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HYMENOPTERA FROM LUCBAN, PHILIPPINE ISLANDS

By T. D. A. COCKERELL

Of the University of Colorado, Boulder

The following bees were collected by Mr. R. C. McGregor at Lucban, Tayabas Province, Luzon, in May, 1926:

COELIOXYS PHILIPPENSIS Bingham.

One female.

COELIOXYS GENALIS Cockerell.

One female.

MEGACHILE BAKERI Cockerell.

Three females. These vary in size, from about 12.5 to 15 millimeters long. The smaller one would therefore run in my key to 9 (the scape being pale orange, black on last two segments), and run out because the abdomen is not banded.

MEGACHILE RUFOFULVA Cockerell.

One female. Previously known from Mindanao.

ANTHOPHORA KOROTONENSIS Cockerell.

Four females and one male.

CROCISA CRUCIFERA Cockerell.

Five females and two males. Doubtless parasitic on the nests of the *Anthophora*.

APIS BINGHAMI Cockerell.

One worker.

NOMIA LONGITARSIS Cockerell.

One female.

NOMIA RECESSA Cockerell.

One female. Previously known by the unique type. The new specimen has a narrow, light yellow tegumentary band at apex of second abdominal segment.

HALICTUS BANAHAONIS MACERULA Cockerell.

Eight females. "Many small holes in damp clay bank, side of road, Lucban-Mauban. One hole was 8 to 9 centimeters deep." The size is uniform. This is the first information about the nesting habits.

XYLOCOPA FULIGINATA Pérez.

One female, and three males.

MESOTRICHIA BOMBIFORMIS Smith.

Twenty-three females and a male; also a pair sent together, the male being *M. major* Maidl. Miss Norma Le Veque, who mounted the bees, called my attention to this, and we both wondered why we had not thought of associating these insects before. It always seemed strange that the rather common *M. major* had no mate.

MESOTRICHIA BOMBIFORMIS Smith, variety a.

One female. A puzzling, small, and much worn female was at first taken for a distinct species, but it appears to be only a variation of *M. bombiformis*. The wings appear rather dilute fuliginous, semitransparent, and are much worn, but if complete would not exceed 20 millimeters in length. The labrum beneath is fringed with short coppery red hair, whereas in typical *bombiformis* it is black. The flagellum is chestnut red beneath except at base, and the tuft of hair at extreme apex of abdomen is red. The first three abdominal segments have the apical margin narrowly red. I find that true *bombiformis* varies in respect to the abdominal characters mentioned.

In view of the size variation of *M. bombiformis*, it will be well to give a new table to separate the rather similar black *Mesotrichia* females of the Philippine Islands. All have the second cubital cell complete, whereby they are distinguishable from *M. unicolor* (Smith).

With a band of grayish white hair behind eyes; wings very dark, apical part green ..... **M. amauroptera Pérez.**
With only black regular hair behind eyes..... 1.
1. Cheeks, behind eyes, closely punctured; wings with golden green luster ..... **M. bakeriana Cockerell.**
Cheeks, behind eyes, shining and very sparsely punctured. **M. bombiformis (Smith).**

MESOTRICHIA PHILIPPINENSIS CHLORINA Cockerell.

One female.

MESOTRICHIA LUCBANENSIS sp. nov.

Female (*type*).—Length, about 20 to 22 millimeters, anterior wing, 20 to 21; almost exactly like *M. canaria* Cockerell and Le Veque, from Samar, but yellow hair on mesopleura more reduced, forming a triangular patch on upper part; yellow hair on first abdominal segment at first sight appearing absent but close inspection shows some yellow hairs; wings with strong blue-green and purple tints. Grayish white hair is mixed with black on the face.

Male.—What I take to be the male of *M. lucbanensis* is about 24 millimeters long; anterior wing, nearly 21; insect covered with yellowish green hair, strongly mixed with black on abdomen, especially toward the apex; anterior and middle tarsi with very long red hair, hind tarsi with some red, but black behind except at apex. Clypeus black, with median line and lower border (broadening at sides) yellow; mandibles with yellow basal spot; scape and third antennal joint yellow in front (beneath), flagellum beyond base clear ferruginous beneath. Intermediate in size between *M. euchlora* Pérez and *M. major* Maidl (*bombiformis* Smith). The abdomen appears darker than in either, the hind margins of segments 3 to 5 appearing as black bands. The wings are distinctly darker and more rosy than in *M. major.* There is a broad median band of black hair on the hind tibiæ posteriorly; in *M. major* and *M. euchlora* this stripe is bright red. The mesosternum is black haired.

LUZON, Tayabas Province, Lucban, May, 1926 (*McGregor*); twelve females and one male.

It is a matter of opinion whether this is to be considered a distinct species or a subspecies of *M. canaria;* but, as it occurs on a different island, and presumably does not intergrade, I treat it as a species.

