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BEES FROM THE AUSTRALIAN REGION

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PART I.—NORTHERN TERRITORY OF AUSTRALIA

Some time ago Mr. Herbert F. Schwarz received from Mr. Charles Barrett an interesting collection of Australian bees, now placed in the American Museum. Among these I find a considerable series collected by G. F. Hill in the Northern Territory, principally at Port Darwin. The bee-fauna of this region is little known, and the material justifies a special report, in which I include the bees collected by myself at Port Darwin, March 12, 1928. Mr. Hill is well known for his important contributions to the knowledge of Australian termites.

***Palaeorhiza turneriana viridimutans* Cockerell**

2 ♀, Port Darwin (Hill).

***Hylaeus albonitens* (Cockerell)**

1 ♀, thirty miles east of Port Darwin (Hill).

***Hylaeus baudinensis* (Cockerell)**

One from Port Darwin (Hill).

***Meroglossa eucalypti* variety *hilli*, new variety**

♂.—Scutellum pale yellow right across; stigma paler. Abdomen and legs dark reddish.

Port Darwin (Hill).

***Meroglossa deceptor* Perkins**

♀.—Clypeus and supraclypeal region, and also mesothorax, clear terracotta-red; tubercles entirely dark; scutellum and postscutellum red; axillæ pale yellow. Abdomen dark red suffused with blackish.

Port Darwin (Hill). Previously known only from the male.

***Paracolletes tropicalis*, new species**

♀.—Length, about or slightly over 6 mm.; black, with the mandibles and labrum clear red, tegulae ferruginous, hind margins of abdominal segments broadly dark reddish-brown; knees broadly, anterior and middle tibiae in front, hind tibiae broadly at base and narrowly at apex, and all the tarsi, clear ferruginous. Head rather broad;

face, and some distance up sides of front, covered with pure white hair; flagellum obscurely reddened beneath. Thorax above with thin erect white hair; mesothorax polished; with widely spaced, strong punctures; scutellum shining, and with strong punctures; area of metathorax with a sharp transverse keel, above which is a shining space crossed by widely separated ridges. Wings clear; stigma well developed but not very large, rufous; nervures rather pale; basal nervure falling short of nervulus; second cubital cell very broad, receiving recurrent nervure a little before middle; third cubital about as broad above as second, receiving second recurrent a short distance from end. Abdomen shining, but distinctly and closely punctured; apical plate clear red. The most remarkable feature is the very short flagellum (for a male); it is not so long as the eye.

Melville Island (G. F. Hill).

It is among the minute species readily known by the short dark flagellum, combined with red mandibles and largely red legs.

***Halictus woodsi* Cockerell**

2 ♀, Port Darwin at *Eucalyptus* (Cockerell); 1 ♀ (Hill).

The color of the mesothorax varies, and I now think that *H. behri* Cockerell, with brilliant blue mesothorax and blue clypeus, is probably only a variation. The name *Halictus behri* has priority of place.

***Halictus dampieri* Cockerell**

5 ♀, Port Darwin, at *Eucalyptus*, (Cockerell); 1 ♀, October 9, 1915 (Hill).

***Halictus murrayi* Cockerell**

3 ♀, Port Darwin, at *Eucalyptus*, (Cockerell).

Very near to *H. pavonellus* Cockerell, differing by the black abdomen and legs. *H. murrayi* was previously known only from the holotype in the British Museum.

***Halictus eyrei darwiniensis*, new subspecies**

♀.—Differs only in the coloration of the abdomen which, instead of being clear red, is very dark brown, almost black, often with the base more or less red.

5 ♀, January 1, 1915, Port Darwin, Northern Territory (Hill). This was labelled *H. sphecodopsis* Cockerell, but that was based on a male with dark reddish-brown stigma, and the face with yellowish hair.

***Halictus hilli*, new species**

♂.—Length, about 6 mm.; head and thorax steel-blue, the mesothorax and clypeus somewhat greenish, scutellum with the polished impunctate disc olive-green, strongly contrasting with the pure-blue metathorax; mandibles rather dark red. Head broad, eyes very strongly converging below; clypeus dullish, with distinct,

separate punctures; flagellum moderately long, deep castaneous beneath; hair of head and thorax thin, white. Mesothorax polished, with scattered punctures; mesopleura rather dull; area of metathorax with very strong longitudinal plicæ, and sharply limited posteriorly; posterior truncation glistening, sharply limited at sides; tegulæ rufous. Wings clear, iridescent; stigma dark reddish; nervures pale brown; second and third cubital cells alike, small and narrow; first recurrent nervure joining second cubital cell a little before the end, outer nervures evanescent. Legs dark brown, with anterior tibiæ in front, and all the tarsi, pale reddish. Abdomen steel-blue, broadly reddened at bases of third and fourth segments (when the abdomen is contracted, this will hardly be evident, but the apices of the segments before are somewhat reddened).

SCULPTURAL CHARACTERS (MICROSCOPIC).—Front strongly longitudinally striate at sides, but in middle, below the ocelli, strongly transversely striate, this transverse striation extending at least as far down as the level of the middle of the scape. Mesothorax finely lineolate, sparsely punctured, and with delicate oblique plicæ at sides; scutellum very sparsely punctured; area of metathorax with variously imperfect transverse rugæ at right angles to the large longitudinal ones.

