Additional Notes on the Bees of the Solomon Islands (Hymenoptera: Apoidea)

By KARL V. KROMBEIN

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, AGRICULTURAL RESEARCH ADMINISTRATION, UNITED STATES DEPARTMENT OF AGRICULTURE

This report, a supplement to an earlier one[1], on the bees of the Solomon Islands has been occasioned by the study of material in the collections of the California Academy of Sciences [CAS] and Museum of Comparative Zoology [MCZ] kindly made available by E. S. Ross and J. C. Bequaert, respectively. The diligent collecting on several of these islands during the war by G. E. Bohart has resulted in the present recording of several forms previously unknown from the group, some new and some adventive from other regions. The material at hand has been extensive enough to enable me to present keys, complete or nearly so, to the species of *Megachile* and *Halictus,* the two largest genera of bees in the Solomons.

The bee fauna now known to be present in the Solomons is listed below (an asterisk denotes an endemic or supposedly endemic species). The honey bee, *Apis mellifera* L., has not been taken in the Solomons, though it occurs on several of the other islands in the Pacific.

COLLETIDAE

***Palaeorhiza tetraxantha** (Cockerell). Guadalcanal, Russell and Florida

HALICTIDAE

Halictus (Indohalictus) dampieri Cockerell. Florida and Guadalcanal
Halictus (Indohalictus) zingowli Cheesman and Perkins. Santa Cruz Islands, Guadalcanal and Bougainville
***Halictus (Indohalictus) froggatti** Cockerell. Guadalcanal
Halictus (Homalictus) fijiensis Perkins and Cheesman. San Cristobal
***Halictus (Homalictus) viridiscitus** Cockerell. Florida
***Halictus (Homalictus) exterus** Cockerell. Florida and Guadalcanal
***Halictus (Homalictus) pseudexterus** sp. n. Bougainville
***Halictus (Homalictus) subexterus** Cockerell. Guadalcanal
Nomia flavoviridis flavoviridis Cockerell. Florida
Nomia halictella Cockerell. Guadalcanal
***Nomia elliotii froggatti** Cockerell. Guadalcanal, Florida, Russell and Bougainville

MEGACHILIDAE

Lithurgus (Lithurgus) scabrosus (Smith). Sikaiana Atoll, San Cristobal and Guadalcanal
***Lithurgus (Lithurgus) fortis fortis** Cockerell. San Cristobal, Malaita, Florida, Guadalcanal, Santa Isabel and Bougainville
***Lithurgus (Lithurgus) fortis nigerrimus** Krombein. New Georgia
***Megachile (Hackeriapis) bougainvillei** Cockerell. Santa Isabel
***Megachile (Eumegachile) mendanae** Cockerell. Vanikoro, Florida, Guadalcanal and Bougainville

[1] Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:10-14.

Megachile (subgenus?) **lachesis** Smith. Malaita, Florida, Guadalcanal and Bougainville
***Megachile** (subgenus?) **placida bougainvilliana** Strand. Florida, Guadalcanal and Bougainville
***Megachile** (subgenus?) **shortlandi shortlandi** Cockerell. Guadalcanal
***Megachile** (subgenus?) **shortlandi aurantiscopa** Krombein. Treasury
***Megachile (Eutricharaea) woodfordi** Cockerell. Florida and Guadalcanal
***Megachile** (subgenus?) **disputabilis** sp. n. Guadalcanal
***Coelioxys dispersa** Cockerell. Guadalcanal
***Coelioxys peregrinata** Cockerell. "Solomon Islands"
***Pycnanthidium solomonis** sp. n. Florida

APIDAE

***Nomada psilocera** Kohl. Florida, Guadalcanal and Bougainville
***Anthophora sapiens** Cockerell. Florida, Guadalcanal and Treasury
***Thyreus gemmatus** (Cockerell). Florida, Guadalcanal, Santa Isabel, Rendova, Treasury and Bougainville
Ceratina dentipes Friese. Florida
***Allodapula mindanaonis boharti** subsp. n. Guadalcanal and Russell
***Trigona (Tetragona) iridipennis** Smith. Florida, Guadalcanal, New Georgia and Bougainville

The bee fauna of the Solomons is still rather imperfectly known. If the endemic species are tabulated into three groups, it will be noted that of the 24 endemic bees, the eastern Solomons (San Cristobal, Malaita, Florida, Guadalcanal and Russell) with 20 bees have an apparently larger fauna than the New Georgia group (New Georgia and Rendova) with only three bees, or the northern Solomons (Bougainville and Treasury) with 10 bees. Of the bees recorded from these three groups of islands, the eastern Solomons have 12 forms not known from the other two groups, the New Georgia group has only one bee peculiar to it, and the northern Solomons have only two bees not known from the other two groups. Further collecting in the northern Solomons and the New Georgia group undoubtedly would demonstrate the presence of additional species on those groups, probably many of them now thought to occur only in the eastern Solomons. This statement gains some support from a similar tabulation from recently published studies on mosquitoes from the same region[2,3]. Mosquitoes were collected more intensively than any other group of insects during the war, and these studies on *Anopheles* and *Tripteroides* list 12 endemic forms, 10 in the eastern Solomons with two restricted to that group, seven from the New Georgia group with none restricted to that group, and six from the northern Solomons with two occuring only on that group. Not a single bee is recorded from Rennell and Bellona, a group of islands separated by profound depths from the other Solomons and possessing a large number of endemic subspecies of birds.

FAMILY COLLETIDAE

Palaeorhiza tetraxantha (Cockerell)

Meroglossa tetraxantha Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 161 [♀; Solomon Islands; location of type unknown].

[2] Belkin, Knight and Rozeboom, 1945. Jour. Parasit. 31:241-265.
[3] Belkin, 1950. Proc. U. S. Natl. Mus. 100:201-274.

? *Hylaeus* sp. Lever, 1933. Agr. Gaz. Brit. Sol. Isl. Prot. 1 (3): 16 [visiting coconut flowers].

? Hylaeidae sp. Pagden and Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3 (1): 21 [visiting coconut flowers].

Palaeorhiza tetraxantha (Cockerell), Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5: 225 [♀, ♂; Florida and Russell Islands].—Cheesman, 1948. Ann. Mag. Nat. Hist. (12) 1: 319 [♀, ♂; in key]. 2 ♀ ♀; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 2 ♀ ♀; Siota, Florida Island; March 1945 (G. E. Bohart). 2 ♂ ♂; Pavuvu, Russell Island; April 20, 1945 (G. E. Bohart) [the foregoing all CAS].

FAMILY HALICTIDAE

The following key to the Solomon Islands *Halictus* includes only those species seen by me. I have been unable to place *subexterus* Cockerell, 1939 (Occas. Papers B. P. Bishop Mus. 15: 135) because the brief description is based almost entirely on color. The male of *froggatti* Cockerell and the female of *pseudexterus,* new species are unknown.

