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## New and Little-Known Bees

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*University of Colorado*

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profound; face longer than broad, the central sulcation and transverse carinations, profound; rostrum about reaching the posterior trochanters; tegmina with the ulnar areas about half as long again as the apical areas; wings with six apical areas.

Long. excl. tegm. ♀ 60 mm. Exp. tegm. 74 mm.

Hab. New South Wales; Hay (W. W. Froggatt).

Mr. Froggatt informs me that this species was taken at Hay, "one of our Western districts on the great plains," found on "the red gum and box timber that fringe the River Murrumbidgee, and taken in our tent at the experiment station."

NEW AND LITTLE-KNOWN BEES.

By T. D. A. COCKERELL.

*Ceratina dupla*, Say.

A series of four ♂ and four ♀ from Garrison, N.Y. (*Eleth Cattell*) is puzzlingly variable. One very small male has entirely dark tubercles, and belongs to the form named *calcarata* by Robertson. Two females are without light face-marks, and are regarded as females of *calcarata*. One female has only a longitudinal white band on clypeus, and falls close to *C. dupla halophila*, Ckll., differing, however, by being smaller, olive-green instead of blue-green, and having a fulvous spot on tegulae. The other female and three males are true *C. dupla*. I believe that all are forms of a single species; but the matter should be further investigated.

*Andrena lewisii*, Cockerell.

Tolland, Colorado, at flowers of *Frasera*, July (L. A. Kenoyer).

*Andrena pertarda*, sp. n.

♀. Length nearly 12 mm.; black, with abundant pale ochreous hair, forming broad and very conspicuous bands on hind margins of abdominal segments 2 to 4, but fifth segment and apex with reddish-black hair; head broad, facial quadrangle much broader than long; face thinly hairy; process of labrum rather narrow, thick, truncate; malar space scarcely developed; clypeus closely punctured, shining between the punctures, but with a narrow, dull, median line; facial foveae white-haired, moderately broad, not distinctly separated from orbits, ending broadly a short distance below level of antennae; occiput and cheeks with much long hair; antennae black, the flagellum with an obscure, coffee-brown tint beneath; third antennal joint about 480 microns long, a little longer than the next two together; thorax with much long hair at sides, but disc of mesothorax exposed, its surface dull and appearing minutely granular; scutellum faintly shining, the region behind it with long hair; area

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of metathorax granular, poorly defined; tegulae picceous, minutely  
roughened; wings dusky, the apex broadly fuliginous; stigma well  
developed, bright orange-fulvous; nervures fuscous; second s.m.  
broad, receiving first r.n. beyond beginning of last third; legs black,  
with pale hair, that on inner side of tarsi black or very dark fuscous;  
hind tibial scopae sparingly plumose, the hairs straight; middle and  
hind basitarsi broad; surface of abdomen black, minutely roughened,  
without evident punctures; hair in the regions between the pale  
bands wholly pale.

*Hab.*—Boulder, Colorado, October 4th, 1915 (*Cockerell*).  
Visits *Compositae*, as shown by the abundant bright yellow  
pollen carried. Related to *A. asteris*, Rob., but easily separated  
by the dark apices of wings and broad, dense, abdominal bands.  
There is a strong superficial resemblance to *A. colletina*, Ckll.

### *Chelostoma rubifloris edwardsii*, subsp. n.

♀. Length about 6 mm.; mandibles long, strongly bidentate at  
apex; second recurrent nervure joining second submarginal cell a  
considerable distance (about equal to length of vertical portion of  
outer transverso-cubital nervure) from apex.

*Hab.*—Amador County, California (*H. Edwards*). British  
Museum. Readily known from *C. rubifloris* (Ckll.) by its small  
size, but in other respects so similar that it can hardly rank as a  
distinct species.