Mesotrichia bluethgeni (*Xylocopa bluethgeni* Dusmet), from Puerto Bango (Port Banga?), Mindanao, is a closely analogous form, but has lemon yellow hair mixed with the black on face (*M. lucbanensis* has sparse yellow hairs on sides of occiput), and the first abdominal segment is yellow haired as in *M. ghilianii* (Gribodo). The latter has the hair of head all black or with a very few scattered yellow hairs on cheeks, and is a distinctly larger insect. The wings of *M. bluethgeni* are colored practically as in *M. lucbanensis.*

SCOLIIDÆ [1]

CAMPSOMERIS AUREICOLLIS MCGREGORI subsp. nov.

Female.—Tufts of long and conspicuous white hair between eyes and antennæ; hair of cheeks and underside of thorax anteriorly white; hair of occiput, prothorax, and a little on anterior margin of mesothorax bright orange ferruginous; anterior femora with some pale red hair; posterior face of mesothorax shining and impunctate, but its dorsal surface punctured sublaterally; fringe of second abdominal segment mainly black, but some hairs have the apical half pale, that of third also has a very little pale. Mandibles red at tip.

The type is from Lucban, but McGregor obtained the same thing in some numbers at Culasi, Panay, in June. I had considered it a form of *C. thoracica* (Fabricius), following Bingham, but it is probably a distinct species, and differs from the typical *C. aureicollis* Lepeletier, from Java, by the white hair of head (except occiput). Lepeletier's description also indicates a much more hairy abdomen. Smith reported *Scolia aureicollis* from the Philippine Islands, doubtless the same insect.

The following species, not found at Lucban, was obtained by McGregor at Culasi, Panay, in June:

SCOLIA (SCOLIA) PANAYENSIS sp. nov.

Male.—Length about 22 millimeters; anterior wing, 20 (a smaller specimen has anterior wing 17.2 millimeters); closely related to *S. incerta* Rohwer, differing as follows: Antennæ about 13.5 millimeters (about 12 in the smaller specimen); median sulcus on front going beyond transverse one, forming a cross; vertex with distinct scattered punctures; spurs ferruginous; legs clear ferruginous, with red hair, the anterior tarsi yellowish, and their tibiæ stained with yellow; abdomen above strongly suffused with purple and lilac, in the larger specimen purple-blue and on first three segments with much green, in the smaller the first three segments rosy purple to lilac, not green; clypeus entirely honey color; mandibles honey color at base; lobes and upper margin of pronotum reddish honey color, with red hair; hair of head and thorax very bright ferruginous red; sides of thorax with pale golden pile; wings hyaline, strongly stained with orange ferruginous, the apex of anterior wings broadly fuliginous (this more dilute in smaller specimens).

[1] The fine large species *Scolia scutellaris* Gribodo was taken at Manila by Mr. McGregor.

In many respects very much like *Campsomeris ceylonica* W. F. Kirby,[2] but easily distinguished by having only one recurrent nervure and the abdomen without yellow.

PANAY, Antique Province, Culasi, 1918 (*McGregor*).

CHRYSIDIDÆ

HEDYCHNIDIUM TAYABICUM sp. nov.

This is so like *H. wroughtoni* du Buysson from the Central Provinces of India, that I have hesitated to separate it; but, in view of the distant locality, it is probably distinct. It is smaller (about 6 millimeters long; *wroughtoni,* 7.5); bright green, with very fine purple patches on top of head, forming a transverse band across prothorax, on middle of mesothorax and scutellum, sublaterally behind scutellum, and extensively covering the abdominal tergites; the very scanty pubescence is white (reddish brown in *wroughtoni*); flagellum black (brownish in *wroughtoni*); tarsi black (reddish brown in *wroughtoni*); punctures of abdomen rather dense, excessively so on first segment, rather sparse along middle line of second. The third segment is shallowly but very distinctly channelled before the apex.

LUZON, Tayabas Province, Lucban, May, 1926 (*McGregor*).

Easily known from *Hedychrum stantoni* Ashmead by the strongly dusky wings, legs green except the tarsi, and broadly rounded third abdominal segment not at all angulate at sides. The claws have a single divergent tooth. The front, above the antennæ, is minutely, very evenly transversely striate, except at sides, where it is punctured. The scape is bluish green. The metathorax has a dentiform process on each side posteriorly.

MUTILLIDÆ

TROGASPIDIA ITAMBUSA sp. nov.