1. Front between antennal fossae without a longitudinal carina; front, vertex and temples without close, parallel rugulae; scutum and scutellum dull from fine dense lineolation.....(subgenus **Indohalictus**) 2

   Front between antennal fossae with a strong longitudinal carina; front, vertex and temples with close parallel rugulae; scutum and scutellum shining to some extent except in *viridiscitus* in which these areas are densely punctate..... (subgenus **Homalictus**) 4

2. Head broader, in female the greatest width 1.2 the height from apex of clypeus to posterior ocelli, in male the greatest width 1.1 the height; apical half of male clypeus creamy.....**dampieri** Cockerell, p. 280

   Head narrower, the greatest width subequal to height from apex of clypeus to posterior ocelli; male clypeus unicolorous (male of *froggatti* unknown)..... 3

3. Dorsal surface of propodeum with the rugose reticulations confined to the basal half or less of the area; aeneous, smaller forms, females not over 5 mm. long .....**zingowli** Cheesman and Perkins, p. 280

   Dorsal surface of propodeum with the rugose reticulations extending almost to apex of area; dull black, larger forms, females 6.5-7.0 mm. long (male unknown).....**froggatti** Cockerell, p. 280

4. Scutum and scutellum mostly with subcontiguous, large punctures; dorsal surface of propodeum with shallow rugose reticulations of fine mesh..... .....**viridiscitus** Cockerell, p. 282

   Scutum and scutellum with scattered fine punctures, or if scutum rather densely punctate (*pseudexterus*), the disk of scutellum shining and impunctate; dorsal surface of propodeum either with deep rugose reticulations of large mesh, or with radiating rugulae not forming reticulations..... 5

5. Scutum anterolaterally without rugae; dorsal surface of propodeum with radiating rugae not forming reticulations, the surface dull from fine lineolation, the posterior surface separated from lateral surface by a carina on lower half only; seventh tergite of male with apical margin rounded..... .....**fijiensis** Perkins and Cheesman, p. 282

   Scutum anterolaterally with a few transverse rugae; dorsal surface of propodeum with deep rugose reticulations, the surface shiny, the posterior surface separated from lateral and dorsal surfaces by a stong carina; seventh tergite of male with apical margin produced in middle into a narrow flat plate..... 6

6. Scutum more sparsely punctate; mesopleuron of male punctate only, of female with fine rugae on lower half; male genitalia (figs. 4, 4a) with accessory process

of gonocoxite shorter, setose only along outer margin, the gonostylus abruptly narrowed halfway along inner margin.....**exterus** Cockerell, p. 282

Female unknown; scutum subcontiguously punctate except a small area in middle; mesopleuron rather coarsely rugose; genitalia (figs. 5, 5a) with accessory process of gonocoxite longer, the apical fourth with setae, the gonostylus moderately constricted at midpoint.....**pseudexterus,** new species, p. 283

Halictus (Indohalictus) dampieri Cockerell (Fig. 3)

Halictus dampieri Cockerell, 1905. Entomologist 38:270 [♀; Queensland, Australia; type in British Museum (Natural History)].—Cockerell, 1929. Amer. Mus. Novitates 343: 13 [synonymizes *strangulatus* and *indigoteus*].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5: 226 [♀, ♂; Florida Island, Solomons].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15: 135 [♀; Guadalcanal].

Halictus indigoteus Perez, 1924. *In* Friese, Konowia 3: 243 [♀, ♂; Mackay, Queensland, Australia; location of type unknown].

Halictus strangulatus Perez, 1924. *In* Friese, Konowia 3: 244 [♀, ♂; Mackay, Queensland, Australia; location of type unknown].

Cockerell notes that "this is a common Queensland species, and has probably been introduced into the Solomons by human agency." The species was not taken in the Solomons during the war. I have placed it in the key on the basis of Australian specimens.

Halictus (Indohalictus) zingowli Cheesman and Perkins

Halictus zingowli Cheesman and Perkins, 1939. Trans. Roy. Ent. Soc. London 88: 171, figs. 1 c, 2 d and f, 3 f [♀; Malekula and Erromanga Islands, New Hebrides; type in British Museum (Natural History)].

1 ♂; Mohawk Bay, Matemalsa, Santa Cruz Islands; July 10, 1933 (M. Willows, Jr.; Templeton Crocker Expedition). 3 ♀ ♀; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 1 ♀; Naval Air Base, Bougainville; April 1945; (G. E. Bohart) [all the foregoing CAS].

The male of *zingowli* has not been recognized previously. I base the present association on the sculptural similarities between this male and the series of females recorded above.

The male genitalia are identical with those of the Micronesian *yapensis* Cockerell, but *zingowli* may be separated by the sculpture of the dorsum of the propodeum, which is entirely and densely lineolate with only a few extremely short, radiating rugulae at base, whereas this area in *yapensis* is more broadly rugulose. Additional material would be desirable before a final decision is reached as to the status of these two species, but it seems probable that *yapensis* will prove to be only a subspecies of *zingowli* (Krombein, 1950. Proc. Hawaii. Ent. Soc. 14: 111).

Halictus (Indohalictus) froggatti Cockerell

Halictus froggatti Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 162 [♀; Solomon Islands; location of type unknown].

5 ♀ ♀; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

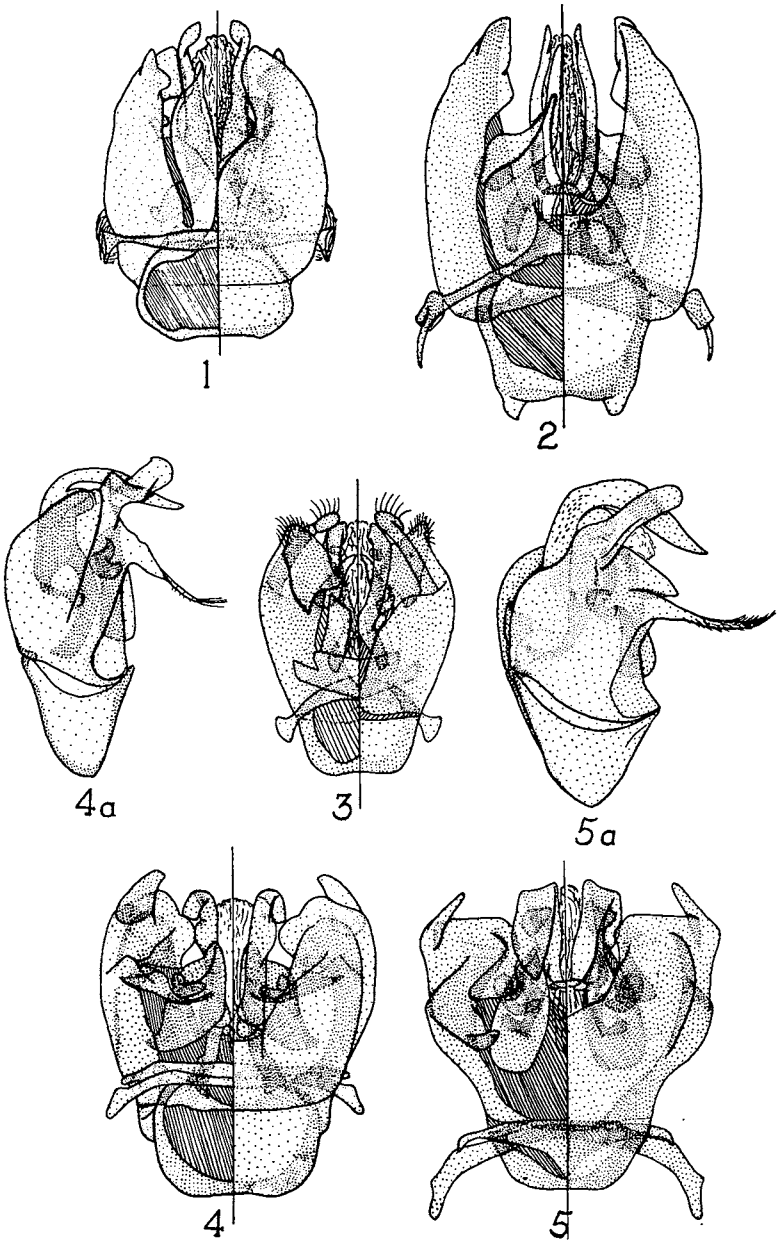

PLATE 1. MALE GENITALIA AND SEVENTH STERNITE OF SOLOMON ISLANDS HALICTUS. Figs. 1-5, ventral aspect at left, dorsal at right; figs. 4a, 5a, left lateral aspect. Fig. 1, **H. fijiensis;** fig. 2, **H. viridiscitus;** fig. 3, **H. dampieri;** figs. 4, 4a, **H. exterus;** figs. 5, 5a, **H. pseudexterus.** Drawings by Miss Addie M. Egbert, Bureau of Entomology and Plant Quarantine.

