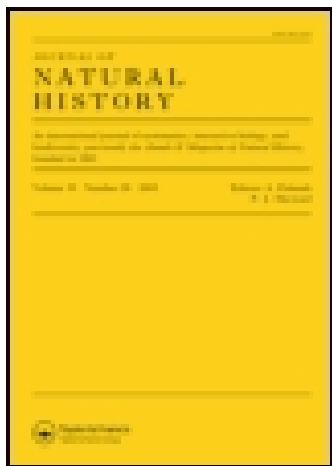


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## Annals and Magazine of Natural History: Series 8

Publication details, including instructions  
for authors and subscription information:  
<http://www.tandfonline.com/loi/tnah14>

### XXXVI.—Descriptions and records of bees.—XXII

T.D.A. Cockerell <sup>a</sup>

<sup>a</sup> University of Colorado

Published online: 15 Sep 2009.

To cite this article: T.D.A. Cockerell (1909) XXXVI.—Descriptions and records  
of bees.—XXII, *Annals and Magazine of Natural History: Series 8*, 4:22,  
309-317, DOI: [10.1080/00222930908692677](https://doi.org/10.1080/00222930908692677)

To link to this article: <http://dx.doi.org/10.1080/00222930908692677>

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## THE ANNALS

AND

## MAGAZINE OF NATURAL HISTORY.

[EIGHTH SERIES.]

No. 22. OCTOBER 1909.

XXXVI.—*Descriptions and Records of Bees.*—XXII.  
By T. D. A. COCKERELL, University of Colorado.

## HYLEOIDES, Smith.

This genus has short Prosopiform palpi; the figure given by Smith, purporting to represent the mouth-parts, is really taken from an *Odynerus*. There are in the British Museum Australian species of *Odynerus* almost exactly resembling *Hyleoides concinna* and *H. zonalis*, but unfortunately they have not yet been described. I hope later to figure the mouth-parts of *Hyleoides* and other Australian bees, using material very kindly supplied by Mr. Turner.

A close scrutiny of the *Hyleoides* in the British Museum shows that there are five different forms, representing at least three species, as follows:—

*Females.*

- |   |   |
|---|---|
| Scutellum black, without spots.....   | <i>concinna</i> (Fabr.).                  |
| Scutellum conspicuously spotted.....  | 1.  |
| 1. Pale markings all dull creamy white; size of <i>zonalis</i> (expanse 25 mm.); clypeus almost all white or with only a white median band, broadened above; postscutellum black or with a pair of spots; first abdominal segment with an apical white band, broadened laterally; prothoracic band rather widely interrupted. (Two from West Australia: <i>Dr. J. Burton Cleland.</i> ) | [subsp. n.]<br><i>zonalis albocincta,</i> |

*Ann. & Mag. N. Hist.* Ser. 8. Vol. iv.

Pale markings bright chrome-yellow; clypeus with only a median yellow band; postscutellum black or spotted; structure as in *alborincta*. (Hunter River=type; Swan River; Champion Bay.)..... *zonalis*, Smith.

Pale markings of thorax and abdomen above red, of the same colour as those of the abdomen of *H. concinna*; ventral abdominal band ivory-white ..... 2.

2. Size of *zonalis*; broad red band on clypeus sharply defined, enlarged above; band on prothorax rather broadly interrupted; face longer; double curve of inner orbital margin very strong; postscutellum all black; bosses at base of metathorax wider apart; first abdominal segment with an apical band as in *zonalis*; punctures of mesothorax weaker. (Swan River, 69. 50=type; W. Australia, 68. 6.)..... *zonalis* [subsp. n. *rufocincta*,

Smaller, length slightly over 13 mm.; differences as indicated in the last description; band of clypeus broad, yellow in the middle, ferruginous at sides, the ferruginous extending a little beyond clypeus above and at sides; scutellum and postscutellum nearly all red; first abdominal segment red, with the base only black, and that suffusedly so; tegulæ ferruginous, lighter than in any of the others. (W. Australia, 68. 6=type; also another specimen with same history.)..... *concinnulla*, sp. n.

*Males.*

Scutellum black, without spots, or with small obscure spots; clypeus almost all deep yellow, but no lateral marks. (Sydney: *Froggatt*.)..... *concinna* (Fabr.).

