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**Studies of the Pacific Bees in the Collection
of Bishop Museum**
(Hymenoptera, Apoidea)

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INTRODUCTION

This paper is the result of the study of some of the bees in the collection of Bernice P. Bishop Museum. It includes notes on 34 species, including descriptions of four new species. Pressure of other work and lack of time has made it impossible to study all of the material in the collections. The types of the new species are in Bishop Museum.

BEES FROM PRINCE OF WALES ISLAND, TORRES STRAIT

The bees here recorded were collected by J. A. Kutsche and are in W. M. Giffard's collection which is now stored in Bishop Museum.

Trigona wybenica Cockerell.

Many specimens. "Pest on hot nights, crawling into hair and chafing skin" (Kutsche), Aug. 1920. The species was described from Thursday Island.

Lestis bombylans (Fabricius).

One female, Aug. 1920.

Mesotrichia bryorum (Fabricius).

Two females and 1 male, July 1920.

Megachile rhodogastra Cockerell.

One male, Aug. 1920.

Megachile kuschei, new species.

Male. Length about 11 mm.; very near to *M. rhodogastra*, but differing thus: eyes light brown; hair of face and front golden; hair bands on tergites 1-4 white, little broadened at sides, on 2 and 3 entire, on 1 and 4 broadly interrupted; fifth tergite with pale, slightly yellowish tomentum covering more than basal half, but the apical part broadly bare, with thin black hair; sixth tergite with the tegument black, but the dorsal surface densely covered with orange tomentum. The hind tarsi are stout, fringed with bright red hair posteriorly.

One specimen, Aug. 1920.

In my table of Australian *Megachile* (Australian Zool., 6: 212, 1930) it runs to 20, next to *M. rhodogastra* and *M. kurandensis*. The structure of the end of abdomen separates it from *M. ciliatipes* Cockerell.

Coelioxys albolineata Cockerell.

One male, Aug. 1920.

There is also a variable series of *Allodapula* (two or three species), but the group needs revision with sufficient materials, and examination of mouth parts and genitalia. This I am not able to undertake. *Allodapula* Cockerell is usually known as *Allodape* Lepeletier and Serville in Australia, but I have restricted the latter name to a group of African species, which I regard as a distinct genus. (For an account of the Australian species see Australian Zool. 6:151-152, 1930.)

The bees of Prince of Wales Island are strictly Australian, not at all Papuan. It is very possible that *Megachile kuschei* is endemic.

BEES FROM THE SOLOMON ISLANDS¹

The bees here recorded were, with one exception, collected by Kusche on Guadalcanal Island, and were given to Bishop Museum by W. M. Giffard.

Crocisa gemmata Cockerell.

Seventeen specimens; it is apparently much more common (or easier to collect?) than the *Anthophora* on which it is presumably parasitic.

Nomia froggatti Cockerell.

Two females and sixteen males.

¹ See annotated bibliography, p. 140.

Halictus subexterus, new species.

Female. In most respects exactly like *H. exterus* Cockerell, and perhaps only an extreme variety, but distinguished as follows: head black, except the strongly contrasting green clypeus; face broader; mesonotum bluish green, dull anteriorly, shining on disk, but nowhere highly polished as in *H. exterus*, and without the strongly defined transverse rugae in front; scutellum less brilliantly colored, the hind margin not blue; pleura and metathorax black; stigma brown, not so dark; abdomen only feebly metallic, with a greenish luster. The tibiae, tarsi, and hind femora are red, the hind femora much more slender than their tibiae, and arched. Much red pollen is carried by the ventral scopa of abdomen.

Guadalcanal Island: one specimen (Kusche), Feb. 1921.

There is some affinity with *H. zachlorus* Cockerell, from Samoa, but that differs at once by the large, dull, supraclypeal area; the larger tegulae which are not red; and the much longer and larger wings. It is the conspicuously different sculpture of the mesonotum, as seen under the binocular, which seems to definitely place this as a distinct species.

Halictus exterus Cockerell.

One male. The abdomen is broken, only the first segment remaining, which is bell-shaped, not broad as in the female. The clypeus and supraclypeal area are bluish green.

Halictus dampieri Cockerell.

One female of the variety with bluish green head and thorax and brassy green abdomen. This species varies in color, and Friese considered the variations to represent two species. (See Am. Mus. Novitates, 343:13, 1929.)

Anthophora sapiens Cockerell.

Two females, of the variety with a light reversed T on clypeus, and the supraclypeal mark well developed. In this it resembles *Anthophora vigilans* Smith from Papua, but *A. vigilans* has broader abdominal bands and a light mark on scape in front.

Megachile mendanae Cockerell.