Port Darwin (G. F. Hill).

Related to *H. caloundrensis* Cockerell, but with lighter stigma and different coloration, so I think it is not its male. It is not the male of *H. woodsi* Cockerell, which has the tibiæ ferruginous in this sex, and the flagellum much shorter. In having the striæ before the middle ocellus transverse, it departs from *H. caloundrensis* and resembles *H. behri transvolans* Cockerell, which is very different in other respects.

***Halictus nigropolitus*, new species**

♀.—Length, nearly 6 mm.; robust, with very broad abdomen; pure black, including legs, shining, with scanty grayish-white hair on head and thorax, conspicuous around tubercles. Head broad; mandibles red in middle; clypeus very short, highly polished, with scattered punctures; supraclypeal area shining; malar space obsolete; front dull, glistening at sides; sides of vertex shining; scape long; flagellum dusky reddish beneath. Mesothorax highly polished, with rather numerous scattered punctures; scutellum polished, strongly shining, with no median sulcus; area of metathorax semilunar, short, bounded by an obtuse shining rim; surface of area rugulose, the separate plicæ not well defined, the sculpture coarse; mesopleura dull and rough; tegulæ shining rufous, dark at base. Wings clear; stigma large, very dark reddish; outer recurrent and intercubitus evanescent; third cubital cell much larger than second; first recurrent meeting second intercubitus. Legs with pale hair, a red tuft at end of hind basitarsi. Abdomen shining black, very finely punctured, with very little hair, and no bands or spots; venter with long white hair, forming a scopa.

SCULPTURAL CHARACTERS (MICROSCOPIC).—Hind spur with a long stout spine, and a low rounded lamella. Front very densely punctured, not at all striate. Punctures of anterior part of mesothorax of two sizes, the larger ones more or less definitely in rows; postscutellum very finely punctured, its posterior portion with very fine striæ; rugæ of area of metathorax wrinkled or vermiform, forming a sort of irregular network.

1 ♀, Port Darwin (Cockerell).

In various tables this runs persistently to the vicinity of *H. sturti* Cockerell, from which it is easily known by the sculpture of the mesothorax; it is also less robust. From *H. helichrysi* Cockerell it is easily distinguished by the almost bare abdomen. It is near *H. semipolitus* Cockerell, but much larger and more robust, and the area of the metathorax differs. It is easily distinguished from *H. blackburni* Cockerell by the shining thorax. The dark stigma shows that it cannot be the female of *H. bursariæ* Cockerell.

***Nomia melvilliana*, new species**

♂.—Length, a little over 7 mm.; black, almost exactly like *N. kurandina* Cockerell, for which I at first took it, but certainly distinct by the shorter flagellum, which is somewhat over 2 mm. long (about 3.3 mm. in *kurandina*). It also differs in being less robust, with the hair on the face dull and slightly yellowish (not pure white as in *kurandina*). The flagellum is conspicuously dark red beneath; the punctures of the mesothorax finer than in *kurandina*; tegulae pale testaceous; hair of postscutellum tinted with reddish in middle; spot at wing-tip smaller and more sharply defined, not spreading far from costa; anterior femora ferruginous apically, their tibiae entirely red in front, middle and hind basitarsi pallid, darkened apically; first abdominal segment with a small dense spot of white hair on each side, second with a short dense white hair-band on each side, third with a broadly interrupted band, very much narrower than the band on *kurandina*, fourth with only thin inconspicuous hair.

Type from Melville Island (G. F. Hill). There is also one (without head) collected by Hill at Port Darwin.

Nomia macularis Friese, from Mackay, is doubtless *N. kurandina* Cockerell, though the description does not fit quite well. I have *N. kurandina* from Mackay.

***Allodape simillima* Smith**

1 ♀, Port Darwin (Cockerell); 1 ♀, Port Darwin (Hill); 1 ♀, Melville Island (Hill).

***Allodape unicolor* Smith**

1 ♀, 1 ♂, Port Darwin (Cockerell); numerous specimens taken by Hill at Port Darwin.

***Allodape diminuta* Cockerell**

One from Port Darwin (Hill).

***Mesotrichia bryorum* Fabricius**

1 ♀, Port Darwin (Hill). This species was one of the discoveries of Cook's first expedition.

***Anthophora seruginosa* Smith**

1 ♀, Port Darwin, October 27, 1914 (Hill).

***Anthophora walkeri* Cockerell**

1 ♂, 1 ♀, Melville Island; 1 ♀, Port Darwin. All were collected by Hill.

The color of the abdominal bands varies from emerald-green to pale blue.

***Anthophora chlorocyanea* Cockerell**

2 ♀, one from Melville Island, the other from Port Darwin (Hill).

Not quite typical, but I cannot separate the specimens from *A. chlorocyanea*.

***Crocisa omissa* Cockerell**

1 ♂, Daly River, February 21, 1915 (Hill); 1 ♀, thirty miles east of Port Darwin (Hill).

***Crocisa lamprosoma* Boisduval**

1 ♀, Roper River (Hill).

***Lithurgus rubricatus* Smith**

1 ♂, Pine Ck. (Hill). I suppose Ck. stands for Creek.

***Megachile barvonensis* Cockerell**

1 ♂, Port Darwin (Hill).

