and general appearance of *P. plumosus* Smith; anterior wing 8 mm. Head broad; clypeus convex, with large but only moderately dense punctures, steel-blue, with the lower part black; mandibles black, very faintly reddish apically; rest of head greenish blue; flagellum ferruginous beneath. Hair of head and thorax white, on vertex and dorsum of thorax stained with reddish. Mesothorax and scutellum steel-blue, with large and not very dense punctures; surface between the punctures shining; mesopleura dull and dark blue; metathorax very dark blue, the basal area dull in some lights, more shining in others, the basal part, above the transverse keel, minutely transversely lineolate, the part below the keel microscopically vertically lineolate, the sculpture very dense; tegulæ rufofulvous. Wings clear hyaline, stigma and nervures ferruginous; basal nervure meeting nervulus; second cubital cell not very broad, receiving recurrent nervure in middle; third cubital broader above than second. Legs chestnut-red, the tibiæ and tarsi lighter than the femora; hair of legs white; the anterior femora are quite dark, strongly contrasting with the pallid anterior face of their tibiæ. Abdomen shining, splendid purple-blue, the basal declivity of first segments, and the margins of the other segments, dark red, but on segments 3 to 5 the extreme edges are pallid; venter dark red.

Sydney, N.S.W., Sept. 14, 1906, evidently collected by Frank.

It is labeled "*Lamprocolletes plumosus* Smith?", but is easily distinguished from this and the smaller *P. plumosellus* Cockerell by the color of antennæ, legs, and abdomen. It is, however, closely allied.

Lithurgus scabrosus (Smith)

♀.—Finshafen (Finschhafen?), New Guinea, 1901 (H. Kühn). Labeled *L. atratus* Smith.

Megachile nidulator Smith

♀.—Finshafen (Finschhafen?), New Guinea. Sent without name.

Megachile australasiæ Dalla Torre

Friese evidently confused two or more species under this name. A female from Mackay, Queensland (Turner) is *M. macularis* Dalla Torre. The genuine *M. australasiæ* was noted at British Museum to have broad fulvous hair-bands on abdomen. Smith describes the ventral scopa as white, but it is black on last segment.

Megachile quinquelineata Cockerell

NEW SYNONYM.—*M. glaberrima* Friese. Specimen from Cairns, Queensland.

Megachile minutula Friese

♀.—Finschhafen, New Guinea (Hertle). This is almost exactly the same as *M. quinquelineata*, differing by the clear orange hair on inner side of hind basitarsi. The character of the black hair at sides of abdomen, cited by Friese, also exists in *M. quinquelineata*.

Megachile nigrohirta (Friese)

♀.—Finschhafen, New Guinea. This was described (1909) as a variety of *M. placida*, but I consider it a distinct species. *M. biroi* Friese is in the collection from the same locality, collected by Hertle.

Megachile ustulatiformis Cockerell

♂.—Kuranda, Queensland. Carries an apparently unpublished name by Friese, referring to the ample tarsi. This has every appearance of being the male of *M. nigrohirta*, but as one occurs in Australia, the other in New Guinea, it is not safe to associate them. *M. ustulatiformis* was described in 1910.

Megachile nasuta argentifer Cockerell

Ararat, Victoria. Carries an apparently unpublished name by Friese, referring to the resemblance to a *Lithurgus*.

Megachile latipes Smith

♂.—Sydney, N.S.W., Sept. 14, (Frank). Carries an apparently unpublished name by Friese, referring to the white pilosity.

Megachile sericeicauda Cockerell

This was obtained at Mackay, and named in manuscript by Friese after Turner.

Megachile chyzeri Friese

♀.—Finschhafen, New Guinea (Hertle). This greatly resembles *M. chrysopyga* Smith, but the narrow abdominal hair-bands are fulvous, and the last tergite is not covered with red hair. The lower half of the supraclypeal area is bare and polished. The front and sides of face have rich orange hair, the vertex has black hair. The clypeus has a shining transverse depression above the margin.

Megachile erimæ Mocsary

♀:—Stephansort, Astrolabe Bay, New Guinea (Biro). This modest-looking species is best known by the apical tergite rapidly descending, with strongly concave lateral profile. The legs are dark reddish, the hind femora and tibiæ posteriorly black. I do not find any closely related Australian species.