H. latitarsis Friese (=*mcgregori* Cockerell) from New Guinea, Sumatra, and the Philippines has a similar surface sculpture except that the mesonotum is dull mat, and the ratio of head height (from apex of clypeus to vertex) to greatest head width is significantly different, being 6:7 in *latitarsis* and 6:6.5 in *froggatti.*

Halictus (Homalictus) fijiensis Perkins and Cheesman (Fig. 1)

Halictus fijiensis Perkins and Cheesman, 1928. Ins. Samoa, Pt. 5, Hym., Fasc. 1, p. 21 [♀ , ♂ ; Fiji Islands; type in British Museum (Natural History)].—Cockerell, 1929. Ann. Mag. Nat. Hist. (10) 3:357 [♀ , ♂ ; Fijis].

3 ♀ ♀ ; Wainoni, San Cristobal Island, Solomons (W. M. Mann) [MCZ].

This is the first record of this species from outside the Fijis. The series agrees in details of sculpture with a female *fijiensis* from Suva, Fiji, identified by Cockerell. The abdomen in the Solomon Islands females is a lighter brown and the tibiae and tarsi a lighter red, but these differences may not be significant, for the specimens could be callows. The male characters used in the key are taken from a specimen from Suva, determined by Cockerell.

Halictus (Homalictus) viridiscitus Cockerell (Fig. 2)

Halictus viridiscitus Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 163 [♀ ; Solomon Islands; type in U. S. National Museum].

1 ♀ ; Solomon Islands, No. C. 13; July-August 1909 (W. W. Froggatt) [USNM; the type]. 1 ♂ ; Siota, Florida Island; March 1945 (G. E. Bohart) [CAS].

The male is distinct among Solomon Islands *Halicti* in that the seventh sternite is produced in the middle along the apical margin into two flat conical processes bearing a few setae at the tips, and separated by a semicircular emargination. The genitalia are also distinct among species of the Solomons in that the gonocoxite does not bear a downward or basally directed accessory process in addition to the gonostylus. It is very similar to the female in sculpture and color, and in fact differs superficially only in lacking the abdominal scopa, since the antennae are short and the abdomen broad.

Halictus (Homalictus) exterus Cockerell (Figs. 4, 4a)

Halictus exterus Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 164 [" ♀ "= ♂ ; Solomon Islands; location of type unknown].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5:226 [♀ ; Tulagi].

Halictus lavoroensis Cockerell, 1929. Rec. Austral. Mus. 17:228 [♀ ; Lavoro Plantation, Guadalcanal; type in Australian Museum, Sydney (?)].—Pagden and Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3 (1) : 21 [frequent visitor of coconut flowers]. **New synonymy.**

Halictus eavoroensis (!) Cockerell, Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3 (4) : 7 [visiting male flowers of coconut].

1 ♀ ; Siota, Florida Island; March 1945 (G. E. Bohart) [CAS]. 2 ♂ ♂ ; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS]. 1 ♀ ;

No. 1087; also bears a label, "*H. exterus* Ckll., Solomon Islands (det. Ckll.)" [USNM].

The two sexes associated here obviously belong to the same species. Both have the same type of mesonotal and propodeal sculpture, that of the former being very sparsely and finely punctate, quite shining and with a few transverse rugulae anteriorly, and that of the latter strongly rugoso-reticulate. The front in both sexes is longitudinally rugulose, and the male has a few transverse rugulae just below the anterior ocellus which are lacking in the female.

The original description of *exterus* rather obviously refers to a male rather than a female as stated by Cockerell, for he mentions that the abdomen does not have a scopa. He also states that there are a few transverse striae below the anterior ocellus, a character which the male has but not the female. Superficially, aside from lacking the scopa, the male is extremely like a female in appearance, having a broad, stocky abdomen, and short, stout antennae as in the female, though 13-segmented. Another peculiarity giving it some resemblance to a female is that the seventh tergite has a very narrow median impunctate space, somewhat resembling the rima on the female fifth tergite. The apical plate of the male seventh tergite is very narrowly produced and somewhat snout-like in appearance.

The original description of *lavoroensis* agrees almost exactly with the female *exterus* identified by Cockerell and cited above, differing only in the minor point of lacking some red on bases of mid and hind femora. Cockerell states (1929) that *lavoroensis* is allied to *exterus,* but that the front below the anterior ocellus is not transversely striate, the femora broadly reddened at apex, mesothorax without coppery tints, and abdomen with a ventral scopa, precisely the characters in which female and male *exterus* differ with the exception of the increased red on the legs.

The male identified as *exterus* by Cockerell, 1939 (Occas. Papers B. P. Bishop Mus. 15: 135) is apparently a different species, for he mentions that the first abdominal segment is bell-shaped, which is not the case in male *exterus.*

Halictus (Homalictus) pseudexterus, new species (Figs. 5, 5a.)

Halictus species, Krombein, 1949. Bul. Brooklyn Ent. Soc. 44: 11.

When I wrote my first paper on the bees of this group of islands, I was unable to place this male due to lack of material. I had considered that it might be *exterus* Cockerell, but dismissed that probability because it differed from what Cockerell supposed was the male (erroneously so—see discussion under *exterus*).

This species, known only from the male sex, is rather close in general appearance to *exterus,* but has the mesoscutum densely striato-punctate whereas the latter species has very scattered punctures and rugulae anteriorly only, and the mesopleuron is rugoso-reticulate in *pseudexterus* and punctate only in *exterus.* The genitalia also are rather different—the accessory process of the gonocoxite in *pseudexterus* is longer and the apical fourth has dense, short, stout setae while this process in *exterus* is shorter, setose only along outer margin, the setae at tip very long;

the gonostylus in *exterus* in lateral view is abruptly narrowed halfway along inner margin, but only moderately constricted and then again broader in *pseudexterus*.

Type: ♂; Bougainville Island; April 10, 1944 (W. G. Downs) [U. S. National Museum, Type No. 60914].

Male.—6.8 mm. long. Shining and with metallic reflections, the head and thorax golden green, the propodeum, abdomen and legs olive green, the latter ferruginous on apices of femora and all tibiae and tarsi. Vestiture light ochraceous, denser on head and sides of thorax.

Apical margin of clypeus subtruncate, the lateral angles not prominent; clypeus and supraclypeal area shining, punctate; front closely, longitudinally rugulose, but no transverse rugulae in front of anterior ocellus as in *exterus;* front with a sharp carina extending from supraclypeal area half the distance to anterior ocellus; vertex with close transverse rugulae extending downward on temples; antennae short and stout, extending backward only to tegulae.