### *Coelioxys genalis*, sp. n.

♂. Length about 7.5 mm.; black, coarsely punctured; head  
broad; eyes with abundant yellowish hair; face densely covered  
with pale tan-coloured hair, and on sides of front it is even paler;  
vertex dull, with very large, irregular punctures, the region on each  
side of ocelli nearly impunctate, except that it is crossed by a line of  
large punctures; upper part of cheeks with an elongate-subquadrate  
patch of pale tan hair, but below this and separated from it is a  
broad, bevelled or grooved band along posterior orbits, densely filled  
with felt-like hair, which appears pure white at one angle and pale  
tan-colour at another; mesothorax with very large punctures, more  
or less in rows, the disc between the punctures moderately shining;  
scutellum with larger punctures than those of mesothorax, the  
posterior margin broadly rounded (faintly subangulate), the basal  
margin with two small spots of white hair; axillar spines short;  
tegulae picceous with a dark rufous spot; wings with the apical half  
deep fuliginous, the basal hyaline; legs black, inner side of tarsi  
with fulvous hair; abdomen shining, polished, with large punctures,  
on fourth segment smaller basally; hind margins of segments with  
narrow white hair-bands, linear and weak in middle; fifth segment  
with a dentiform tubercle on each side; sixth with six sharp spines,  
the lateral nearly as long as the upper apical, lower apical longest;  
anterior coxae with rather short spines.

*Hab.*—Mt. Makiling, Luzon, Philippine Is. (*Baker*, 5242).

Very distinct by the peculiar marking of the cheeks. Superficially it looks like a small example of *C. luzonicus makilingensis*, Ckll., from the same locality, but *genalis* has no triangle of white hair on mesothorax anteriorly, the disc of the mesopleura is not densely covered with hair, the b.n. falls a considerable distance short of the t.m. (meets it in *makilingensis*), the armature at the apex of the abdomen is quite different, and there are many other differences, showing that the two species are not closely allied.

*Nomia longitarsis*, sp. n.

♂. Length about 10 mm.; black, with the clypeus (except sides above), labrum and greater part of mandibles pale testaceous; tongue linear, very slender; face narrow, densely covered with pale golden hair; front dull and densely punctured; ocelli large, the lateral ones with a small shining space lateral of them; antennæ long and slender, the scape and base of flagellum, and whole lower side of flagellum except apex, bright ferruginous; thorax with pale fulvous hair, dense in tubercles, postscutellum and greater part of mesopleura, but mesothorax and scutellum, seen from above, appearing bare; mesothorax dull, densely punctured; scutellum bigibbous, the prominences shining; postscutellum unarmed; base of metathorax with a narrow arcuate shining channel, crossed by little ridges; tegulae rather large, light fulvous; wings greyish, stigma (which is rather small) and nervures dull ferruginous; legs slender; femora at apex and largely beneath, tibiae entirely, middle and anterior tarsi, and extreme base of hind tarsi, all light ferruginous; hind femora slender, hind tibiae arcuate, hind tarsi very long (a little over 4 mm.); the hind tarsi are mainly black, but the last joint is red; abdomen well punctured on first two segments, weakly on the others; hind margins of segments (including first) with orange-fulvous tegumentary bands; second segment ferruginous basally; apex very broad, broadly emarginate.

*Hab.*—Mt. Makiling, Luzon (Baker, 5000). A distinct and peculiar species, which runs in my table of Philippine *Nomia* ('Entomologist,' August, 1915, p. 179) to 5, and runs out on account of the colour of the bands. (In this table, at 4, read "not covered with hair," instead of "but," etc.)

In the paper just cited the type locality of *N. palavanica* is omitted; it is P. Princessa, Palawan (Baker coll., 3848). Additional specimens from Baker enable me to add some localities for two species:

*Nomia takauensis philippinensis*, Fr. Mt. Makiling.

*Nomia incerta*, Grib. Mt. Makiling; Mt. Banahao; Dapitan (Mindanao).

*Nomia hippophila*, Cockerell.

Two females from Yarrowin, N.S.W. (Froggatt, 233 c, pt.; 249 c) are referred here, as they are somewhat smaller and less robust than *N. flavoviridis*, with the tegulae fulvous, and the

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hind tibiae and basitarsi (except apically) clear ferruginous.  
The general colour is dark olive-green. The mesothorax, with  
the punctures of disc distinct and separate under a lens, is very  
different from that of *N. flavoviridis phanerura*. The scutellum  
also has a pair of black shining impunctate elevations, not  
present in *phanerura*. It is very likely that when the male is  
known this insect will be subspecifically separable.

*Trigona carbonaria*, Smith.

Kenthurst, N.S.W., October 9th (Froggatt, 153 c).

*Megachile tarsatula*, Cockerell.