This specimen was compared with the type.

***Megachile sequior* Cockerell**

1 ♀, Port Darwin, February 13, 1914 (Hill).

***Megachile cetera* Cockerell**

1 ♀, Port Darwin (Hill).

***Megachile dinognatha* Cockerell**

1 ♀, Roper River, Northern Territory (Hill).

I described this recently from a specimen in the Queensland Museum taken by H. H. Batchelor at Hughenden, Queensland, on the edge of the Richmond Downs. The female resembles *M. macleayi* Cockerell, but is larger and much more robust. The head is very large; the eyes are very strongly diverging below; the clypeus is extremely short and broad, with its lower edge finely crinkled; the mandibles are massive, broadened

apically. The wings are dark fuliginous; the metathorax with white hair. There is a large bright ferruginous patch on the apical part of the abdomen, beginning on the margin of the fourth tergite; the ventral scopa is light reddish.

***Megachile leucopogon*, new species**

♂.—Length, about 7 mm.; black, rather robust; mandibles, long slender flagellum, and legs, all black; eyes pale reddish. Head large, eyes moderately converging below; face and front densely covered with long, pure white hair; under side of head with long white hair; vertex closely punctured, with thin pale hair. Thorax with white hair, tinged with creamy dorsally, very thin on mesothorax; mesothorax and scutellum somewhat glistening, but very finely and closely punctured; tegulæ dark rufous. Wings hyaline, faintly dusky apically; stigma and nervures brown. Legs with white hair; anterior coxæ polished, with short sharp spines; anterior femora reddened on face opposed to tibiæ; anterior tarsi little modified, but the joints are thickened, with much white hair; hind tibiæ with conspicuous pure white hair at apex; hind tarsi thickened. Abdomen short and broad, the segments with narrow entire pale ochreous-tinted hair-bands; the first segment covered with pale hair, except a subapical band; the sixth dorsally covered all over with dense white hair; the transverse keel deeply emarginate and bilobed.

Port Darwin (G. F. Hill).

I hesitated whether to place this as the male of *M. cetera* Cockerell, but it seems too different from the female, though evidently allied. From the male of *M. timberlakei* Cockerell (near which it runs in my table) it is readily known by the rounded (not dentate) apical lobes of the abdomen the stouter tarsi, and the much shorter and broader hind basitarsus. The middle tarsi have very long white hair behind, which is not true of *M. timberlakei*. The light hair on the fifth tergite and other characters separate it from *M. palmarum* Perkins.

***Megachile ignescens*, new species**

♀.—Length, 10.5–11.5 mm.; black, broad, thorax not spotted, abdomen with narrow entire dull-white hair-bands, the dorsal surface with metallic colors, not always distinct; ventral scopa bright ferruginous, black on apical part of last segment. Mandibles black, very broad; clypeus convex, densely punctured, but rather broadly shining in middle; supraclypeal area strongly punctured; antennæ entirely black; face and front with cream-colored hair, but thin inconspicuous black hair on disc of clypeus; cheeks with white hair, vertex with black. Mesothorax and scutellum glistening, but well punctured, anteriorly the mesothorax is dullish and very densely punctured; discs of mesothorax and scutellum with rather short black hair; white hair in scutello-mesothoracic suture, and much white hair on pleura and metathorax; mesopleura extremely densely and finely punctured; tegulæ black. Wings dusky; second cubital cell very long. Legs stout, very dark reddish, their hair pale, on inner side of tarsi red; hind basitarsi with black hair on hind margin; middle tarsi very thick; hind basitarsi broadened. Abdomen shining, finely punctured.

2 ♀.—Type from Melville Island (Melville Island is a large flat island just off the coast by Port Darwin; it can hardly be expected to have a fauna different from that of the adjacent mainland); cotype from Port Darwin, both collected by Hill.

Runs next to *M. pictiventris* Smith, but it is smaller, and easily known by the white hair-bands on the abdomen. It is also somewhat related to *M. hæmatogastra* Cockerell.

***Megachile tenuicincta*, new species**

♀.—Type. Length, nearly 10 mm.; black, of the style of *M. quinquelineata* Cockerell, with mostly white (not fulvous or ochraceous) pubescence, black on vertex and scutellum, and scattered black hairs on mesothorax; ventral scopa shining white, black on last segment. Mandibles black, broad, quadridentate; clypeus dull, extremely densely and finely punctured, the lower margin shining; supraclypeal area well punctured, but with a broad polished space in middle anteriorly; flagellum with a very faint reddish tinge below; vertex very closely punctured. Mesothorax and scutellum finely and extremely densely punctured, suture between them filled with dense white tomentum; tegulæ black. Wings hyaline, very faintly dusky. Legs with white hair, reddish on inner side of tarsi; middle tarsi thick and very hairy; hind basitarsi broadened. Abdomen somewhat shining, well punctured, with five narrow entire white hair-bands.

♂.—Length, about 8 mm.; broad and compact. Face and front covered with white hair; long black hairs at sides of face and base of clypeus; flagellum slender, black. Legs very dark reddish; anterior coxæ with rather long sharp spines; anterior tibiæ more brightly colored apically in front; anterior tarsi dark brown, not much modified, but the basitarsi have posteriorly a long-oval black lobe; middle and hind tarsi thick, the hind basitarsi very short and stout. Abdomen short and broad, with very narrow pure white hair-bands; fifth segment with no pale hair on disc; sixth above very densely covered with pure white tomentum; the keel with a pair of broad rounded lobes separated by a deep emargination; venter reddened, with dense white hair bands.