Pronotal crest with an inconspicuous, obtuse lateral tooth; mesoscutum anteriorly with a few transverse rugulae, elsewhere rather densely longitudinally striato-punctate except an area along midline near posterior margin which bears only scattered punctures; scutellum with a shallow median groove, very sparsely punctate except along margins; mesopleuron rugoso-reticulate (mostly smooth in *exterus*); propodeum with dorsum more strongly rugoso-reticulate than in *exterus,* the posterior declivous surface set off by stronger marginal rugae than in *exterus.*

Abdomen with the first four tergites much more strongly constricted at the apical fourth than in *exterus,* the constricted areas impunctate, the other areas sparsely punctate; seventh tergite with a narrow median impunctate area terminating in a short, narrow, snout-like apical plate; second to sixth sternites with dense pubescence, the apical margin of the sixth rounded in middle.

Genitalia similar in general to those of *exterus,* but differing as noted above.

Nomia flavoviridis flavoviridis Cockerell

Nomia flavoviridis Cockerell, 1905. Entomologist 38:222 [♂; Mackay, Queensland; type in British Museum (Natural History)].—Cockerell, 1929. Amer. Mus. Novit. 343:10 [♀; Mackay, Queensland; synonymizes *aenescens* under *flavoviridis*].—Rayment, 1939. Austral. Zool. 9:277 [many localities in Australia].

Nomia aenescens Friese, 1912. Mitt. Zool. Mus. Berlin 6:94 [♀; Sialum near Cape King William, Dutch New Guinea; type in Zoological Museum, Berlin].—Friese, 1917. Ark. Zool. 11:8 [♀; Australian localities].—Friese, 1924. Konowia 3: 247 [♀, ♂; Mackay, Queensland].

Nomia flavoviridis flavoviridis Cockerell, 1931. Austral. Zool. 7:48 [relegated to subspecific rank].

1 ♀; Siota, Florida Island; March 1945 (G. E. Bohart) [CAS].

This and a single female from New Guinea agree very well with Stradbroke Island (Australia) females determined as typical *flavoviridis* by Cockerell. This is the first record from the Solomons.

Nomia halictella Cockerell

Nomia halictella Cockerell, 1905. Ann. Mag. Nat. Hist. (7) 16:306 [♀; Queensland, Australia; type in British Museum (Natural History)].—Cockerell, 1929. Amer. Mus. Novit. 343:9 [Mackay, Queensland.]—Cockerell, 1931. Austral. Zool. 7:49 [♀, ♂; Queensland].

1 ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

This species has not been recorded previously from outside Australia. I can find no distinguishing characters of a subspecific nature to separate the specimen cited above from material from Australia identified by Cockerell and several specimens from New Guinea. The Philippine *elongatula* Cockerell appears to be the most closely related form, but it is specifically distinct.

Nomia elliotii froggatti Cockerell, new status

Nomia froggatti Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 165 [♀; Solomon Islands; location of type unknown].—Cockerell, 1926. Pan-Pac. Ent. 3: 82 [♂; Guadalcanal].—Pagden and Lever, 1933. Agr. Gaz. Brit. Sol. Isl. Prot. 3(1): 21 [visiting coconut flowers].—Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3(4): 7 [visiting coconut].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5:225 [♂; Guadalcanal and Nggela].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15:134 [♀, ♂; Guadalcanal].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44: 10 [♂; Florida Island].

17 ♀♀, 6 ♂♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 3 ♂♂; Naval Air Base, Bougainville; April 25, 1945 (G. E. Bohart). 3 ♂♂; Pavuvu, Russell Island; April 26, 1945; (G. E. Bohart) [the foregoing all CAS]. 3 ♀♀, 4 ♂♂; Guadalcanal; 1944 (L. N. Jarcho) [MCZ].

This subspecies has not been recorded previously from Bougainville and Russell Islands. In my earlier paper I treated *froggatti* as a good species, since externally it is distinguished from its closest relatives by a combination of the more strongly infumated wings, orange integumental bands on the tergites, the surface of the tergites shining, the scutum and scutellum mostly dark haired except for the margins, and the apical half of the hind femur and all of hind tarsus except last segment ferruginous in the male. However, when the two additional forms of *Nomia* recorded above came to my attention, and they proved to be identical with forms from New Guinea and Australia, it seemed desirable to investigate more thoroughly the relationships of *froggatti*. After a study of the male genitalia of various so-called species from the Australian and Oriental regions in the collection of the U. S. National Museum, it became apparent that *froggatti* is only the Solomon Islands race of a wide-ranging species, *elliotii* Smith, for the genitalia and apical sternites are identical. The New Britain and New Guinea *pulchribalteata* Cameron, and the Australian *darwinorum* Cockerell and *lyonsiae* Cockerell also belong to this complex. Cameron's is a distinct subspecies, and there may be more than one good subspecies in Australia, my material being too limited to determine the status of the Australian forms. Cockerell, 1931 (Austral. Zool. 7:47, 50, 51) mentions that *lyonsiae* is at best a weak race of *darwinorum,* which is itself hardly more than a race of *rubroviridis* Cockerell. The specimens recorded by Friese, 1909 (Ann. Mus. Nat. Hung. 7:196) as *elliotii* from New Guinea and the Bismark Archipelago are undoubtedly referable to *elliotii pulchribalteata,* new status, which may be separated at once from typical *elliotii* by the larger, denser punctures of the first abdominal tergite.

The three *Nomia* now known from the Solomons may be separated conveniently by the following table (male characters of *f. flavoviridis* and female characters of *halictella* are taken from Australian specimens):

Integument without metallic reflections, abdominal tergites 1 to 5 in male and 1 to 4 in female with orange integumental bands apically; scutellum bigibbose, the gibbosities terminating posteriorly in tubercles; postscutellum with a pair of strong teeth; clypeus carinate down middle, immaculate; hind legs of male modified as follows: Trochanter with large tubercle beneath, femur greatly enlarged, humped above, tibia enlarged, produced at apex beneath into a large blunt process; male third and fourth sternites not tomentose, the fifth retracted..... ..... **elliotii froggatti** Cockerell

Integument without metallic reflections, abdominal tergites 1 to 5 in male and 1 to 4 in female with dense apical bands of pale tomentum; scutellum and postscutellum unmodified; clypeus not carinate in middle, immaculate; hind legs of male unmodified; male with 5 exposed sternites, the third and fourth tomentose, the fourth very densely so, the fifth with a pair of processes each side of midline, the anterior pair erect, stout, bearing about 6 setae at tip, the posterior pair slender, recumbent, and with fewer setae..... **halictella** Cockerell

Integument with metallic green reflections, abdominal tergites 1 to 5 in male and 1 to 4 in female with apical bands of sparse white hair; scutellum and postscutellum unmodified; clypeus not carinate in middle, that of male yellow at apex; hind legs of male modified as follows: Trochanter with small tubercle beneath, femur and tibia enlarged as in *elliotii* but not as greatly, the latter not produced at apex beneath; male with only 4 exposed sternites, the third and fourth not tomentose..... **flavoviridis flavoviridis** Cockerell

Family Megachilidae

Lithurgus (Lithurgus) fortis fortis Cockerell

Lithurgus fortis Cockerell, 1929. Rec. Austral. Mus. 17:234 [♀; Guadalcanal, Bougainville; type in Australian Museum, Sydney].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5: 225 [San Cristobal, Guadalcanal].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:11 [♀; Bougainville].