Mesotrichia bryorum aruana (Ritsema)

♀, ♂.—Finschhafen, New Guinea (Hertle). Friese calls this *Xylocopa bryorum* Fabricius, giving *X. aruana* Ritsema as a synonym. The structure and color (including that of wings) agree with *bryorum*, but the specimens are large. Ritsema gave 23 mm. as the length of the female. The male has the clypeus black, with a median band, narrow apical margin, and broad lateral corners yellow. I think there is some basis for the recognition of a subspecies, for which Ritsema's name is apparently available. Additional material is desirable. I have seen a form, from New Guinea, in which the wings were suffused with rosy-purplish.

Callomelitta littleri Cockerell

NEW SYNONYM.—*C. nigriventris* Friese, ♀, Adelaide, Sept. 21, 1906. Above the printed label with this information is an apparently older written one, "Austral." Specimens of *Paracollates* in the collection, bearing Froggatt's labels Como and Levra respectively, also have, under these labels, printed labels, "Sydney, 14.9.06." Thus a certain amount

of doubt is thrown on the locality labels of Frank's specimens. If any were given to him without labels, would not the erroneous labels have been attached, perhaps after they left Frank's hands?

Callomelitta picta perpicta Cockerell

NEW SYNONYM.—*C. cyanescens* Friese, ♂. Central Australia (von Müller, 1893). I described this as a distinct subspecies, because it differed conspicuously from Smith's type male. But I now feel nearly certain that this is the true male of *C. picta*, the type of which must be considered the female described by Smith. I think Smith's male was the male of *C. littleri*, described by me as *C. nigrofasciata*.

Callomelitta picta chlorura, new subspecies

♀.—Abdomen green instead of blue, the general effect dark. Middle and hind femora chestnut-red (much darker in *C. picta* Smith). With labels "Austral." and "Adelaide, 21.9.06 (Frank)." Friese had labeled it *C. picta*.

Nomia victoriæ Cockerell

NEW SYNONYM.—*Nomia fulvoanalis* Friese, ♀, Ararat, Victoria. Both names are based on specimens from Ararat. The specimen of *N. fulvoanalis* before me differs from my type in having the mesothorax more shining, less evidently punctured, and the broad hair-band on the fourth abdominal segment colored like that on the third, instead of being strongly orange. Apparently these characters vary, for Friese describes *N. fulvoanalis* as having the band on fourth segment yellow-brown and indicates that the mesothorax is like that of *N. analis*.

Nomia analis Friese

♀.—Mackay, Queensland, at flowers of *Cassia* (Turner). Six specimens from Mackay have long stood in my collection as *N. victoriæ* var. They differ in lacking the broad hair-bands on abdominal segments 3 and 4, segments 1 to 4 having only short lateral stripes of pure white hair. In nearly all respects they are exactly like *N. victoriæ*, but, after again reviewing the matter, I believe *N. analis* may stand.

Nomia halictella Cockerell

A Mackay specimen is erroneously labeled *N. nana* Smith. I have the true *N. nana* from Victoria.

Nomia semiaurea Cockerell

A female and male from Cairns are labeled *N. cincta* var. *tomentifera* Friese. The female is genuine *H. tomentifera*, which I consider a distinct species, but the male is *N. semiaurea* Cockerell. This male is easily separated from *N. tomentifera*, male, by the very short black scape, the black mesothorax (without the broad lateral bands and central streak of fulvous tomentum), the narrower abdomen, and the ordinary (obtusely bigibbous) scutellum.

Nomia flavoviridis Cockerell

NEW SYNONYM.—*Nomia ænescens* Friese, ♀, Mackay, Queensland (Turner). This applies to the Queensland insect, ascribed to *N. ænescens* by Friese. I have not seen *N. ænescens* from New Guinea, whence it was first described.

Nomia tenuihirta Cockerell

NEW SYNONYM.—*Nomia latitarsis* Friese. ♀. The specimen is from Mackay, on *Cassia* (Turner).