Two females. There is also a male labeled Bougainville Island, Huugku, J. H. L. Waterhouse. The male is new. It is about 11 mm. long, with bright fox-red hair on head and thorax, abdomen black without bands or spots, wings dark fuliginous. Clypeus with a red beard, but the upper part, which is densely punctured, exposed; a slender spine on each side of head below eyes; anterior coxae and

tarsi simple; end of abdomen (sixth tergite) broadly rounded, not dentate, with a large pit in middle above.

Megachile woodfordi Cockerell.

Two females.

Megachile shortlandi Cockerell.

One female.

Megachile ferricineta, new species.

Female. Length about 14 mm., anterior wing 9 mm.; robust, black, approximately parallel-sided; mandibles black, quadridentate; flagellum long and slender for a female, very obscurely brownish beneath; tegulae small and black; wings dilute fuliginous; hair of head and thorax fulvous, becoming ferruginous posteriorly and in region of tegulae, but very pale on under side of head and thorax; clypeus densely punctured with a broad median shining band, lower margin bi-tuberculate; vertex densely punctured; mesothorax and scutellum shining but well punctured; legs black, with mostly reddish hair, but a good deal of black on tarsi; the hind tarsi have short very dark brown hair on inner side, black posteriorly, and pale fulvous exteriorly in front; the hind tibiae, seen from behind, show a line of light hair along hind edge; abdomen with five entire strongly developed bright ferruginous hair bands; last tergite with short black hair; ventral scopa mainly black, but pale ferruginous at base. The supraclypeal region shows a large broad shining crescentic area, suggesting relationship with *M. bakeri* Cockerell, from the Philippine Islands, which has a quite different abdomen. In my table (Linn. Soc. N.S.W., Proc., 36:175, 1911), this runs nearest to *M. aurantiaca* Friese, which is a New Caledonian species 9.5 mm. long.

Guadalcanal Island: one specimen (Kusche), Feb. 1921.

Trigona sapiens Cockerell.

Three workers.

BEES FROM MISCELLANEOUS LOCALITIES

Gronoceras cincta (Fabricius).

South Nigeria: Olomokeji (Silvestri); from Giffard collection.

Xylocopa similis Smith.

Ecuador: (Baron); from Giffard collection. Described from Para. The first tergite is red haired.

Xylocopa collaris Lapeletier.

Borneo: Pontianak, females (F. Muir); from Giffard collection.

Mesotrichia caerulea (Fabricius).

Java: Buitenzorg, females (Muir); from Giffard collection.

Mesotrichia muiri, new species (or subspecies of *M. unicolor*).

Male (type). Length 27-28 mm., closely resembling *M. ceramensis* Cockerell (Ent. News, p. 462, 1916), with the hair of head, thorax and first tergite perceptibly paler than that of rest of abdomen; but differing thus: tegument of face entirely black; conspicuous long black hairs, mixed with the fulvous, at sides of abdomen; first intercubitus with only the lower end lacking.

Female. Agrees with description of *M. unicolor* (Smith), except that the flagellum is darker.

This is the species which I have recorded from Ceram as *M. unicolor*, unless the female of *M. ceramensis* is indistinguishable, as may well be.

Ceram: 3 females and 2 males (Muir), Feb. 1919; from Giffard collection.

The type locality of *M. unicolor* is Amboina, and the male has a yellow clypeus. *M. ceramensis*, from Ceram, has the clypeus strongly marked with yellow, and no black hair at sides of abdomen. In *M. unicolor*, male, there is black hair at sides of abdomen. It would be possible to regard these three forms as subspecies of a single species, *M. unicolor*, but at present no intermediates are known, so far as the males are concerned. Muir collected three females on Amboina, which are certainly *M. unicolor*. They do not appear to differ from females of *M. muiri*. The evidence thus points to the existence of a single type of female, with three different males, one on Amboina and two on the larger island of Ceram.

Mesotrichia bryorum (Fabricius).

Torres Strait: Thursday Island, 1 female (Kusche), Sept. 1920.

Mesotrichia confusa (Pérez).

Java: Buitenzorg, 2 females, 2 males (Muir); Borneo: Pontianak, 1 male, 3 females (Muir).

Mesotrichia latipes (Drury).

Borneo: Pontianak, 1 male (Muir).

Mesotrichia tenuiscapa (Westwood).

Java: Buitenzorg, 1 male (Muir).

Lithurgus albofimbriatus Sichel.

Cook Islands: Rarotonga, 1 male, Oct. 21, 1934.

This species is very similar to *L. bractipes* Perkins and Cheesman (from Samoa), agreeing in the grooved scutellum and the hind basi-

tarsus squared off at the end. It differs from the description and figure of *L. bractipes* by having a good deal of white hair on hind part of mesonotum and scutellum, and the longer and more slender hind basitarsus.

Fiji Islands: Ongea Ndriti, one female (E. H. Bryan, Jr.), July 26, 1924.

Tonga: Tongatabu, Nukualofa, 1 female (G. P. Wilder), Aug. 1, 1925; Vavau, near Tuanikevale, cliff, 150 meters alt., 1 male (J. E. Hoffmeister); Haapai, July 31, 1925, 3 males (Wilder).