3 ♀ ♀; Maliali, Florida Island (W. M. Mann). 1 ♀; Guadalcanal; 1944 (L. N. Jarcho). 1 ♀; Fulakora, Santa Isabel (W. M. Mann). 1 ♀; Bulimataran (W. M. Mann). 6 ♂ ♂; Wainoni, San Cristobal (W. M. Mann). 1 ♂; Auki, Malaita (W. M. Mann) [the foregoing all MCZ]. 1 ♀; Piva, Bougainville; March 1945 (A. J. Walz) [CAS].

Lithurgus (Lithurgus) scabrosus (Smith)

For a complete list of synonyms see Krombein, 1950, Proc. Hawaii. Ent. Soc. 14: 120. As *Lithurgus albofimbriatus* Sichel, Cockerell, 1936, Proc. Roy. Ent. Soc. London (B) 5: 226 [♀; Sikaiana Atoll].

1 ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS]. 1 ♀; Wainoni, San Cristobal (W. M. Mann) [MCZ].

The following key will serve to identify the *Megachile* recorded to date from the Solomons. I have seen the known sexes of all species except the male of *bougainvillei* Cockerell, which is placed in the key from characters given in the original description. The males of *woodfordi* Cockerell and *shortlandi aurantiscopa* Krombein are unknown.

1. Females 2
   Males 9
2. Mandibles quinquedentate 3
   Mandibles quadridentate 4
3. Vestiture and legs entirely black, wings dark brown; size large, usually over 18 mm. in length ..... **lachesis** Smith, p. 289
   Legs except coxae ferruginous, wings only slightly infumated with brownish, vestiture of legs and abdominal venter orange, of cheeks, sides of face and thorax, propodeum, narrow band anteriorly and on side of scutum, and post-scutellum ochraceous, narrow bands at apices of first to fifth tergites golden, that on center of front, vertex, scutum and tergites except apices short and dark ..... **bougainvillei** Cockerell, p. 288
4. Second to fifth sternites with narrow apical bands of ochraceous tomentum which may be complete or broadly interrupted medianly; tergites dull from extremely close, fine punctation 5
   Sternites without such bands of tomentum; tergites more shining 6
5. Second to fifth sternites with the apical band of tomentum complete; hair of cheeks black in front, pale behind; hind basitarsus broader, the ratio of greatest length to greatest width as 2:1 ..... **woodfordi** Cockerell, p. 290
   Second to fifth sternites with the apical bands of tomentum present only on sides; hair of cheeks entirely pale; hind basitarsus narrower, the ratio of greatest length to greatest width as 2.5:1 ..... **disputabilis,** new species, p. 291
6. Second to fifth tergites with small close punctures among which are interspersed larger ones; abdominal vestiture entirely dark except for first tergite laterally, apices of tergites without bands of tomentum; clypeus carinate in middle; scopa dark brown ..... **mendanae** Cockerell, p. 289
   Second to fifth tergites with small punctures only; tergites with apical bands of ochraceous or fulvous tomentum; clypeus not carinate, but with a narrow, shining impunctate area in middle 7
7. Supraclypeal area with separated punctures and shining interspaces; second to fifth tergites with moderately broad apical bands of orange tomentum, the second to fourth with some suberect orange hair anteriorly; scopa dark brown except medianly on second and third tergites where it is orange ..... **placida bougainvilliana** Strand, p. 289
   Supraclypeal area dull from subcontiguous punctures; second to fifth tergites with very narrow apical bands of ochraceous tomentum, the second to fifth elsewhere with black hair ..... (**shortlandi** Cockerell) 8
8. Scopa fulvous on second sternite, bright red on third and fourth, black on sides, black on fifth and sixth; Guadalcanal, Treasury Island ..... **shortlandi shortlandi** Cockerell, p. 290
   Scopa entirely orange except for fulvous on second sternite; New Georgia ..... **shortlandi aurantiscopa** Krombein
9. Legs except coxae entirely bright red; fore coxa without a process beneath near apex; middle of face, vertex, scutum and scutellum with black hair except for a fringe of pale yellowish hair in front of thorax and behind scutellum ..... **bougainvillei** Cockerell, p. 288
   Legs black except for fore tibia in *placida bougainvilliana* and fore tarsi which are reddish or fulvous in *mendanae* and *placida bougainvilliana;* face and dorsum of thorax with a different combination of hair colors 10
10. Mandible with a large basal tooth on inferior margin; fore coxa with a short blunt process at apex beneath; fore tarsus not expanded; hair of front white to fulvous, of abdomen entirely black; sixth tergite keeled in middle, the apical margin rounded out and irregularly crenulate; seventh tergite exposed, keeled in middle ..... **lachesis** Smith, p. 289
    With a different combination of characters; seventh tergite always retracted 11
11. Mandible tridentate at apex, inferior margin with a moderate tooth one-third the distance from base; carina of sixth tergite evenly rounded; tergites with very close fine punctures and scattered larger ones, and without apical bands of tomentum; wings strongly and uniformly infuscated ..... **mendanae** Cockerell, p. 289

Mandible quadridentate at apex; carina of sixth tergite deeply to shallowly emarginate or irregularly crenulate; tergites either with more scattered punctures, or without the interspersed larger ones, apical bands of orange or fulvous tomentum present; wings with at most the costal and apical margins slightly infumated 12

12. Mandible with a large basal tooth on inferior margin; fore coxa with an elongate process near apex; sixth tergite with a keel on basal half, the carina irregularly crenulate, but not definitely emarginate; fore tarsus fulvous, broad and flattened, the second segment with a large oval black spot beneath..... **placida bougainvilliana** Strand, p. 289

Mandible not toothed beneath; process on fore coxa short or represented by a small tubercle; sixth tergite not so keeled, the carina emarginate in middle; fore tarsus unmodified, black..... 13

13. Process of fore coxa a small tubercle; head and thorax with no black hair; emargination of sixth tergite deep, the lateral angles acute; tergites shining, the punctures small but well-separated; (male of *shortlandi aurantiscopa* unknown and possibly not separable from typical subspecies)..... **shortlandi shortlandi** Cockerell, p. 290

Process of fore coxa a short triangular lamella; vertex entirely, scutum and scutellum in middle black-haired; emargination of sixth tergite shallow, the lateral angles rounded; tergites dull from close fine punctation..... **disputabilis,** new species, p. 291

Megachile (Hackeriapis) bougainvillei Cockerell

Megachile bougainvillei Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 171 [♂; Solomon Islands; location of type unknown].

1 ♀; Fulakora, Santa Isabel Island (W. M. Mann) [MCZ].

While I have not seen a male of this species, I feel reasonably certain that the female recorded here represents the opposite sex. It shares a character with the male, the entirely ferruginous legs except for the coxae, which no other known *Megachile* from the Solomons possesses. In addition, the scutum and scutellum in both sexes are dull and very densely punctate.