Scutellum conspicuously spotted; face very pale yellow right across; tegulæ light ferruginous. 1.

1. Supraclypeal mark present, broad and short; lateral face-marks extending above level of antennæ, their upper side oblique; scape ferruginous beneath; first abdominal segment with more red. (Swan River, 69. 50; W. Australia, 68. 6.)..... *concinnulla*, sp. n.

Clypeus considerably broader above; no supraclypeal mark; lateral marks ending squarely at about level of top of clypeus; scape all black. (W. Australia, 68. 6.)..... *zonalis* [subsp. n. *rufocincta*,

*Tetralonia convicta*, sp. n.

♂.—Closely related to *T. brevicornis*, Smith, with which it is placed in the British Museum collection. The differences are as follows:—Smaller (expanse 19 mm.) and not quite so robust; antennæ longer and more slender (much as in *T. malvæ*, but perhaps rather longer, not of the very long

type); flagellum strongly crenulated, ferruginous beneath; face longer in proportion to its width; tibiæ and tarsi clearer red, hair of hind tibiæ and tarsi pale yellowish; abdomen smaller and shorter; third s.m. much narrower above, being narrower above than second (broader above than second in *brevicornis*); scutellum with a median depression, but no distinct bosses (bigibbose, with a pair of bosses and a valley between, in *brevicornis*).

*Hab.* Australia, 50. 7.

The type of *T. brevicornis* (Moreton Bay, 50. 71) is also a male.

#### *Tetralonia antennata* (W. F. Kirby).

*Podalirius antennatus*, W. F. Kirby, from Sokotra, is a female *Tetralonia* of the type of *T. tricincta*, Lep., with an apical pale yellow band on the clypeus. It is a smaller species than *tricincta*. *Tetralonia antennata* (Fabr.) is quite a different species, and is *T. malvæ* (Rossi).

#### *Nomia testacea* (Smith).

The British Museum contains four males, one being Smith's type of *Tetralonia testacea*. The locality given is "Africa." Stigma large; second s.m. less than half length of first or third; basal nervure with lower section strongly nearly evenly arched; face narrow; tegulæ rather large.

#### *Nomia ceratina* (Smith).

The British Museum possesses a male of *Halictus ceratinus*, Smith, from Sarawak, not stated to be the type. It is a *Nomia* with clavate abdomen, slender basally, the first segment much longer than broad; segments with light yellowish hair-bands; hind legs slender, simple; head seen from in front nearly exactly circular, a little broader than long; antennæ long and slender; area of metathorax plicate; venation normal for *Nomia*, stigma large. The anterior tarsi are very pale testaceous.

#### *Agapostemon sicheli*, Vachal.

*Nomia tacita*, Cameron (type in British Museum), is this species, though compared with a specimen of *A. sicheli* it is a little larger and has darker stigma and nervures. The peculiar antennæ are quite the same.

*Nomia cillaba*, Cameron, is also a male *Agapostemon*.

*Nomioides appendiculata* (Cameron).

The type of *Ceratina appendiculata*, Cam., in the Cambridge University Museum (Inadu, Maldives, *Gardiner*) is a *Nomioides*. Abdomen black, with more or less interrupted yellow bands; mesothorax and scutellum green, postscutellum yellow; metathorax black; clypeus yellow, with two black bars; tubercles and upper edge of prothorax yellow; legs with much yellow; stigma large; marginal cell ending, narrowly rounded, on costa; b. n. strongly bent; second s.m. small. Cameron's description agrees with the specimen.

*Lithurgus andrewsi*, sp. n.

Christmas Island, Indian Ocean (*Andrews*). Type in British Museum.

This is the female described as *Megachile rotundipennis*, W. F. Kirby ('Monograph of Christmas Island,' 1900, p. 87). The male, which is described first, is a true *Megachile* (anterior tarsi simple; sixth abdominal segment broadly emarginate, with spines at side; pubescence golden fulvous), and must retain the name *rotundipennis*.

*L. andrewsi* (♀) is about 14½ mm. long.; scopa red; last dorsal segment covered with red hair; segments 2 to 5 with very narrow white apical hair-bands. It has the rough mesothorax and frontal prominence usual in *Lithurgus*.