Both sexes come from P. Princesa, Palawan (Baker coll., 3842,  
3843). The female is new; it is about 8.5 mm. long, narrow, with  
the form of the American *M. exilis*, facial quadrangle longer than  
broad; mandibles quadridentate, broad, coarsely striato-punctate;  
clypeus densely and coarsely punctured, the lower margin shining,  
gently concave; tarsi black, obscurely reddish apically, but middle  
and hind femora clear bright ferruginous, with the knees black;  
abdomen parallel-sided; ventral scopa thin, clear white, very short  
and black on last segment. This female, on account of the colour  
of the middle and hind femora, resembles *M. vigilans*, Sm., and  
*M. moera*, Cam.

*Megachile abluta valdezi*, subsp. n.

♀. Differs from typical *abluta* (from Formosa) as follows:  
Mandibles longer; clypeus more coarsely punctured, with a more or  
less distinct smooth median line; greater part of supraclypeal area  
smooth, polished, and impunctate; sides of vertex with punctures  
of different sizes; middle of mesothorax with punctures distinctly  
separated, the surface between shining; abdominal hair-bands white  
or creamy white. The ventral scopa is white, black on last segment,  
and there is a patch of long black hairs on each side of penultimate  
segment. This differs from *M. abluta subrixator*, Ckll., in the colour  
of the ventral scopa, but is otherwise nearer to it than to true *abluta*.  
The males, from the same locality, agree with *M. abluta*.

*Hab.*—Mt. Makiling, Luzon (Baker coll., 5236, 5235). Males  
from Mt. Makiling (Baker coll., 5234, etc.). We must apparently  
conclude that typical *M. abluta* does not inhabit the Philippine  
Islands, but is represented by *valdezi* and *subrixator*.

A small male of the *abluta* type comes from P. Princesa,  
Palawan (Baker coll., 3840).

*Megachile philippinensis*, Friese, n. sp.

This species, named by Friese in manuscript, and now published  
with his permission, is the Philippine representative of the Formosan  
*M. tranquilla*, Ckll., of which it might be considered a subspecies.  
The lower margin of the clypeus is shallowly subemarginate in the



female, with only the faintest suggestion of the crenulation seen in *M. tranquilla*. The species greatly resembles the Philippine forms of *M. abluta*, but there is black hair on the head and thorax above. The ventral scopa is white at the base, black on last segment and sides of penultimate, but otherwise orange-fulvous. The female is therefore to be compared with *M. abluta subrixator*, from which it is readily distinguished by the shorter mandibles, with very much smaller apical teeth and the long black hair on the scutellum. The males are best distinguished from *abluta* by the black hair on the vertex. The anterior coxæ have rather short spines.

*Hab.*—Los Banos, Luzon (Baker, 309 = type). Mt. Makiling, Luzon (Baker, 1799, 5237, 5239, 5241); Dapitan, Mindanao (Baker coll., 3146); P. Princesa, Palawan (Baker coll., 3841). Readily distinguished (♀) from *M. robbii*, Ashm., by the black tegulae, and face without fulvous pubescence.

*Nomada bakeri*, Cockerell.

A new locality is Mt. Banahao, Luzon (Baker coll., 4998). In the key in 'Ann. Mag. N. Hist.', March, 1915, p. 265, under 4, read "basal half of second abdominal segment yellow."

## CONTRIBUTIONS TO OUR KNOWLEDGE OF THE BRITISH BRACONIDÆ.

No. 3.—MICROGASTERIDÆ.

By G. T. LYLE, F.E.S.

(Continued from p. 125.)

### SECTION 1.

*Solitarius*, Ratz.\*

A rather robust species having the first three segments of the abdomen rugulose (the third, however, is sometimes almost smooth) and the hind femora more or less testaceous; the belly at the base is also testaceous. A solitary parasite attacking young larvæ, generally of Bombyces or Noctuæ. There seem to be several generations in the year, the first appearing in April, after having passed the winter within the body of the host, probably in the ova state. This insect remains within its cocoon from eight to twenty days according to the weather, cold retarding and heat hastening emergence. Cocoon pale lemon colour, attached to a leaf or twig of the food plant.

Bred from *Triphnea fimbria* several times between April 4th and 29th, and also, doubtfully, from *Teniocampa stabilis*,

\* 'Ich. d. Forst.', i, 73.

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