Cockerell states that this species is related to the Australian *austeni* Cockerell, but it is no more than a superficial similarity in appearance. Males of *austeni* identified by Cockerell have a blunt process near the apex of the fore coxa and the clypeus is bearded only along the apical margin, characters which cause me to refer it to the subgenus *Eumegachile,* whereas *bougainvillei* is stated to have simple fore coxae, the type of clypeal vestiture not specified. The female assigned here to *bougainvillei* is referable to the subgenus *Hackeriapis.* No characters are given in the original description of the male which would be inconsistent with such a subgeneric assignment for that sex.

The following characters of the female are in addition to those listed in the foregoing key: Mandible quinquedentate, all the teeth acute, no complete cutting edge joining any of the teeth, but the third with a short flange extending two-thirds the distance toward the second tooth; clypeus with apical margin thickened, weakly crenulate, the surface closely punctate and with a distinct median carina; vertex well-developed, the distance from posterior ocelli to posterior margin of vertex twice the distance between the ocelli; temple well-developed, as wide as eye in profile; scutellum without a median groove; abdomen parallel-sided; in profile the sixth tergite abruptly declivous, the narrow apical margin upturned

at an angle of 135° to the basal part; scopa dense, moderately long on second to fifth sternites and very short on sixth.

Megachile (Eumegachile) mendanae Cockerell

Megachile mendanae Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 170 [♀; Solomon Islands; location of type unknown].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15: 135 [♀ from Guadalcanal, ♂ from Bougainville].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:12 [♀; Florida Island].

1 ♀; Siota, Florida Island; March 1945 (G. E. Bohart). 2 ♀ ♀, 2 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 1 ♀; Tevia Bay, Vanikoro Island, Santa Cruz Group; May 6, 1933 (M. Willows, Jr.; Templeton Crocker Expedition) [the foregoing all CAS].

The male from Bougainville placed here by Cockerell (1939) was apparently correctly identified. However, he stated that there was a slender spine on each side of head below the eyes. This is incorrect; there is only a tuft of long hairs in this position, giving the male the appearance of having a spine.

Megachile (subgenus ?) **lachesis** Smith

Megachile lachesis Smith, 1860. Jour. Proc. Linn. Soc. Zool., Suppl. 4: 133 [♀; Batjan; type in British Museum (Natural History)]—Cockerell, 1929. Rec. Austr. Mus. 17:235 [Bougainville].— Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5: 226 [♀ from Malaita, ♂ from Florida Island].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44: 11 [♀; Guadalcanal, Florida, Bougainville].

4 ♀ ♀, 3 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 1 ♂; Siota, Florida Island; March 1945 (G. E. Bohart). 2 ♀ ♀; Naval Air Base, Bougainville; April 1945 (G. E. Bohart) [the foregoing all CAS].

Megachile (subgenus ?) **placida bougainvilliana** Strand, new status

Megachile bougainvilliana Strand, 1911 (March 20). Wien. Ent. Ztg. 30: 79 [♀; Numa Numa, Bougainville; type in Berlin Museum].—Krombein, 1939. Bull. Brooklyn Ent. Soc. 44:12 [♀; Florida Island; synonymized *ferricincta*].

Megachile cartereti Cockerell, 1911 (May 31.) Proc. Linn. Soc. N. S. W. 36; 173 [♂; Solomon Islands; location of type unknown]. **New synonymy.**

Megachile ferricincta Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15: 136 [♀; Guadalcanal; type in Bishop Museum, Honolulu].

1 ♀, 3 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 1 ♀; Siota, Florida Island; March 1945 (G. E. Bohart). 2 ♀ ♀; Naval Air Base, Bougainville; April 1945 (G. E. Bohart) [the foregoing all CAS].

The males placed here agree with Cockerell's adequate description of *cartereti*. In my earlier paper I suggested that *bougainvillei* Cockerell (*q. v.*) might be the male, but that is not the case.

This form is only subspecifically distinct from one occuring on New Guinea which I identify as *placida* Smith, 1862.

Megachile (subgenus ?) **shortlandi shortlandi** Cockerell

Megachile shortlandi Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36: 172 [♀, ♂; Solomon Islands; location of type unknown].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5: 226 [♂; Guadalcanal].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15: 136 [♀; Guadalcanal].

Megachile shortlandi shortlandi Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:12 [♀; Guadalcanal].

6 ♀ ♀, 2 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

Megachile (Eutricharaea) woodfordi Cockerell

Megachile woodfordi Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:173 [♀ (♂ misdetermined); Solomon Islands; location of type unknown].

1 ♀; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 1 ♀; Siota, Florida Island; March 1945 (G. E. Bohart) [both CAS].

There are two *Megachile* in the Solomons the females of which are deceptively similar in general appearance, *woodfordi* Cockerell and a new species, *disputabilis,* represented by a male cotype of *woodfordi* and a female misdetermined as *woodfordi* by Cockerell in 1939.

The females of the two species agree in general with Cockerell's description of the female type of *woodfordi,* but differ in certain particulars which lead me to make the above statement as to Cockerell's later misdetermination of the female of this species. The hair on the cheeks of *woodfordi* is stated to be "black in front and pale behind." This is the condition in the female assigned here to *woodfordi,* but the female described herein as *disputabilis* has the hair on the cheeks entirely pale. *Woodfordi* is stated to have a smooth shining patch occupying the lower part of the supraclypeal area and the upper margin of the clypeus. The female I assign to *woodfordi* has such a small impunctate area, but *disputabilis* has the entire supraclypeal area more sparsely punctate than the clypeus and no such median impunctate area common to both sclerites. The hind basitarsus of *woodfordi* is said to be much broadened and flattened. In the specimens I assign to *woodfordi* the ratio of the greatest length to greatest width of the hind basitarsus is 2:1, whereas it is 2.46:1 in *disputabilis.*

The female of *woodfordi* has complete apical bands of pale tomentum on the second to fifth sternites, and for this reason is referable to the subgenus *Eutricharaea.* The unknown male of *woodfordi* should, therefore, have a small subbasal tooth on the inferior margin of the mandible. The male cotype thought to be *woodfordi* by Cockerell is in the U. S. National Museum and the mandible is unarmed. Consequently, it is unlikely to be the male of what I consider to be *woodfordi.* Also, my female *woodfordi* are 9.2-9.5 mm. long and should have a somewhat shorter male. The male Cockerell supposed to be *woodfordi* is 9.5 mm. long.

Megachile (subgenus ?) **disputabilis,** new species

Megachile woodfordi Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:174 [♂ cotype, not the ♀ type; Solomon Islands; cotype in U. S. National Museum].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15:136 [♀; Guadalcanal].

My reasons for considering the specimens listed in the synonymy above as representing another species than *woodfordi* are detailed in the discussion under that species. The present species is distinguished by the characters given in the foregoing key and the remarks under *woodfordi.* It is not referable to any of the subgenera of *Megachile* known to me, and possibly represents an undescribed subgenus.

Type: ♀; Guadalcanal, Solomon Islands; February 21 (J. A. Kusche) [U. S. National Museum, Type No. 60915].

Female.—Length 10.8 mm., forewing 8.2 mm. Black, legs and antennal flagellum dark brown. Vestiture as follows: Black to dark brown are a few long intermixed hairs on clypeus and front, vertex entirely, disk of scutum and scutellum except margins narrowly, intermixed long hairs on mesopleural disk, and short, dense hairs on tergites except narrowly at apices; rest of hair on head, thorax and most of it on legs except tarsi, pale fulvous; narrow bands of tomentum at apices of first to fifth tergite, and scopa except at apex of sixth sternite, orange; second to fifth sternites with narrow apical bands of ochraceous tomentum laterally. Wings hyaline, costal and apical margins slightly infumated with brown.