The new species is related to *L. rubricatus* and *cognatus*; the three are easily separated (♀) as follows:—

- |   |                                 |
|---|---------------------------------|
| Facial prominence large and bilobed; vertex rather sparsely punctured on a shining ground; hair on inner side of hind tarsi dark. (Swan River, Australia.)..... | <i>cognatus</i> , Sm.           |
| Facial prominence lower, not distinctly or not bilobed, vertex densely punctured.....   | 1.                              |
| 1. Prominence relatively narrow; hair on inner side of hind tarsi dark fuscous.....   | <i>rubricatus</i> , Sm. (type). |
| Prominence very broad, with an obtuse median keel; hair on inner side of hind tarsi bright ferruginous.....   | <i>andrewsi</i> , sp. n.        |

All three have red hair at apex of abdomen.

*L. andrewsi* was taken near Flying-Fish Cove, Sept.—Oct. 1897.

*Megachile nivescens*, W. F. Kirby.

Christmas Island.

The male is easily distinguished from *M. rotundipennis* by the white hair of head and thorax and very distinct white

bands on first three segments of abdomen. The apex of the abdomen is light orange-fulvous, its structure much as in *rotundipennis*. The basal joint of anterior tarsi is grooved behind.

The female is coloured much as the male; hair on inner side of hind tarsi very bright ferruginous, as in *Lithurgus andrewsi*.

*Prosopis maoriana*, sp. n.

♀.—Extremely like *P. agilis*, Smith, but has the clypeus broader and more closely punctured; the lateral marks of the face triangular, pointed above, the upper inner side about equal to the lower inner (in *agilis* they are bluntly cuneiform, broadly truncate above). Wings greyish (reddish in *agilis*); second r. n. reaching second s.m. very near apex (some distance before apex in *agilis*). Both have the tubercles and an interrupted band on prothorax yellow.

*Hab.* New Zealand.

A specimen in the British Museum, determined by Cameron as *P. agilis*, but upon comparison with Smith's type seen to be quite distinct. On the other hand, *P. lævigata*, Sm., as represented in the Museum, is a slight variety of *P. agilis*, having the lateral face-marks obliquely truncate above.

The New-Zealand species of *Prosopis* may be separated thus:—

- |  |   |
|--|---|
| Tubercles black; slender black species, 7 mm. or a little over; legs black, the anterior tibiæ ferruginous in front; lateral face-marks not continuous with sides of clypeus. ♂. . . . .               | <i>innocens</i> , Cam.  |
| Tubercles yellow . . . . .   | 1.  |
| 1. Male; first r. n. entering apex of first s.m.; lateral face-marks continuous with sides of clypeus . . . . .  | <i>relegata</i> , Sm.   |
| Females; clypeus black . . . . .   | 2.  |
| 2. Small species with a curious quadrate head; lateral face-marks nearly semicircular, deep chrome-yellow . . . . .  | <i>capitosa</i> , Sm.   |
| Head normal . . . . .  | 3.  |
| 3. Lateral face-marks longer, dull pale yellowish; black species, about 9 mm. long; face broad; first r. n. meeting first t.-c. a little on outer side; mesothorax dull, with fine punctures . . . . . | [ <i>frons</i> , Cam., preocc.).<br><i>cameroni</i> , Ckll. ( <i>sulci-</i> |
| Lateral face-marks shorter, deep chrome-yellow . . . . .   | <i>maoriana</i> , sp. n., and<br><i>agilis</i> , Sm., separated as above.   |

Cameron's types, as well as those of Smith, are in the British Museum.

*Paracolletes advena* (Smith).

*Andrena advena*, Sm., is no doubt a *Paracolletes*, though it looks like a rather large black *Andrena*. No facial foveæ; tongue apparently Colletid, but not very clearly seen; scutellum with plumose black hair; abdominal segments 2 to 4 with narrow silvery marginal hair-bands; face very broad; stigma subobsolete; b. n. falling short of t.-m.; second s.m. broadened below, receiving the r. n. a little before middle; area of metathorax triangular, with a sort of sericeous surface, not ridged.