Nomia testaceipes (Friese)

♂.—*N. argentifrons testaceipes* Friese, Central Australia, 1893 (von Müller). The name used on the label designates the insect as having red legs; Friese doubtless changed it in publication (though to a less appropriate one) because he had already described a *N. rubripes* from Africa. This is one of the numerous *N. flavoviridis* forms, distinguished by the black head, mesothorax, and scutellum (though dark green pleura); lower half of clypeus white; flagellum bright ferruginous beneath but dusky above; tegulæ clear bright apricot color; stigma and nervures fuscous; first recurrent nervure reaching base of third cubital cell; legs red with the femora more or less dark; abdomen dark-olive green, but lighter and brighter on first segment; abdominal hair-bands dull white; third and fourth abdominal sternites each with a pair of light ferruginous protuberances.

I cannot identify this exactly with any of the four named races of *N. flavoviridis*, but it probably should be regarded as a subspecies of that species.

Nomia brisbanensis Cockerell

♀.—Sydney, N.W.W., 14.9.06. It carries an apparently unpublished name by Friese, referring to the brown tint of the abdomen.

Nomia nana Smith

♂.—Adelaide, 21.9.06 (Frank). Labeled *N. argentifrons* Smith.

Nomia latetibialis Friese

♂.—Adelaide, 21.9.06 (Frank). A very distinct species, rather suggestive of *N. gracilipes* Smith. The head and thorax are black, but the abdomen is dark red suffused with purple, the third and fourth segments dark dull purple except the red hind margins, while the apex (last two segments) is pale testaceous. There are no hair-bands. The venter is flat and simple, except that the fourth segment is emarginate in the middle, and from beneath the emargination projects a stout curved red spine. Flagellum very long, light ferruginous beneath; tegulæ rufofulvous; wings with dark stigma and nervures, a diffused dusky apical cloud; second cubital cell square, receiving recurrent nervure well before end; hind legs not greatly swollen, their tibiæ trigonal; legs dark reddish brown. The specific name is derived from the fact that the hind tibiæ bulge anteriorly, making the outer face unusually large.

Nomia generosa Smith

♂.—Mackay, Queensland, 1900. It carries an apparently unpublished name by Friese, referring to the mandibles (which are bright castaneous). The specimen is in bad condition, but I think it is *N. generosa*. The flagellum is very long, dark; tegulæ large, rather dark rufous; tibiæ and tarsi bright castaneous, the anterior and middle tibiæ clouded with dusky; hind legs little swollen, but the femora conspicuously curved, the tibiæ trigonal; wings dusky; abdominal hair-bands narrow. Near to *N. mœrens* Smith, but distinct. Smith thought it might be the male of *N. mœrens*.

Halictus clariventris Friese

Both sexes from Adelaide, 21.9.06 (Frank). Friese described the female, but sent the male as a *Nomia*, with an apparently unpublished specific name referring to the very small size. Before I noticed the female, I had concluded that the male must belong to *H. granulithorax* Cockerell, known only in the female. The female is indeed excessively near to *H. granulithorax*, but considerably smaller, without the strong median sulcus on anterior part of mesothorax, while the first abdominal segment is considerably more shining, and the scutellum is entirely dull except the anterior margin. Under the microscope, the area of metathorax has a fine reticulate sculpture, while the first abdominal segment

is minutely transversely lineolate (in *H. granulithorax* it is excessively densely punctured all over). Thus, in spite of the close resemblance, these species are quite distinct. The male *H. clariventris* resembles *H. victoriellus* Cockerell, being one of those forms with broad abdomen, looking like a female. It is easily known from *victoriellus* by the broader, very dull mesothorax, by the dense covering of white hair on the face (including the clypeus), and by the all black tegument of the clypeus. The flagellum is shorter, dusky reddish beneath. The tarsi are rather pale brown. Both species have a bidentate or bilobed structure at end of abdomen.

The dense white hair on the face of the male suggests *H. niveifrons* Cockerell, but from that species *H. clariventris* is easily separated by the pale testaceous stigma with dusky margin, that of *niveifrons* being very dark. Also, *H. niveifrons* has a shining mesothorax.

Halictus leichardti Cockerell

NEW SYNONYM.—*Halictus scutellatus* Friese. Mackay (Turner).

Halictus blackburni Cockerell

NEW SYNONYM.—*Halictus crinitus* Friese. Mackay (Turner).

Halictus sturti Cockerell

NEW SYNONYM.—*Halictus globularis* Friese. Mackay, at flowers of *Cassia* (Turner).