***Megachile ustulatiformis* Cockerell.**

Queensland: Cairns, 1 male (Kusche).

***Megachile albomarginata* Smith.**

New Caledonia: Houailou, Oct. 28, 1925, 2 females (W. H. Ford).

***Megachile mystacea* (Fabricius).**

Torres Strait: Thursday Island, 1 male (Kusche).

***Megachile inflaticauda*, new species.**

Female. Length about 9 mm., anterior wing 6.4 mm.; black, short and robust, with large head, and high convex abdomen, abruptly descending apically; eyes very dark reddish; mandibles very broad, with three short teeth, not counting inner corner; sides of face densely covered with pure white hair; clypeus short, dull, and densely, coarsely, rugoso-punctate, the shining lower margin gently concave; supraclypeal area coarsely punctured, but shining between the punctures, its upper end appearing as a polished prominence; vertex densely punctured, not polished; antennae black, the flagellum faintly brownish beneath; head above and margin of scutellum with a little short dark hair, but thorax above almost bare; tubercles with a tuft of dense pure white hair; pleura with thin inconspicuous pale hair; sides of metathorax with a conspicuous fringe of white hair; mesonotum shining but closely punctured; scutellum dull with very minute dense punctures; tegulae black; wings brownish hyaline; first recurrent nervure ending twice as far from base of second cubital cell as second from apex; legs black with rufescent tarsi, the hind basitarsi broad; no pulvilli (this mentioned because the insect has rather the appearance of an *Osmia*); hind tibiae, seen from the outer side, showing a shining line of pure white hair along hind margin; hind tibiae stout, red behind, with little black spines at apex, hind tarsi with reddish hair on inner side; abdomen moderately shining, the transverse sulci on tergites 3 and 4 very deep; first tergite with white hair at sides of apical margin; tergites 2 to 5 with linear apical pure white hair bands; sixth without evident hair; ventral scopa white (collecting an abundance of red pollen), the apex beneath with hardly any hair.

Torres Strait: Thursday Island, Cape York Peninsula (Kusche), Sept. 1920; from Giffard collection.

A distinct little species, to be compared with *M. tenuicincta* Cockerell, which differs thus: face broader, clypeus more finely sculptured; supraclypeal area shorter; mesonotum dull and inconspicuously punctured; a line of white pubescence between mesonotum and scutellum; abdomen much less elevated dorsally, and the white hair band not so slender; apex of abdomen beneath with coarse black hair.

Crocisa omissa Cockerell.

Torres Strait: Thursday Island, Prince of Wales Island (Kusche); from Giffard collection.

Crocisa gemmata Cockerell.

Queensland: Cairns, 1 female (Kusche), Sept. 1920. This Solomon Island species has been introduced, or the Cairns label is erroneous.

Anthophora elegans Smith.

Amboina: several specimens (Muir). (See also Am. Mus. Nat. Hist., Bull. 23 :227, 1907.)

Sphecodes amboinensis Meyer.

Amboina: 3 males (Muir); Giffard collection.

These differ from Meyer's description in having the first three tergites entirely red, and the first with at most a very faint dark cloud in the middle. The largest specimen has three cubital cells on each side; the next largest has the second intercubitus wholly lacking on both sides; the smallest has the second intercubitus present on the left side, but wholly lacking on the right. Blüthgen (1927) treats *S. amboinensis* as a synonym of *S. biroi* Friese, described from Huon Gulf, New Guinea. Friese's very brief description of male *S. biroi* does not disagree. But Blüthgen also refers to *S. biroi*, the Philippine Islands *S. latifrons* Cockerell, the type of which has a broader face and conspicuously darker abdomen than *S. amboinensis*. Blüthgen holds that *S. biroi* Friese extends from New Guinea at least to the Malay Peninsula, Pendlebury having sent him both sexes collected at Kuala Lumpur. Since Blüthgen has studied these insects much more thoroughly, with more material, than any other worker, it seems almost obligatory to accept his findings; yet I can hardly doubt that the *S. biroi* series will eventually resolve itself into a group of closely allied species or races.

BIBLIOGRAPHY

1. Cockerell, T. D. A., The Bees of the Solomon Islands: Linn. Soc. N. S. W., Proc., **36**:160-178, 1911.
2. Cockerell, T. D. A., Bees in the Australian Museum Collection, Australian Mus. Records, **17**:231, 232, 234, 1929.
3. Cockerell, T. D. A., Bees from the Solomon Islands: Roy. Ent. Soc., Proc., 225-226, London, December 1936.
4. Strand, E., Eine neue Megachile von den Solomonen: Wiener Ent. Zeitung, **30**:79, March 1911. (*M. bougainvilliana*, ♀ 14-15 mm. long; face with yellow hair; ventral scopa all red. It does not agree with any species seen by me.)