Australia.

*Augochlora lævipygga* (W. F. Kirby).

*Halictus lævipygga*, W. F. Kirby, in H. N. Ridley, Journ. Linn. Soc., Zoology, xx. (1890) p. 542. ♀.

*Halictus alternipes*, W. F. Kirby, l. c. ♂. ("♂, ♀.")

The types of this Fernando Noronha species are in the British Museum and are the sexes of an *Augochlora*.

♀.—About 9 mm. long.

Head and thorax very dark green; abdomen black, with dark green shades, not ciliate; hind spur simple. Nervures and stigma rather dark red-brown; first r. n. meeting second t.-c.; second s.m. about square; inner orbits strongly emarginate. Flagellum ferruginous beneath; tongue very slender, only moderately long; mesothorax dullish, densely punctured; area of metathorax short, finely but distinctly grooved.

♂.—Clypeus produced, its lower margin testaceous; antennæ only moderately long; inner orbits very strongly emarginate.

The following table separates the females of some of the dark forms of *Augochlora*:—

First two abdominal segments orange-ciliate .....	1.	
Abdominal segments not ciliate .....	2.	
1. First abdominal segment brown-black, the others green; hind spur very long, pectinate .....		<i>atropos</i> , Sm.
Abdomen blue; thorax green; hind spur long, pectinate .....		<i>hebescens</i> , Sm.
2. Hind spur pectinate with two spines; mesothorax crimson, sparsely punctured ....		<i>briseis</i> , Sm.
Hind spur simple .....		<i>lævipygga</i> (W. F. Kirby).



*Halictus atripyga*, W. F. Kirby

*Halictus atripyga*, W. F. Kirby, *t. c.* p. 543.

Fernando Noronha. ♂ ♀.

A true *Halictus*, of small size.

♂.—A little over 5 mm.

Head and thorax dark yellowish green, vertex coppery; abdomen shining black; antennæ long, strongly crenulate beneath; ocelli rather large; inner orbits shallowly emarginate; nervures and stigma dark red-brown; first r. n. entering apex of second s.m.; legs partly ferruginous.

♀.—Just over 5 mm. long.

Hind spur with at least one distinct tooth; tegulæ shining testaceous; area of metathorax granular.

*Halictus distinctus*, Walker.

Wady Genneh.

Of the three specimens in the British Museum two are *Halictus*, while the third is a *Nomia*.

*Halictus of Japan and China.*

The following table, based on Smith's types, may be of service:—

Abdomen green; species with curious oblong head; abdomen brassy green, with transverse dark shades or bands. ♂. (Japan.)	[rius, Sm. <i>H. (Chloralictus) æra-</i>
Abdomen black .....	1.
1. Small species, of subg. <i>Evytaeus</i> , with (♀) hind margins of abdominal segments conspicuously testaceous; hind spur finely pectinate. (Japan.) .....	<i>H. tarsatus</i> , Sm.
Larger species .....	2.
2. Large species, with very large, broad, pale basal hair-bands on abdominal segments; hair on apical half of segments 3 and 4 dark fuscous; area of metathorax very strongly ridged; mesothorax dull, with very strong punctures; hind spur with a few nodules. ♀. (Japan.) .....	<i>H. occidentis</i> , Sm.
Species of medium size .....	3.
3. Male; hair of head and thorax largely reddish; outer nervures of wing not weakened; lower part of clypeus yellow; area of metathorax cancellate. (N. China; type in poor condition.) .....	<i>H. affinis</i> , Sm.
Females .....	4.
4. First abdominal segment dull, densely minutely punctured; black species, like <i>H. coriaceus</i> &c., with basal hair-bands. ♀	