Halictus musicus Cockerell

NEW SYNONYM.—*Halictus trimaculatus* Friese. Central Australia (von Müller).

Halictus cassiæfloris Cockerell

NEW SYNONYM.—*Halictus tenuis* Friese (not Ellis). Mackay, at flowers of *Cassia* (Turner).

Halictus davidis Cockerell

NEW SYNONYM.—*Halictus nigroscopaceus* Friese. Female, Malanda, Queensland (Mjöberg). Male, Cairns, Queensland.

Halictus eyrei Cockerell

NEW SYNONYM.—*Halictus claripes* Friese. Mackay (Turner).

Halictus dampieri Cockerell

NEW SYNONYMS.—*Halictus strangulatus* Friese and *Halictus indigoteus* Friese. Mackay (Turner).

H. strangulatus is typical *H. dampieri*. *H. indigoteus* is the common variation with bluish-green mesothorax.

Halictus vitripennis Smith

NEW SYNONYM.—*Halictus sphecodoides* var. *mackayensis* Friese. Mackay (Turner). *H. vitripennis* was described from Champion Bay, W. Australia, but those of the east coast seem not to differ.

Halictus franki Friese

♀.—Freemantle, W. Australia, 20.8.06 (Frank). A second specimen, which has lost the abdomen, but is evidently the same species, is labeled Sydney, 14.9.06 (Frank). It carries a manuscript name by Friese, referring to it as Australian. I assume that Friese withdrew the latter from publication, finding it to be identical with *H. franki*, and I venture to suspect that the Sydney label is erroneous. The species is a valid one, and is one of those near the border line between *Halictus* and *Parasphecodes*. Superficially, it looks like *Parasphecodes plorator* Cockerell, but the area of metathorax is quite different. It may be known by the broad short shining abdomen, very finely and closely punctured, without hair-bands or spots. The hind tibiæ have pure silver-white hair on the inner face, and the hair on inner side of basitarsi is creamy white. The apical part of the abdominal venter has thin pure white hair. The hind spur has short noduliform teeth. The wings are distinctly dusky, with dark stigma; the first recurrent nervure meets the second intercubitus. The mesothorax is excessively densely punctured all over. Tegulæ dark rufous; face broad; antennæ dark. There is some similarity to the Tasmanian *H. littleri* Cockerell, but that has patches of white pubescence laterally at bases of second and third tergites, and the mesothorax is more coarsely punctured.

Halictus griseovittatus Cockerell

NEW SYNONYM.—*Halictus mjöbergi* Friese. The specimen is labeled Adelaide (Mjöberg); but Friese, reporting on Mjöberg's collection (1917), cites only Queensland localities. The species is a well-known Queensland form, and I doubt the Adelaide record.

Halictus erythrurus Cockerell

♀.—Two from Sydney, 14.9.06 (Frank); labeled *H. sphecoides* Smith, but not that species, which has the apical part of abdomen dark. I have examined Smith's type. This species is very like two found by Mr. T. Rayment in Victoria, the three females, each with the metathorax black, being separable thus:

1.—Clypeus highly polished, anterior tibiæ mainly dark, but knees red. *erythrurus* Cockerell.

Clypeus dull or dullish.....2.

2.—Anterior tibiæ clear red in front; abdomen with no basal dark patch. *tarltoni* Cockerell.

Anterior tibiæ dark; abdomen broadly black at base.....*raymenti* Cockerell.

Halictus luteosæneus Friese

♀.—Victoria (von Müller). A very distinct species, rather recalling some of the Polynesian forms. It is about as large as *H. flindersi* Cockerell; head and thorax golden green, with coppery tints on clypeus and posterior part of mesothorax; flagellum black, but basal half of scape clear red; mesothorax highly polished, with scattered punctures; disc of scutellum almost impunctate; area of metathorax shining, with coarse plicatulate sculpture; posterior face shining green, with a small but conspicuous brassy patch at its upper end; tegulæ clear rufofulvous; wings clear, with dark brown stigma; third cubital cell very short, much higher than long; first recurrent nervure meeting second intercubitus; legs, except base, clear ferruginous; hind femora deformed, broad basally, and bent in middle, anterior face largely green; abdomen shining green, curled ventral scopa large.