Type (♀) taken thirty miles east of Port Darwin; 1 ♂, 1 ♀, Port Darwin; 1 ♂, near Port Darwin. All were collected by Hill.

Both sexes run near the Hawaiian *M. palmarum* Perkins, but are easily separated by the pubescence, especially the long black hair on the head and the thorax above in both sexes. In this feature *M. tenuicincta* resembles *M. quinquelineata* Cockerell, from which it is easily separated (♀) by the dense white hair forming the posterior fringe of the hind tarsi, this in *M. quinquelineata* being long and black. By the tarsal hair it falls rather with *M. cetera* Cockerell, which lacks the long black hair on the thorax above, and has a median smooth line or band on the clypeus.

***Cœlioxyx albolineata* Cockerell**

1 ♂, near Port Darwin (Hill).

***Coelioxys albolineata* variety *darwiniensis*, new variety**

♂.—Mesothorax dark red, black along posterior margin. Legs dark red, the femora rather bright.

1 ♂, Port Darwin (Hill).

The peculiar coloration suggests a distinct species, and Holmberg in dealing with the Argentine species makes the red or black mesothorax a prime character for the separation of species in his key. Nevertheless, after close comparisons, I am confident that the present insect represents no more than a color-variety.

***Trigona carbonaria*¹ Smith**

I took five at Port Darwin, and Hill collected the same number at the same place.

PREVIOUS RECORDS

The following species have been previously recorded from Port Darwin.

<i>Hylæus baudinensis</i> Cockerell	<i>Halictus behri</i> Cockerell
<i>Euryglossa euxantha</i> Perkins	<i>Halictus urbanus</i> Smith
<i>Euryglossa subfusa</i> Cockerell	<i>Halictus woodsi</i> Cockerell
<i>Meroglossa decipiens</i> Perkins	<i>Anthophora æruginosa</i> Smith
<i>Palæorhiza turneriana viridimutans</i> Cockerell	<i>Anthophora darwini</i> Cockerell
<i>Turnerella doddi</i> Perkins	<i>Megachile darwiniana</i> Cockerell
<i>Nomia darwinorum</i> Cockerell	<i>Megachile micrerythra</i> Cockerell
<i>Crocisa darwini</i> Cockerell	<i>Thaumatoma turneri</i> M.-W.

The following species have been previously recorded from Adelaide River, Northern Territory.

<i>Paracolletes colletellus</i> Cockerell	<i>Halictus murrayi</i> Cockerell
<i>Palæorhiza perviridis</i> Cockerell	<i>Anthophora adelaidæ</i> Cockerell
<i>Trigona læviceps</i> Smith	

The following species have been previously recorded from Port Essington, Northern Territory.

<i>Meroglossa canaliculata</i> Smith	<i>Megachile mystacea</i> Fabricius
<i>Nomia ænea</i> Smith.	<i>Trigona essingtoni</i> Cockerell

¹Since writing the above I have received from Mr. Harold Hockings a series of *Trigona* which he collected on the Cape York Peninsula. They are in general exactly like *T. carbonaria*, but distinctly larger, with the flagellum clear red beneath, and the scutellum with much coarse black hair. Mr. Hockings finds that they differ in their nesting habits, building a large cellular excrescence over the entrance to the nest. This is not *T. angophoræ* Cockerell, but is a species or subspecies very close to *T. carbonaria*. I call it *T. carbonaria hockingsi*, new subspecies. On re-examining my specimens of *T. carbonaria* which I collected at Port Darwin, I find they are referable to subspecies *hockingsi*, though the red of the flagellum beneath is not so bright.

PART II.—VICTORIA, NEW SOUTH WALES, QUEENSLAND,
AND NEW BRITAIN

The bees recorded in Part II of this paper were mostly sent by Mr. Charles Barrett to Mr. H. F. Schwarz some years ago, but I have added a certain number of species from my expedition of 1928, and one species was received from Dr. Friese.

Euprosopis elegans (Smith)

2 ♀, Ararat, Victoria (G. F. Hill).

Hylæus nubilosus subnubilosus (Cockerell)

♀, Victoria (G. F. Hill).

This is distinctly *subnubilosus*, notwithstanding the southern locality.

Hylæus perhumilis (Cockerell)

♂, Seaford, Victoria (W. F. Hill).

It is like the Tasmanian race.

Hylæus asperithorax (Rayment)

Euryglossa asperithorax Rayment, Victorian Naturalist, July, 1927, p. 75.

It is very near to *H. eugeniellus* (Cockerell), but distinct (♀) by the smaller face-marks, and by the quite dull mesothorax, which is minutely roughened and punctured instead of microscopically reticulate as in *H. eugeniellus*.

Callomelitta picta variety **wilsoni**, new variety

The abdomen black, banded with bright green. The femora all dark.

1 ♀, Eltham, Victoria, April 27, 1918 (F. E. Wilson).