- about 9 mm. long; stigma and nervures light ferruginous; mesothorax strongly punctured; area of metathorax with strong anastomosing wrinkles; hind spur with about four blunt laminae. ♀. (N. China.) *H. subopacus*, Sm.
- First abdominal segment shining ..... 5.
5. Area of metathorax distinctly but rather irregularly ridged; hind margins of abdominal segments narrowly rufescent; stigma and nervures amber-colour. ♀. (Japan.) .... *H. scitulus*, Sm.
- Area of metathorax with irregular wrinkles.. 6.
6. Larger; about 9 mm. long; first abdominal segment very shiny, with sparse punctures, second and third segments with lateral basal hair-patches; area of metathorax strongly bounded behind; outer nervures weakened; hind spur simple. Superficially looks just like *H. discus*, but easily distinguished by the dullish closely punctured mesothorax. ♀. (Japan.) ..... *H. proximatus*, Sm.
- Smaller; length about 8 mm., but the difference of size greater than the linear measurement would suggest; first abdominal segment very feebly punctured; hind spur minutely nodulose. ♀. (Japan.) ..... *H. familiaris*, Sm.  
(preocc.), = *duplex*, D. T.

*Dianthidium minutissimum* (Bingham).

*Anthidium minutissimum*, Bingham.

Pulvillus distinct; second r. n. going beyond second s.m.

*Dianthidium lachrymosum* (Smith).

*Anthidium lachrymosum*, Smith.

I have seen Smith's types, and also one from the Kangra Valley, 4500 feet (*Dudgeon*).

Pulvillus well developed; second r. n. going beyond second s.m. A very compact little species, with white spots at sides of abdomen; scutellum overlapping base of abdomen; maxillary palpi apparently 2-jointed.

*Dianthidium truncatum* (Smith).

*Anthidium truncatum*, Smith.

♀.—Obuasi, Ashanti (*Graham*), in Cambridge Univ. Mus.

I have also seen Smith's type. Pulvillus present, though small; second r. n. going conspicuously beyond end of second s.m. A small compact species, the tibiae all yellow on

outer side. Mesothorax and scutellum all black. Markings of face and abdomen yellow.

The following, usually referred to *Anthidium*, belong to *Dianthidium* :—

- Dianthidium interruptum* (Fabr.); (*Apis interrupta*, Fabr.; *Anthidium flavilabre*, Latr.). Belongs to subgen. *Paraanthidium*, Friese.  
*Dianthidium septemdentatum* (Latr.); (*Anthidium septemdentatum*, Latr.). Belongs to subgen. *Anthidium*, s. str., Friese.  
*Dianthidium laterale* (Latr.); (*Anthidium cimbiciforme*, Sm.). Belongs to subgen. *Proanthidium*, Friese.  
*Dianthidium ferrugineum* (Fabr.); (*Apis ferruginea*, Fabr.). Belongs to subgen. *Proanthidium*, Friese.  
*Dianthidium siculum* (Spin.); (*Anthidium fontanesii*, Lep.). Belongs to subgen. *Anthidium*, s. str., Friese.  
*Dianthidium rubiginosum* (Lep.), according to specimen in British Museum; but if this is correct, *Anthidium coronatum*, Sm., from Corfu, has been erroneously referred here, as it is a genuine *Anthidium*.  
*Dianthidium cordatum* (Sm.). Natal. Pulvillus small.  
*Dianthidium rufipes* (Sm.). India. (Dalla Torre erroneously says Natal.)

The following are genuine *Anthidium* :—*lituratum*, Pz.; *punctatum*, Latr.; *variegatum*, Fabr.; *imitator*, Sm. (India); *ordinatum*, Sm. (India).

*A. subochraceum*, Walker (gardens round Mt. Sinai), has the venation of *Dianthidium*, but apparently no pulvilli. Nearly the same may be said of *A. pulchellum*, Klug, but this seems to have a very small pulvillus.

It is a question whether one of the subgeneric names proposed by Friese should be used in place of *Dianthidium*.

### XXXVII.—Description of a new Japanese Vole.

By MALCOLM P. ANDERSON.

#### *Craseomys niigatæ*, sp. n.

*Type.* Adult ♂. B.M. no. 8. 12. 1. 65. Collected by Kiyoshi Kanai at Akakura, Niigata Prefecture, Hondo, Japan, 7th Sept., 1908.

This new species seems to be most closely related to *Craseomys andersoni*, Thos., but it differs externally from that form in colour, smaller size, and distinctly longer tail. It is a much smaller animal than *C. bedfordiæ*, Thos., of Hokkaido. In some respects it may be compared with *Evotomys (Phaulomys) smithii*, Thos. (see below).