Halictus forresti Cockerell

NEW SYNONYM.—*Halictus scutellatus* Friese, ♂ (not ♀), Mackay, Queensland (Turner). The abdomen is very dark reddish, and it is a question whether the species would not be better placed in *Parasphecodes*.

Parasphecodes basilautus Cockerell

NEW SYNONYM.—*Halictus pilicollis* Friese. Cairns, Queensland.

Parasphecodes infrahirtus Cockerell

NEW SYNONYM.—*Halictus obscuripes* Friese, ♂. Adelaide, 21.9.06 (Frank). The species was originally described from Tasmania.

Parasphecodes subrussatus Cockerell

Friese's male of *Halictus gibbosus* is this species, but the fourth abdominal segment has a transverse black patch like that on the third. The locality Rosciusko, given by Friese, is evidently the same as my type locality, Kosciusco. Friese's specimen was collected by R. Helms. Friese's *H. gibbosus* must be restricted to the female, a quite different species, described first and at greater length.

Parasphecodes gibbosus (Friese)

Halictus gibbosus Friese, ♀ (not ♂). Sydney, N.S.W., 14.9.06 (Frank). This is a valid species; the hump on the first tergite, referred to by Friese, is obscure, but the structure is peculiar, with a keel running up the middle of the highly polished basal declivity of the segment, terminating in a sort of little boss which is not distinctly elevated. Broad and robust, hair of head and thorax above dull ochreous; mandibles slightly reddish apically; clypeus shining, with large punctures, but supraclypeal area granular and dull, antennæ entirely black; mesothorax dull, excessively finely and densely punctured; scutellum slightly shining, with a median sulcus; metathorax not dentate at sides, its area large, hardly defined, entirely dull, with coarse rugæ; posterior truncation polished and shining; tegulæ rufofulvous; wings strongly dusky, somewhat reddish; a fairly distinct apical cloud; stigma pale dull ferruginous, nervures fuscous; first recurrent nervure meeting or falling short of second intercubitus (varying on the two sides); legs black, with mainly ochreous hair; abdomen entirely very dark red (almost purplish red), excessively minutely and closely punctured, without hair-patches.

In Meyer's table (1920) thus runs to *P. tepperi* Cockerell, differing by the robust form and black flagellum. *P. speculiferus* Cockerell, has a brighter red abdomen, and entirely different area of metathorax.

Parasphecodes fultoni Cockerell

NEW SYNONYM.—*Halictus rubriventris* Friese. Ararat, Victoria, ♀. It differs a little from my type of *P. fultoni*, in having the area of metathorax somewhat shorter, and a distinct transverse black mark on disc of first tergite. So far as I can make out from the description, *P. punctatissimus* Mayer, 1920, seems to be the same species.

Parasphecodes tamburinei (Friese)

♀.—*Halictus tamburinei* Friese, 1917. Mt. Tambourine, Queensland (Mjöberg). *Parasphecodes paramelænus* Cockerell, 1922, is a

synonym. Friese had taken *Binghamiella* for *Parasphecodes*, and referred all the real *Parasphecodes* to *Halictus*. It must be admitted that, while typical *Parasphecodes* are easily recognized, the black species, such as the present one, are not sharply distinguished from *Halictus*. Studies of the mouth-parts, genitalia, and other structural features are needed; but the material now available is too scanty for such an undertaking.

Parasphecodes rufulus (Friese)

♂.—*Halictus rufulus* Friese. Victoria. Friese also cites it from Mackay, but I now designate Victoria as the type locality. The specimen agrees with the description. This looks like the male of *P. fultoni* Cockerell, and I should have been inclined so to refer it but for the fact that the truncation of the metathorax is not polished, but sculptured all over, though moderately shining. It agrees with the description of *P. talchius* Smith except that the abdomen is not black at base, and only the second tergite is depressed at base. The tegulæ are a fine rufofulvous, and the very long antennæ are entirely black. The first recurrent nervure meets the second intercubitus. The tibiæ and tarsi are red.