Paracolletes maximus, new species

♂.—Length, about 17 mm., anterior wing 10 mm.; black, robust. Malar space linear; mandibles black, reddened in middle, not elbowed, the basal tubercles very large, the lower margin with very long hair; clypeus dull, depressed in middle, sparsely and weakly punctured; scape slender, very long; third antennal joint much longer than fourth; antennæ from fourth to ninth joint red beneath; vertex dull; cheeks with long white hair beneath, but hair of head otherwise fulvous, becoming creamy white at the sides of the face. Mesothorax dull and, like the scutellum, densely covered with thick moss-like very bright fox-red hair; tubercles with hair of the same color; thorax at sides and posteriorly with very long creamy-white hair; area of meta-thorax dull, without evident sculpture; tegulæ dark rufous, thickly tufted with red hair in front. Wings brownish, stigma and nervures dark fuscous; stigma rudimentary; basal nervure practically straight in its lower part, falling short of nervulus; second cubital cell very broad, moderately contracted above, receiving first recurrent

nervure at its middle; third cubital about as broad above as second, produced apically, receiving the second recurrent nervure a considerable distance from the end; the marginal cell truncate at apex. Legs black, with long pale hair; spurs extremely short; hind tibial scopa shining white or creamy-white, dark fuscous for a short distance beyond the knee-plate. Abdomen dull black, without evident punctures, very finely and thinly tomentose; hind margins of segments very narrowly pallid, second to fourth with narrow white hair-bands; fifth with long creamy-white hair, and red hair at each side of the large anal plate; venter with broad white hair-bands.

Victoria (Hill). No other data available.

The first cubital cell is hardly as long below as the next two combined, and the species, like some others, might as well go in *Anthoglossa* as *Paracolletes*. It does not, however, have the peculiar mandibles of *A. plumata* Smith. The species will be readily known by the large size and bright red, moss-like hair on the thorax above.

***Paracolletes fimbriatinus* Cockerell**

3 ♂, Ararat, Victoria (G. F. Hill).

***Paracolletes abdominalis* Smith**

♀, Bamawm, Victoria (W. F. Hill).

This species was described from Champion Bay, W. Australia. The present specimen differs perhaps a little in the more or less infuscated anterior and middle tibiae and the pale snuff-brown rather than fulvous hair at the apex of the abdomen, but it cannot well be separated. The clypeus is shining and very coarsely punctured, without a median keel, and the flagellum is bright red beneath except at the base. The ferruginous stigma is small, but not subobsolete. The second recurrent nervure ends a little distance from the end of the third cubital cell, not very close to the end as in Smith's type. The bright-red abdomen has no bands, but much erect white hair on the first segment.

***Paracolletes carinatus* (Smith)**

3 ♂, Seaford, Victoria (W. F. Hill).

***Paracolletes melbournensis* Cockerell**

1 ♀, Ararat, Victoria (G. F. Hill).

***Euryglossa leptospermi* Cockerell**

2 ♀, Bamawm, Victoria (W. F. Hill).

***Euryglossa albosignata*, new species**

♀.—Length, 8 mm.; head black; flagellum bright ferruginous beneath. Mesothorax, scutellum, and postscutellum except sides, very bright red. Legs black, with knees reddish, small joints of tarsi clear red. Wings clear hyaline, stigma dusky red,

nervures pallid; tegulæ dark reddish. Abdomen broad, with a dull surface, green, with the hind margins of the segments blackened. Extremely similar to *E. aurescens* Cockerell, but easily known by the very dense, pure white hair forming a patch on each side of the narrower face; also by the red on the postscutellum, and the second recurrent nervure meeting the outer intercubitus. The mesothorax is finely and closely punctured anteriorly.

Bamawm, Victoria (W. F. Hill).

***Parasphecodes plorator* Cockerell**

1 ♀, Jenolan, New South Wales, at flowers of *Helichrysum lucidum* (syn. *H. bracteatum*), April 29 (W. P. Cockerell).

***Parasphecodes vermiculatus* Cockerell**

1 ♂, Beaumaris, Victoria, at flowers of *Achillea*, March 31 (Cockerell).

Related to *P. solis* Cockerell, but differs as follows: flagellum all black, first recurrent nervure reaching the third cubital cell, the wings not reddish, an apical cloud present.

***Parasphecodes wellingtoni griseipennis*, new subspecies**

♀.—Wings grayish instead of reddish; sides of front dull, with minute sculpture between the punctures; mesothorax duller anteriorly; flagellum hardly reddish below.

Jenolan, New South Wales, at flowers of *Helichrysum lucidum*, April 29 (W. P. Cockerell). The typical *P. wellingtoni* Cockerell occurs in Tasmania.

***Parasphecodes wilmattæ*, new species**

♀.—Length, about 9.5 mm.; robust, head and thorax black, abdomen with first three segments rich chestnut-red, the others black; mandibles, labrum, antennæ, tegulæ and legs all black; thorax broad and robust, its hair and that of head thin, dull white, with a faint creamy tint dorsally. Clypeus shining, with large scattered punctures, and a strong median sulcus not reaching base or apex; supraclypeal area convex, somewhat shining but not polished, with well-separated punctures; front and sides of face dull. Mesothorax and scutellum dull, closely punctured; punctures of mesothorax visible under a lens; area of metathorax large, rounded behind, with weak radiating plicæ, the surface between them microscopically lineolate; pleura dull and rough. Wings strongly grayish, darker apically; stigma and nervures dark sepia; basal nervure falling just short of nervulus; second cubital cell broad, approximately square; first recurrent nervure meeting second intercubitus. Legs with pale hair, reddish on inner side of anterior tarsi. Abdomen broad, shining, its punctures minute and not dense evident only under a microscope; no black mark on first segment; no ventral tubercle.