Male.—Length 21.5 millimeters, anterior wing, 18; entirely black, head and thorax with long and coarse but not dense hair; wings entirely dark fuliginous, with steel blue luster; head with mostly black hair, but long and white on cheeks posteriorly, dense and shining white at sides of face next to eyes; some orange hairs on mandibles and in region of mouth; mandibles bidentate, outer margin with a small dentiform projection on basal half; clypeus concave, polished and shining, with a median keel, its

[2] Turner calls this *Scolia* (*Dielis*) *lindenii ceylonica* (Kirby), based on Kirby's male, the female associated with it by Kirby being a variety of *S. iris.*

lower margin truncate, the truncation with salient corners and the sides sloping, slightly concave, to the malar region; front coarsely and confluently rugose; vertex with very large and dense punctures; ocelli moderate, close together; antennæ long, third joint a little shorter than fourth, apical joint flattened; thorax very coarsely confluently punctured; mesothorax with a central raised line and very strong parapsidal grooves; scutellum conically elevated, the anterior side of the elevation with a median shining sulcus; dorsal face of metathorax coarsely reticulated, in the middle with a smooth band bounded by a pair of longitudinal keels, which abruptly curve outward at the base, there inclosing a larger area; sides of metathorax angulate; thorax above with coarse black hair, abundant on scutellum; beneath with white hair, and a band of short white hair at extreme base of metathorax; tegulæ large, shining, with a few punctures anteriorly; three cubital cells, second and third each receiving a recurrent nervure; third cubital pentagonal, or hexagonal if we count the short face between lower apical corner and end of second recurrent, which is bent upward from the line of lower side at insertion of recurrent; marginal cell more than twice as long as wide; basal nervure going a short distance basad of nervulus; legs with erect silvery hair, but black on outer side of hind tibiæ, and partly ferruginous on tarsi; spurs yellowish white, on middle and hind legs one longer than the other; abdomen subpetiolate, shining; first segment with a strong dentiform obtuse process beneath, second simple beneath; first tergite very coarsely punctured and with a median groove, its hind margin briefly and densely white ciliate; remaining segments without bands or spots, hind margin shining reddish in certain lights; second segment coarsely punctured subbasally, but very finely and sparsely beyond, the remaining segments also finely and sparsely punctured; apex obtusely truncate, with no salient spines; abdomen with the rather scanty hair black. The scape is bicarinate beneath as in *T. bicolor*.

LUZON, Tayabas Province, Lucban, May, 1926 (*McGregor*); one specimen.

A very distinct species, by its large size, black color, elevated scutellum, etc. I place it in Ashmead's genus *Trogaspidia*, where it falls according to his key. It is also evidently congeneric with *T. bicolor* and *T. minor* of Ashmead, described from the Philippine Islands, although the type of *Trogaspidia* (*medon* Smith) is African. *Mutilla luzonica* Rad. is evidently very close indeed to *T. minor* Ashmead. André, in 1904, ob-

jected to the separation of *Trogaspidia,* because he said the elevated scutellum occurred in many males of diverse regions and relationships. Bradley and Bequaert (1923) treat *Trogaspidia* as a subgenus of *Smicromyrme* Thomson, enumerating sixteen African species before them. The male *Smicromyrme* differs from true *Mutilla* by its bidentate (instead of tridentate) mandibles, and the nonspinose hind tibiæ. *Trogaspidia* is *Smicromyrme* with conically elevated scutellum. On this definition, the insect now described is certainly a *Trogaspidia.* In André's key it actually runs to *Dolichomutilla* Ashmead, except as to the second ventral segment, but the strong parapsidal grooves exclude it from that in Ashmead's key. *Dolichomutilla,* peculiar for the long head, is exclusively African.

If we follow André in sinking *Trogaspidia* in *Mutilla,* then *T. bicolor* Ashmead requires a new name, there being already a *Mutilla bicolor.* Comparing *Trogaspidia itambusa* with *Mutilla europaea* Linnæus, the type of *Mutilla,* it is seen that both marginal and second cubital cells are much longer in the new species; the third cubital receives the recurrent near the end, instead of about the middle as in *M. europaea.*

Mutilla analis Lepeletier (said to equal *M. fuscipennis* Fabricius) and *M. dimidiata* Lepeletier, both recorded from the Philippines, have a tuberculate scutellum in the male, and presumably fall in *Trogaspidia. Mutilla luzonica,* already referred to, is close to *M. analis.* According to this view, the Philippine *Trogaspidia* males fall in three groups:

1. Abdomen all black; very large species..... **itambusa sp. nov.**
2. Abdomen partly red; species 17 to 20 millimeters long.. **bicolor Ashmead.**
   dimidiata Lepeletier.

   They are certainly very much alike, and perhaps the supposed Philippine *dimidiata* (that species being typically Indian) was really *bicolor.*
3. Abdomen partly red; smallest species, 12 to 13 millimeters long.
   luzonica Rad.
   analis Lepeletier.
   minor Ashmead.

   Mutilla analis is typically Indian, and perhaps the Philippine record is based on one of the others.