Face about as broad as long, interocular distances at apex of clypeus and ocelli subequal; mandible quadridentate, the third tooth large and truncate, the fourth rounded, a cutting edge between the third and fourth; apical margin of clypeus shallowly emarginate for a distance equal to basal width of clypeus; punctures of clypeus and supraclypeal area moderately large, those on latter subcontiguous except narrowly along midline where they are more separated, those of latter more separated, but without a smooth impunctate area common to both sclerites; ocellocular and postocellar distances subequal, slightly greater than distance between ocelli and posterior margin of vertex; in profile the temple as wide as eye.

Thorax more shining than in *woodfordi,* the punctures of scutum, scutellum and mesopleuron moderately large and subcontiguous.

Abdomen cordate, the tergites with fine close punctures; second to fifth tergites carinate basally; sixth tergite straight in profile; sixth sternite hirsute to apex.

Allotype: ♂; Solomon Islands; July-August 1909 (W. W. Froggatt) [cotype of *woodfordi* Ckll., in U. S. National Museum].

Male.—Length 9.5 mm., forewing 7.7 mm. Color and vestiture similar to female, the pale hair a deeper yellow, black hairs lacking on clypeus and front, and not so extensive on scutum, scutellum and mesopleuron.

Mandible quadridentate, the second and third teeth smaller than others, not toothed below on inferior margin; clypeus with apical margin shaped similarly to female, the surface with moderately large, subcontiguous punctures; supraclypeal area with denser, smaller punctures; antenna long and slender, the apical segment not modified, the pedicel and first flagellar segment subequal in length, the second to tenth flagellar segments three times as long as first, and the eleventh four times as long.

Anterior coxa with the process a short triangular lamella; none of tarsi modified; mid tibia with an apical spur.

Second to fifth tergites carinate at base and with narrow basal bands of orange tomentum in addition to the apical bands; sixth tergite vertical in position, with a small median gibbosity near base, a small median depression before carina, the carina prominent, shallowly and narrowly emarginate in center, the lateral angles of emargination rounded; seventh tergite retracted; four visible sternites.

Paratype: 1 ♀; Kiwi Creek, Guadalcanal; August 4, 1944 (H. E. Milliron) [University of Minnesota]. The paratype agrees with the type in all significant details of the sculpture and vestiture, but is 14.3 mm. long.

Coelioxys dispersa Cockerell

Coelioxys dispersa Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:168 [♂; Solomon Islands; location of type unknown].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5:225 [♀, ♂; Lunga, Guadalcanal].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:12 [♂; Guadalcanal].

2 ♀ ♀, 3 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

Pycnanthidium, new genus

This new genus is proposed for what is apparently an Austro-Malayan derivative of the wide-ranging *Anthidiellum* Cockerell. In comparison with Michener's tabulation of the generic characters of *Anthidiellum* (Amer. Mus. Novitates 1381:5, 1948) and specimens of *Trachusa strigata* Panzer, the genotype of *Anthidiellum, Pycnanthidium* differs in having the pronotal lobe carinate only, posterior margin of the scutellum not sharp, and rounded as seen from above instead of truncate, propodeum above with a row of pits laterally, mesepisternal carina straight, outer surface of hind tibia margined anteriorly by a sharp carina, outer surface of hind basitarsus with a central longitudinal carina, and horizontal surface of first tergite with a well-developed transverse carina anteriorly.

Diagnosis.—Small, robust, moderately to finely punctate species, 6 mm. or less in length; apical margin of female mandible with two well-developed acute teeth below and a straight cutting edge above; maxillary palpi short, two-segmented; clypeus overhanging base of labrum; subantennal sutures moderately curved outward; preoccipital ridge not carinate; pronotal lobes carinate; scuto-scutellar suture not foveate; scutellum overhanging the postscutellum, the posterior margin not sharp, as viewed from above rounded and with a small, narrow emargination at midline; mesepisternal carina straight, strong; propodeal spiracle with a posterior sulcus which is not carinate posteriorly, the propodeum above with a row of pits laterally; outer surface of hind tibia margined anteriorly by a carina; outer surface of hind basitarsus with a central longitudinal carina; in forewing the second recurrent vein several vein widths distad of second transverse cubital, and the basal and transverse median veins interstitial or the latter slightly distad of former; horizontal surface of first tergite with a well-developed transverse carina anteriorly; posterior margins of tergites not depressed; none of posterior tergites of male toothed, the apical margin of the seventh broadly rounded.

As defined above the genus includes *Anthidium turneri* Friese (1909) from Mackay, Queensland, Australia, *A. minutissimum* Bingham [=*A. javanicum* Friese (1909), *fide* Cockerell][4] from Java and Palawan, and *Pycnanthidium solomonis,* new species, from Florida Island, Solomons. It is quite probable that *Anthidium birói* Friese (1909) from New Guinea and *Anthidiellum melanaspis* Cockerell (1929) from Thursday Island, Torres Strait, should also be referred to *Pycnanthidium,* but specimens are not available for study and the original descriptions are not detailed enough to enable me to determine the correct generic placement.

Genotype: *Pycnanthidium solomonis,* new species.

[4] I have no record that this synonymy was ever published by Cockerell. His determination label on the single male from Palawan in the U. S. National Museum reads, "*Dianthidium minutissimum* (Bingh.) = *javanicum* (Fr.)."

Pycnanthidium solomonis, new species

The *relatively* finer punctation of the head and thorax, and the fluted, impunctate declivous surface of the first abdominal tergite immediately distinguish *solomonis* from the other species definitely included in the genus. In color it appears to be closest to the Australian *turneri,* but differs in that the mandibles, clypeus and supraclypeal area are black, the second tergite is marked with yellow, and the apical margin of the clypeus has only one small dull tubercle on each side of midline instead of two to four shiny ones on each side. The New Guinea *birói,* probably referable to *Pycnanthidium,* is the closest geographical relative, but *solomonis* differs from it in being much more extensively maculated with yellow and in having the legs more extensively and the tegulae red.

Type: ♀; Siota, Florida Island, Solomons; March 1945 (G. E. Bohart) [California Academy of Sciences].

Female.—Length 5.9 mm., forewing 4.4 mm. Black; the following yellow—elongate lateral triangular face mark extending to level of lower margin of antennal insertion, ovate mark midway between antennae and anterior ocellus, a small oblique spot behind upper margin of eye, pronotal lobes, lateral transverse stripes along anterior margin of scutum separated from each other by one-third the width of scutum, axillae, a broad band posteriorly on scutellum narrowly interrupted at midline, a narrow stripe along outer margin of fore tibia, a small spot at base of mid tibia, a pair of small rounded lateral spots on first tergite, elongate lateral stripes on second tergite, bands across middle of third to fifth tergites somewhat attenuate laterally, and a transverse spot at apex of sixth tergite; tegulae, tibiae, tarsi and broad apical margins of second to fifth tergites, ferruginous; flagellum brown; wings slightly infumated with brown, the venation fuscous; vestiture on head and thorax short, inconspicuous, yellowish, the scopa reddish.