Jenolan, New South Wales, at flowers of *Helichrysum lucidum*, April 29 (W. P. Cockerell).

This insect approaches *P. gibbosus* (Fries), but the area of the metathorax is much shorter, and not broadly squared off behind; the red of the abdomen is brighter. It runs out in Meyer's and my various tables.

***Parasphecodes tripunctatus*, new species**

♂.—Length, about 9 mm.; rather slender, head and thorax black; abdomen with the first three tergites bright chestnut-red (the first with a dusky T-mark), the others black or reddish black, the fourth with a transverse red band (as in the considerably smaller *P. minimus* Meyer, from Port Philip); tegulae clear bright ferruginous; anterior tibiae red, rather dusky behind; small joints of anterior tarsi reddened apically, but legs otherwise black; clypeus with a very broad lemon-yellow band, having a large pointed median extension upward; on the yellow are three black spots, one at each side, and one just below the base of the extension. Hair of head and thorax dull white, tinted with ochreous on vertex and scutellum, short and thin on mesothorax; sides of face and front densely hairy, with an ochreous tint; antennae broken in type, but base of flagellum (and presumably the rest) all black. Area of metathorax unusually small, rounded behind, sharply defined, with short strong plicae, the surface between them glistening; other parts of metathorax conspicuously hairy. Wings long, hyaline, dusky apically; stigma rather pale reddish brown, nervures fuscous, basal nervure falling conspicuously short of nervulus; second cubital cell broad; first recurrent nervure meeting second intercubitus. Abdomen moderately shining, very finely and closely punctured; a deep constriction between first and second tergites; venter not tuberculate.

Ararat, Victoria (G. F. Hill).

Among Smith's species this falls nearest *P. talchius*, but it is readily separated by the sculpture of the metathorax and by other characters. It is also related to *P. froggatti* Cockerell and *P. minimus* Meyer. *P. froggatti* is more robust and very hairy. I had to consider whether this could be the male of *P. fultoni* Cockerell, which occurs at Ararat, but the area of the metathorax is quite different.

***Halictus bicingulatus* Smith**

1 ♀, Seaford, Victoria (W. F. Hill).

***Halictus niveifrons* Cockerell**

1 ♂, Sandringham, Victoria, April 1 and 6 (Rayment and Cockerell).

***Halictus flindersi thor*, new subspecies**

♀.—Length, about 6 mm. Clypeus and supraclypeal area brilliant coppery red, or only suffused with this color; basal half of scape red. Mesothorax and scutellum shining yellowish green, the mesothorax punctate, not plicatulate; area of metathorax large, with strong irregular rugae; tegulae bright ferruginous. Wings hyaline, stigma dark brown, nervures pale fuscous. Femora green; knees, tibiae, and tarsi chestnut-red. Abdomen shining dark blue-green, the depressed portions of the segments more steel-blue; a large, curled, slightly yellowish ventral scope.

3 ♀, Thursday Island, March 15 (Cockerell).

Agrees structurally with *H. flindersi* Cockerell, but the coloration is strikingly different.

***Halictus lanarius* Smith**

1 ♀, 1 ♂, Victoria (Hill); 1 ♀, Jennings, New South Wales, April 25 (Cockerell). Jennings (alt. 2875 ft.) is the name of the New South Wales part of the border town, which is called Wallangarra on the Queensland side.

***Halictus mesembryanthemi* Cockerell**

1 ♀, Beaumaris, Victoria, March 31 (Cockerell).

***Halictus erythrurus* Cockerell**

1 ♀, Croydon, Victoria (W. F. Hill).

***Halictus orbatus* Smith**

1 ♀, Jennings, New South Wales, April 25 (Cockerell).

***Halictus victoriæ* Cockerell**

1 ♀, Beaumaris, Victoria, at flowers of *Achillea*, March 31 (Cockerell).

***Halictus microchalceus*, new species**

♂.—Length, slightly over 3 mm., wings hardly 2.5 mm. Head small and rather narrow, dull yellowish green, brighter on vertex and somewhat shining before ocelli; lower margin of clypeus black, with no light band; the mandibles dark; face with thin white hair, beautifully plumose, not hiding the surface; antennæ black, the flagellum rather short; thorax with thin white hair; mesothorax dull, moderately shining anteriorly, yellowish green with a brassy or perhaps slightly coppery tint; scutellum yellowish green, shining; area of metathorax blue-green, large, semilunar, with radiating plicæ; posterior truncation small, dull, not very sharply defined; tegulæ reddish. Wings hyaline, stigma very dark brown, nervures pallid; third cubital cell hardly as broad as the second; outer recurrent and intercubitus excessively weak; first recurrent nervure joining second cubital cell near end. Femora black, tibiæ pale red at both ends, tarsi reddish. Abdomen rather narrow, shining, thinly hairy, greenish-black, the hind margins of the segments pure black; extreme apex reddish; venter dark.

