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## Descriptions and Records of Bees - XXV

T. D. A. Cockerell  
*University of Colorado*

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Hymenoptera - Apoidea - Hy Joens

Cockrell, TDA  
1910

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*Descriptions and Records of Bees.*—XXV.

By T. D. A. COCKERELL, University of Colorado.

[Hylaeus]

*Table of the Australian Species of Prosopis.*

THE following table was prepared at the British Museum, with the types of nearly all the species before me. The genus is here interpreted in the old broad sense; some of the species belong to *Palæorhiza*, Perkins, which, though in most respects Prosopiform, is distinct by the elongated and pointed tongue. The type of this genus is *Palæorhiza perviridis* (*Prosopis perviridis*, Ckll.). I have included in the table also one or two species of the Austro-Malay region.

The only species not before me at the time of preparing the table were *P. bidentata*, Sm., *P. fulvicornis*, Sm., *P. lubbocki*, Ckll., *P. liogonia*, Vachal, *P. quadrata*, Sm., and *P. vicina*, Sichel.

- |  |     |
|--|-----|
| Abdomen red or red and black, not metallic (obscurely reddish also in <i>P. primulipicta</i> , Ckll., <i>P. ruficeps</i> , Sm., and <i>P. rotundiceps</i> , Sm.) . . . . . | 1.  |
| Abdomen neither wholly nor in part red (obscurely reddish in the three species just cited; head red in <i>ruficeps</i> ) . . . .   | 10. |
| 1. Scutellum and postscutellum partly or wholly yellow or cream-colour . . . . .   | 2.  |

- Scutellum and postscutellum dark. . . . . 5.  
 Scutellum and mesothorax red, but postscutellum black; sides of metathorax red; clypeus red; narrow lateral face-marks pale yellowish. . . . . *lateralis*, Sm., ♀.
2. Postscutellum cream-colour; scutellum black, with hind margin narrowly cream-colour; head and nearly all of mesothorax red; no light face-marks. (Queensland.) . . . . . *torrida*, Sm.
- Scutellum and postscutellum, so far as coloured, deep chrome-yellow. . . . . 3.  
 3. Head and nearly all of mesothorax red; no pale face-marks. (Swan R., W. Australia.) . . . . . *rubricata*, Sm.
- Face with bright yellow markings. . . . . 4.  
 4. Larger; a black stripe down each side of clypeus; red of abdomen obscure. . . . . *elegans*, Sm., ♀.  
 Smaller; face bright yellow right across. . . . . *elegans*, Sm., ♂ (*sydney-ana*, Ckll.).
5. Axillæ ferruginous; mesothorax dull reddish, with two broad suffused black bands; abdomen with only first segment and extreme base of second red; legs clear red; face deep orange. . . . . *bicolorata*, Sm.  
 Mesothorax red; abdomen with first two segments red; clypeus red; narrow lateral marks pale yellowish. . . . . *proxima*, Sm.  
 Mesothorax black. . . . . 6.
6. Red of abdomen very obscure, but basal middle of first segment orange; clypeus black, with lower margin broadly ferruginous; broad cuneiform creamy-white lateral face-marks, having a short linear process above along orbits. (Swan R.) . . . . . *albomaculata*, Sm.
- Abdomen at least partly bright ferruginous. . . . . 7.  
 7. Apical half of abdomen dusky or black. . . . . 8.  
 Abdomen entirely red. . . . . 9.
8. Larger; metathorax rough, with no defined area; clypeus black, with lower margin dull red; lateral face-marks creamy white, small and short. Smaller; area of metathorax well defined; clypeus white, with a black mark on each side. . . . . *rufipes*, Sm.
9. No supraclypeal mark. . . . . *constricta*, Ckll.  
 Supraclypeal mark well developed. . . . . *subplebeia*, Ckll.  
*coronata*, Ckll.
10. Metallic, green or blue, species (*P. rotundiceps* ♀ and others are faintly metallic on abdomen). . . . . 11.  
 Black species, not metallic (abdomen obscurely metallic in *P. rotundiceps* ♀, *P. metallica*, *P. simillima* ♂, and *P. honesta*). . . . . 32.
11. Head and thorax black except for the