Punctation of head, dorsum of thorax and mesopleuron extremely close, finer than in *turneri* or *minutissimum;* clypeus much more finely punctate than supraclypeal area, the apical margin with a small dull tubercle on each side of midline; punctation of vertex and upper part of front smaller and deeper than on supraclypeal area; postocellar distance 0.8 the ocellocular distance and 1.5 the distance from posterior ocelli to preoccipital ridge; punctation of dorsal surface of mesoscutum about the same as on vertex, that of scutellum rather finer; punctation of mesepisternum coarser than anywhere else; declivous surface of first tergite impunctate and with strong, parallel, longitudinal ridges; abdominal tergites with fine shallow punctures, more separated than those elsewhere on body.

FAMILY APIDAE

Nomada psilocera Kohl

Nomada psilocera Kohl, 1908. Denkschr. Akad. Wiss. Wien 81:308 [♀; Bougainville; type in Vienna].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:13 [♂; Florida Island].

2 ♂ ♂; Tulagi, Florida Island (W. M. Mann). 1 ♀; Guadalcanal (L. N. Jarcho) [the foregoing all MCZ]. 9 ♀ ♀, 4 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

Anthophora sapiens Cockerell

Anthophora sapiens Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:167 [♀; Solomon Islands; location of type unknown].—Cockerell, 1929. Rec. Austral. Mus. 17:232 [♂; Guadalcanal].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15:135 [♀; Guadalcanal].—Krom-

bein, 1949. Bull. Brooklyn Ent. Soc. 44:13 [♀, ♂; Guadalcanal, Florida Island, Treasury Island].

Anthophora sp. Lever, 1933. Agr. Gaz. Brit. Sol. Isl. Prot. 1(4):16 [visiting coconut flowers].

9 ♀ ♀; 7 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS]. 1 ♀, 1 ♂; Guadalcanal (L. N. Jarcho) [MCZ].

Thyreus gemmatus (Cockerell)

Crocisa gemmata Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:166 [♀, ♂; Solomon Islands; location of type unknown].—Cockerell, 1926. Pan-Pac. Ent. 3:90 [Guadalcanal].—Cockerell, 1929. Rec. Austral. Mus. 17:231 [Guadalcanal, Bougainville].—Cockerell, 1936. Proc. Roy. Ent. Soc. London (B) 5:225 [Guadalcanal, Florida Island].—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15:134 [Guadalcanal].

Thyreus gemmatus (Cockerell) Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:14 [♀, ♂; Guadalcanal, Florida Island].

1 ♂; Rendova Island (W. M. Mann). 2 ♂ ♂; Fulakora, Santa Isabel Island (W. M. Mann). 2 ♀ ♀, 1 ♂; Guadalcanal; 1944 (L. N. Jarcho). 4 ♀ ♀, 2 ♂ ♂; Guadalcanal; 1944 (Ernst Reimscheissel) [the foregoing all MCZ]. 6 ♀ ♀, 3 ♂ ♂; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart) [CAS].

Ceratina dentipes Friese

Ceratina dentipes Friese, 1904. Allg. Ztschr. f. Ent. 9:139 (*nomen nudum*).—Friese, 1914. Tijdschr. v. Ent. 57:32 [♂; Java; type in Friese collection].

? *Ceratina* sp. Pagden and Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3(1):21 [visiting coconut flowers].

1 ♀; Siota, Florida Island, Solomons; March 1945 (G. E. Bohart) [CAS].

This is the first record of this species from the Solomons. It is widely distributed and there are definite records of its occurrence in the Philippines and Siam, as well as Java.

Allodapula mindanaonis bohartí,[5] new subspecies

? *Allodape* sp. Pagden and Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3(1):21 [visiting coconut flowers].

This form, of which I have females only, agrees with the Philippine *Allodapula m. mindanaonis* (Cockerell), new combination, in having the scopa of the hind legs reddish rather than silvery as in most *Allodapula*. It differs from typical *mindanaonis* in that small lateral face marks are present, the mandibles do not have a pale basal spot and the axillary sclerites of the forewing are creamy (testaceous to dark brown in *mindanaonis*).

Females from Guadalcanal, the type locality, are 6 mm. long, while those from Russell Island are 7 mm., but not different otherwise. One

[5] Named for its collector, G. E. Bohart, at that time Lt. (j.g.) in Naval Medical Research Unit No. 2.

female from Guadalcanal, not included in the type series, is distinct in having the head coarsely pitted rather than finely punctate.

Type: ♀; Tenaru River, Guadalcanal, Solomon Islands; January 1945 (G. E. Bohart) [California Academy of Sciences].

Paratypes: 2 ♀ ♀; same data as type. 2 ♀ ♀; Pavuvu, Russell Island, Solomons; April 20, 1945 (G. E. Bohart). Two paratypes are in the California Academy of Sciences and two in the U. S. National Museum, one from each locality.

Trigona (Tetragona) iridipennis Smith

Trigona iridipennis Smith, 1854. Cat. Hym. Brit. Mus. 2:413 [☿; Ceylon; type in British Museum (Natural History)]. For complete specific synonymy see Schwarz, 1939, pp. 111-112—I give here only the references applicable to the Solomon Islands population.

Trigona sapiens Cockerell, 1911. Proc. Linn. Soc. N. S. W. 36:176 [☿; Solomon Islands; location of type unknown].—Cockerell, 1929. Rec. Austral. Mus. 17:242 [☿ from New Georgia, ♂ from Guadalcanal].—Pagden and Lever, 1935. Agr. Gaz. Brit. Sol. Isl. Prot. 3(1):21 [mentioned as important pollinator of coconut].—Cockerell, 1936. Trans. Roy. Ent. Soc. London (B) 5:225 [☿; Florida Island].—Schwarz, 1939. Bull. Amer. Mus. Nat. Hist. 76:111, 113 et seq.—Cockerell, 1939. Occas. Papers B. P. Bishop Mus. 15:136 [☿; Guadalcanal].—Krombein, 1949. Bull. Brooklyn Ent. Soc. 44:14 [☿; Florida Island]. **New synonymy.**

Trigona sp. Lever, 1933. Agr. Gaz. Brit. Sol. Isl. Prot. 1(4):16 [visiting coconut flowers].

2 ☿ ☿; Tenaru River, Guadalcanal; January 1945 (G. E. Bohart). 19 ☿ ☿; Bougainville; May 1945 (A. J. Walz). 1 ☿, 1 ♂; Empress Augusta Bay, Bougainville (A. J. Walz) [all CAS].

At the time my earlier paper was written I overlooked Schwarz' discussion of the possible identity of *sapiens* with either *fuscobalteata* var. *pagdeni* Schwarz or *iridipennis* Smith. Schwarz supposed that there might be two species of *Trigona* in the Solomons, basing this assumption on his having a male *iridipennis* with red scape from the Solomons and Cockerell's (1929) assertion that males of *sapiens* from Guadalcanal had the scape black, red at each end. Fortunately, two of the males on which Cockerell based his brief description of that sex are in the U. S. National Museum. The sixth sternites of both these males and the genitalia of one of them (missing in the other) are identical with Schwarz' illustration of these parts in *iridipennis*. Further, the scape of the antennae is red, suffused in the middle with brownish, but nowhere near black as stated by Cockerell.

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I have examined one female *Colletes americanus* Cresson (Colletidae) and one female *Melissodes perplexa* Cresson (Apidae), both North American species, labeled Piva, Bougainville, March 1945 (A. J. Walz) [CAS]. It seems most likely that some error was made in the labeling of these specimens, for it is rather unlikely that these ground-nesting forms could have been introduced and become established in the Solomons.