SCULPTURAL CHARACTERS (MICROSCOPIC).—Front entirely dull and very minutely sculptured, longitudinally striate. Mesothorax and scutellum with an excessively fine dense reticulation, and minute punctures; area of metathorax with the very delicate plicæ curved and intertwined, like a mass of fine roots; tegulæ not punctured.

Thirroul, New South Wales, March 25 (Cockerell).

This excessively minute species may be compared with *H. hackeriellus* Cockerell, but is easily distinguished by the much narrower head and the color of the legs. The color of the mesothorax prevents us from associating it with the Tasmanian *H. limatus* Smith.

***Halictus granulithorax* Cockerell**

1 ♀, Melbourne Botanical Garden, April 9 (Rayment and Cockerell).

***Halictus barretti*, new species**

♀.—Length, about 5.5 mm., anterior wing 4.2 mm.; black, robust, with very broad abdomen. Hair of head and thorax dull white, with a suggestion of ochreous dorsally; face broad, clypeus shining, front dull; antennæ black, the flagellum reddened beneath apically. Mesothorax moderately shining but not polished, with minute but distinct punctures; scutellum shining; area of metathorax rugulose; tegulæ dark rufous. Wings brownish hyaline, stigma dusky ferruginous, nervures pallid, outer intercubitus and recurrent hardly visible; basal nervure falling a little short of nervulus; third cubital cell quadrate, much larger than second. Anterior and middle knees, and spot at apex of middle tibiæ red. Abdomen shining, hind margins of second and following segments reddish; lateral bases of second and third segments with broad patches of grayish-white tomentum; venter with thin long curved hair.

SCULPTURAL CHARACTERS (MICROSCOPIC).—Front excessively densely and minutely punctured, the punctures tending to run in oblique lines. Area of metathorax with fine vermiform rugæ on basal half, the apical half smooth except for microscopic reticulation (the area is thus in the type of *H. boweni* Cockerell, which is otherwise different); apex of area rounded, not sharply defined. The hind spur with two long oblique teeth (thus different from *H. humei* Cockerell); the first abdominal segment very finely and quite closely punctured in the middle, but at each side there is a large impunctate region.

Seaforth, Victoria (W. F. Hill).

Named after Mr. Chas. L. Barrett, the well-known Australian naturalist, who transmitted the specimen to Mr. Schwarz.

In Tasmania is found a very remarkable species known only in the male, *H. macrops* Cockerell. It is robust, with a very broad abdomen, like a female. *H. barretti*, seen from behind, can readily be taken for *H. macrops*, having just the same sort of abdomen. It differs from *H. macrops* as follows: stigma darker; second cubital cell broader; eyes dark reddish; inner orbits more curved; face not so hairy; thorax less hairy, dorsal hair of thorax only about half as long, and with a faint ochreous tint; tegulæ darker; surface of mesothorax less shining. Under the microscope the mesothorax of *H. macrops* shows sparse strong punctures on a non-sculptured surface, while *H. barretti* shows weaker punctures on a minutely lineolate surface. Allowing for the

difference of sex, I do not think it possible that the two forms can be identical, but surely *H. barretti* is closely allied, and will be found to have a robust male.

***Exoneura bicolor* Smith**

1 ♀, Beaconsfield, Victoria, January 1, 1918 (F. E. Wilson); 2 ♀, Wallangarra, Queensland, at flowers of *Hypochæris*, April 26 (Cockerell).

***Allodape simillima* Smith**

1 ♀, Thursday Island, March 15 (Cockerell).

This is the largest Australian species.

***Allodape diminuta* Cockerell**

♀.—Length, about 5 mm.; facial mark inverse-pyramidal, very broad above; scape all black; tubercles light.

Thursday Island, March 15 (Cockerell).

***Allodape unicolor* Smith**

1 ♂, Thursday Island, March 15 (Cockerell).

A small species, but not smaller than *A. bribiensis* Cockerell and *A. diminuta* Cockerell.

***Allodape clarissima*, new species**

♂.—Length, 6.8 mm. Like *A. simillima* Smith, but scape with a white stripe in front. Clypeus broad, constricted in middle, ivory-white; small lateral face-marks; labrum white in middle. Tubercles white; tarsi pale red; pleura with much white hair.

Thursday Island, March 15 (Cockerell).

Perhaps a variety of *A. simillima*.

***Allodape plebeia*, new species**

♂.—Type. Length, 6 mm. Like *A. simillima*, but no lateral face marks; facial mark yellowish, very broad above, gradually narrowing to the truncate lower end; labrum all black; antennæ entirely black; tubercles cream-color; stigma very dark.

♀.—Length, about 6 mm. Marked like the male but more robust, with considerably broader abdomen. Hind legs with much silvery-white hair.

Thursday Island, March 15 (Cockerell).

***Asaropoda anomala*, new species**

♂.—Type. Appearing exactly like *A. bombiformis* (Smith), with broad bare black band at base of second tergite, but easily distinguished by the third antennal joint, which is short and thick (instead of long and slender), and by the longer flagellum, its length fully 5.5 mm. (instead of about 4). The clypeus is slightly keeled, but

without black markings, except a marginal dot on each side. The femora are clear red, the posterior ones a little dusky beneath at base; hair on outer side of hind legs all red. Red hair of abdomen with a beautiful shining golden lustre; apex obtusely bilobed (without the distinct angles of *A. bombiformis*).