Parasphecodes fulviventris (Friese)

♀.—*Halictus fulviventris* Friese. Melbourne, Victoria. Very closely allied to *P. arciferus* Cockerell, with the same large tubercle on second ventral segment, but larger and more robust, with the abdomen very dark, nearly black, with the first two tergites posteriorly broadly castaneous, and the third very obscurely reddish apically. The wings are conspicuously dusky apically; the stigma is reddish black, much darker than in *P. arciferus*. The venation is practically the same as in *P. arciferus*. There is also much resemblance to *P. tilachus* Smith, from Tasmania.

Palæorhiza turneriana kurandensis Cockerell

New Synonym.—*Prosopis purpurascens* Friese, ♀. Kuranda, Queensland, 1904. The subspecies was originally described from the male.

Palæorhiza reginarum (Cockerell)

Mackay, Q., at *Cassia* (Turner). It carries an apparently unpublished name by Friese, referring to the blue color. It was, however, published under the similar name *Prosopis cærulescens* Friese.

Palæorhiza disrupta (Cockerell)

Described as a variety of *P. parallela* Cockerell, but I think it is a distinct species.

Palæorhiza disrupta var. **rejecta,** new variety

♀.—Hind tibiæ without yellow, and the others with very little yellow; yellow marks on scutellum narrower, and yellow of postscutellum with no dark central mark.

Cairns, Queensland.

Labeled *Prosopis elegantissima* Dalla Torre, which is a quite different species from New Guinea.

Palæorhiza parallela (Cockerell)

NEW SYNONYMS.—*Prosopis regina* Friese, ♀, Mackay, at flowers of *Cassia* (Turner); and *Prosopis regalis* Friese, ♂, Mackay (Turner, 616). The specimen sent lacks the yellow mark behind the tubercles, and is var. *humeralis* (Friese).

Palæorhiza parallela var. **optima,** new variety

♀.—Abdomen blue and splendid purple; first tergite purple, apically blue, second purple at base and apex, third blue with purple apex, and extreme base green, fourth and fifth green with broad purple margin. No yellow mark behind tubercles.

Mackay, Queensland, May, 1900 (Turner).

Sent as *Prosopis regina* var. *humeralis* Friese, but the real *humeralis*, as shown by Friese's description, and by specimens with same data in my collection, is typical *P. parallela* except for the lack of the mark behind tubercles. The variety *optima* is merely an extreme variation, not in any sense a subspecies. The male *humeralis* cited above is transitional to *optima*.

Hylæus alcyoneus (Erichson)

SYNONYM.—*Prosopis chalybaea* Friese, ♂ (not ♀). Australia.

Hylæus fijiensis (Cockerell)

NEW SYNONYM.—*Prosopis chalybæa* Friese, ♀ (not ♂) "N. Seeld. (Riedtm.)." In 'Bees' CXI (Ann. Mag. Nat. Hist., June, 1926) I restricted *P. chalybæa* to the female. It is exactly like *H. fijiensis*, except that the tubercles have only an excessively small yellow mark, instead of being largely yellow or orange. The true home of this species is in doubt. My type was labeled as from the Fiji Islands. Recently I saw a specimen labeled Rye, Victoria. Now comes one from New Zealand. Certainly it cannot be native in all these localities.

Hylæus (Prosopisteron) scrotinellus (Cockerell)

Specimens of *Prosopis maculipennis* Friese confirm this name as a synonym; I had already determined the synonymy from the description. Mackay, Queensland.

Hylæus perplexus (Smith)

NEW SYNONYM.—*Prosopis major* Friese, ♀. Sydney, N.S.W., 14.9.06.

Hylæus (Euprosopis) elegans (Smith)

NEW SYNONYM.—*Prosopis flaviceps* Friese. Specimens sent are males from Roebourne, W. Australia, and Ararat, Victoria.

NEW SYNONYM.—*Prosopis rollei* Cockerell. I now conclude that this is at most a variation. The red scutellum and postscutellum are shown in Friese's specimen from the same locality (Ararat). Are they not due to discoloration by cyanide?

Hylæus nubilosus subnubilosus (Cockerell)

♀.—Mackay, at *Eugenia* (Turner, 271). Sent as *Prosopis nubilosa* Smith.

Hylæus nubilosus aureomaculatus (Cockerell)

♂.—Mackay (Turner). Sent as *Prosopis nubilosa* Smith.

Hylæus xanthaspis (Cockerell)

NEW SYNONYM.—*Prosopis turneri* Friese. Mackay, on *Cassia* (Turner, 13*a*).