♀.—Like *A. bombiformis*, but rather larger and more robust. Hair-bands of second and third tergites broad, the anterior half greenish; hair of fourth and fifth segments greenish, with a beautiful golden lustre. The third antennal joint is long and slender, about as in *A. bombiformis*, but the antennæ are somewhat longer than in that species.

1 ♀, 1 ♂, Brisbane, Queensland, a pair without other data.

The distinctive characters of this species, which in so many other respects resembles *bombiformis*, were a great surprise to me. I suppose the species has been passed over as *A. bombiformis*, for which it would be taken on casual inspection.

***Anthophora seruginosa* Smith**

1 ♀, Townsville, Queensland (G. F. Hill).

***Anthophora zonata* (Linnaeus)**

♀, Brisbane, Queensland; Jennings, New South Wales, at flowers of *Teucrium racemosum*, April 28 (Cockerell). 7 ♂ Thursday Island, March 15 (Cockerell, W. P. Cockerell, Alice Mackie, A. Foote).

The males agree with *A. zonata* as restricted and defined by me in 1911.

***Anthophora vigilans* Smith**

♂.—Length, about 10 mm. Face-marks dull yellow; clypeus with two black marks shaped like human feet; lateral face-marks filling space between clypeus and eye; scape broadly yellow in front. Abdominal bands fulvous, shining coppery, with light green underneath.

Beining District, New Britain (G. F. Hill).

These are much smaller than Smith's female type, but appear to belong to the same species.

***Megachile mystacea* (Fabricius)**

1 ♀, 1 ♂, Townsville, Queensland (G. F. Hill); Brisbane.

***Megachile hilli*, new species**

♀.—Length, 15.5 mm. Form and aspect of *M. mystacea* (Fabricius), and determined as *M. mystacea* by the collector, but easily separated by the following characters: mandibles with a broad anterior face (separated by a sharp keel from the outer surface) concave and polished; clypeus densely punctured laterally, shining and with very few punctures in middle, the lower margin with a couple of projections (style of *M. placida* Smith); supraclypeal area broad, flattened, shining, with sparse,

fine punctures; clypeal region with very thin black hair, but sides of face densely covered with black hair, going up to a little above level of antennæ; front and vertex, down to margin of supraclypeal area in middle, densely covered with pure white hair; antennæ black, with extreme tip of last joint reddish. Mesothorax shining, the punctures sparse on disc; area of metathorax and adjacent parts entirely dull. The wings are very dark. Hind basitarsus extremely broad, with black hair on outer side, and dark red on inner; the hind tibia has black hair on outer side, and short dense white hair on inner, and the same is true of its femur. The abdomen is densely covered with red hair above and below, but the first segment has black hair except along the margin.

Townsville, Queensland (G. F. Hill).

I had to consider whether this could be the female of *M. ustulatiformis* Cockerell, and, while this is possible, it appears improbable. It is closely related to *M. placida* Smith, described from Gilolo in the Molucas.

***Megachile clotho* Smith**

1 ♀, Beining District, New Britain (G. F. Hill).

***Megachile pictiventris* Smith**

3 ♀, Brisbane, Queensland.

***Megachile ignescens* Cockerell**

2 ♀, Townsville, Queensland (G. F. Hill).

***Megachile ventralis* Smith**

2 ♀, Beining District, New Britain (G. F. Hill).

Very close to *M. pictiventris* Smith, but the abdomen, seen from above, shows much long black hair at the sides. It was originally described from Amboina, but Friese has recorded it from New Britain. It is desirable to make direct comparison with Amboina specimens, but Smith's short description appears to be fully applicable. I saw two examples of *M. ventralis* in the Hope Museum at Oxford, but made no notes.

***Megachile aurifrons* Smith**

1 ♀, Seaford, Victoria (W. F. Hill).

***Megachile rhodogastra* Cockerell**

2 ♂, Brisbane, Queensland.

In the British Museum, Meade-Waldo placed this as the male of *M. pictiventris* Smith, although the abdomen is not at all metallic.

***Megachile latipes* Smith**

1 ♂, Victoria (Hill).

Megachile leucopogon Cockerell

1 ♂, Thursday Island, March 15 (Alice Mackie).

Megachile gilbertiella Cockerell

1 ♀, Cairns, Queensland.

A specimen from Friese, named by him *M. apicata* Smith, which is quite a different species.

Megachile lucdiventris Smith

1 ♀, Bamawm, Victoria (W. F. Hill).

Megachile doddiana Cockerell

1 ♂, Townsville, Queensland (G. F. Hill).

The typical *M. doddiana* female has much white hair on the first abdominal segment.

The present male has the first tergite covered with white hair, and looks like the female of *M. fumipennis* Smith, from which, however, it differs greatly in sculpture.

Megachile doddiana variety **clarkei** Cockerell

2 ♀, Townsville, Queensland (G. F. Hill).

The original *M. doddiana* Cockerell came from Townsville, and the original var. *clarkei* from W. Australia. It was natural to suppose that the two kinds were representative of these far distant localities: But now *clarkei* is likewise obtained from Townsville and evidently represents no more than a color-variety, apparently the commoner form of the species.