Two specimens (♀) of *P. mackayensis* Friese differ by the lemon-yellow (instead of orange) scutellum and postscutellum; the abdomen is obscurely metallic, and the face wholly without light markings. They were taken by Turner at Mackay, March, 1900. The actual types of *P. mackayensis* (as cited by Friese) were taken in December and January. Friese notes that *turneri* is probably a variety of *mackayensis*. There is a yellow spot on the axillæ of *mackayensis;* this may be present or absent in *H. xanthaspis*. After careful study, I am unable to see more than one species in this lot, and I regard both the Friese names as synonyms.

Hylæus chrysognathus (Cockerell)

NEW SYNONYM.—*Prosopis capitata* Friese, ♂. Ararat, Victoria.

Hylæus nubilosellus mediostictus (Cockerell)

NEW SYNONYM.—*Prosopis sydneyensis* Friese, ♀. Sydney, 14.9.06 (Frank).

Hylæus trilobatus (Cockerell)

NEW SYNONYM.—*Prosopis centralis* Friese, ♂. Dandenong Range, Victoria.

Hylæus eugeniellus (Cockerell)

NEW SYNONYM.—*Prosopis nana* Friese, ♀. Mackay, October (Turner).

Meroglossa penetrata percrassa (Cockerell)

♀.—Mackay, at flowers of *Xanthorrhœa* (Turner, 273). Sent as *Prosopis penetrata* Smith. It has two small cream-colored marks on the clypeus, and a red spot between antennæ.

Meroglossa (Meroglossula) eucalypti Cockerell

NEW SYNONYM.—*Prosopis disjuncta* Friese (not Cockerell, 1905), Mackay (Turner, 454) ♀.

Meroglossa (Meroglossula) sculptissima Cockerell

NEW SYNONYM.—*Prosopis striaticeps* Friese, ♀. Mackay, at *Xanthorrhœa* (Turner, 1049).

Euryglossa leptospermi Cockerell

NEW SYNONYM.—*Stilpnosoma laterale* Friese, ♀. Mackay (Turner, 859).

Euryglossa sanguinosa Cockerell

NEW SYNONYM.—*Stilpnosoma variegatum* Friese, ♀. Mackay, at *Leptospermum* (Turner, 867).

Euryglossa aurescens Cockerell

NEW SYNONYM.—*Stilpnosoma thoracicum* Friese, ♀. Mackay (Turner, 701).

Euryglossa chrysoceras Cockerell

NEW SYNONYM.—*Stilpnosoma piceum* Friese, ♂. Colo (or Cola?) Vale, N.S.W., 1902 (B. Corrie).

Euryglossa fasciatella Cockerell

NEW SYNONYM.—*Stilpnosoma nigrum* Friese, ♀ (not *Euryglossa nigra* Smith). Adelaide, 21.9.06 (Frank).

Euryglossa reginæ Cockerell

Friese's *S. piceum* seems from the description to be *E. chrysoceras*, as indicated by the specimen cited above, but the material also included *E. reginæ*. A specimen of *E. reginæ* labeled *S. piceum* is from Mackay, September (Turner).

Euryglossa edwardsii Cockerell

A specimen from Mackay, at *Leptospermum*, October (Turner, 2*a*) is labeled with an unpublished name by Friese, indicating its occurrence in Adelaide. It is not *S. adelaidæ* Friese.

Euryglossa subsericea Cockerell

NEW SYNONYM.—*Stilpnosoma ventrale* Friese, ♀. Mackay, at *Leptospermum*, October (Turner, 702*x*).

So far as I can see, *S. turneri* Friese [♂, Mackay, at *Leptospermum*, (Turner, 1*a*) and ♀, Mackay, Nov. (Turner)] is also *E. subsericea*. The male, as Friese remarks, has a blue-green head and thorax, which is not at all true of the female. In Ann. Mag. Nat. Hist., Aug., 1910, p. 168, I commented on this circumstance, but concluded (as did Friese quite independently) that the male really belonged with ♀ *E. subsericea*. If this is wrong (and I am not certain), it will be proper to call the metallic species (Turner, 1*a*) *Euryglossa turneri* Friese. This choice is justified by my 1910 allusion to Friese's species.