- light markings; metallic colour of abdomen obscure in some ..... 12.  
 Head and thorax metallic ..... 21.  
 Head red; thorax black; clypeus red; broad lateral marks chrome-yellow (allied to *purpurata*, and, like it, having not only the tubercles yellow, but also a spot just behind them on the pleura; both are from Adelaide, and may be sexes of one species) .... *ruficeps*, Sm.  
 12. Scutellum and postscutellum black; size large ..... 13.  
 Scutellum and postscutellum at least largely bright yellow or orange ..... 14.  
 13. Clypeus bright yellow, bordered with black at sides ..... *alcyonea*, Erichs., ♂  
 Clypeus black, with a median yellow band ..... *alcyonea*, Erichs., ♀.  
 (Here also runs *liogonia*, Vachal, but it is smaller, only 7 mm. long.)  
 14. Clypeus yellow (in this section comes *P. vicina*, Sichel, which is, however, almost certainly based on a mixture of species; the name should be restricted to the New-Zealand specimens) .... 15.  
 Clypeus black; broad lateral face-marks present ..... 16.  
 15. No supraclypeal mark; abdomen strongly punctured, its metallic colour very obscure ..... *metallica*, Sm.  
 (*P. lubbocki*, Ckll., which was described by Smith as the male of *metallica*, is shining nigro-æneous, with clypeus, supraclypeal mark, lateral marks, and scape in front cream-colour.)  
 Supraclypeal mark present ..... 16.  
 16. Scape yellow beneath; insect much smaller than *metallica* ..... *purpurata*, Sm.  
 Scape all black; males ..... 17.  
 17. First r. n. entering second s.m.; supra-clypeal mark rounded above ..... *violacea*, Sm.  
 First r. n. joining first t.-c.; supra-clypeal mark broadly truncate above ..... *cognata*, Sm.  
 18. Large, length about 12 mm., aspect of *alcyonea*; abdomen dark greenish .... *perplexa*, Sm. (*confusa*,  
 Much smaller; no yellow spot behind tubercles ..... [(Sm.).]  
 19. Lateral face-marks bow-shaped; clypeus sparsely punctured; mesothorax finely punctured; two species very much alike ..... 20.  
 Lateral face-marks cuneate, deep orange; clypeus with dense punctiferous grooves; mesothorax with very large coarse dense punctures. (Kuranda.) ..... *amata*, Ckll.  
 20. Larger; clypeus with a slight median raised line; face-marks pale red, but evidently originally yellow; first r. n. entering second s.m. (Swan R.) .... *violacea*, Sm., ♀.

- Smaller; clypeus with no raised line; lateral face-marks very bright chrome-yellow; first r. n. joining first t.-c. (W. Australia.) ..... *cognata*, Sm., ♀.
21. Scutellum and postscutellum bright chrome-yellow; mesothorax brilliant green; a yellow spot on pleura behind tubercles; species of *Palaeorhiza* .... 22.
- Scutellum and postscutellum each with a lateral pale stripe or patch; head and thorax dark green; abdomen purple, with green shades. (Kuranda.) *permiranda*, Ckll.
- Scutellum and postscutellum without light markings. .... 23.
22. Clypeus yellow. (Kuranda, *Dodd.*).... *parallela*, Ckll., ♂.
- Clypeus green, with a light median stripe. *parallela*, Ckll., ♀.
23. Tubercles without any light colour; large or rather large species (probably all *Palaeorhiza*) ..... 24.
- Tubercles with at least a light spot .... 26.
24. Mesothorax blue; face marked as in *P. perviridis* ..... *reginarum*, Ckll.
- Mesothorax green. .... 25.
25. Face with three yellow stripes; abdomen bright green ..... *perviridis*, Ckll.
- Median stripe reduced to a spot on lower part of clypeus; abdomen with strong purple tints. (Dory, New Guinea.)... *imperialis*, Sm.
- Median stripe wholly wanting; abdomen dark green ..... *varicolor*, Sm.
26. Face without light marks; very small blue species ..... *baudinensis*, Ckll.
- Face with light marks. .... 27.
27. Clypeus wholly dark, no supraclypeal mark; small species, with fine blue abdomen ..... *albonitens*, Ckll., ♀.
- (*P. fijiensis*, Ckll., from Fiji, will run here, but it is a large species, 14½ mm. long; it is brilliant steel-blue, with yellow lateral face-marks.)
- Clypeus light or not wholly dark (if nearly all dark, species not small) ..... 28.
28. Very small species, with white face and large broad supraclypeal mark ..... *albonitens*, Ckll., ♂.
- Medium-sized or rather large species ... 29.
29. Mesothorax irregularly punctured, the punctures not of the same size; lateral face-marks (very pale yellowish) broad, their inner side strongly arched; abdomen blue ..... *disjuncta*, Ckll.
- Mesothorax densely, strongly, and evenly punctured. .... 30.
30. Green species, larger than *disjuncta*; lateral face-marks narrower than in *disjuncta*, their inner side not arched; abdomen green, first two segments strongly punctured ..... *varicolor*, Sm., ♂.

(♀ *varicolor* may have a minute light clypeal spot, and so come in here. Male *varicolor* obtained by Dodd at Townsville show variation; the axillæ may be cream-colour and second abdominal segment purple, and the clypeus may be all light except the sutures.)

- Blue species; first two abdominal segments sparsely punctured ..... 31.
31. Face light, no black band between clypeus and lateral marks; supra-clypeal mark present ..... *turneriana*, Ckll.
- A metallic purplish dark band at each side of clypeus; second abdominal segment more sparsely and feebly punctured ..... *turneriana kurandensis*, [Ckll.]
32. Scutellum and postscutellum wholly black; size small or medium ..... 33.
- Scutellum and postscutellum at least partly light ..... 38.
33. Prothorax, except tubercles, black; head seen from in front round ..... 34.
- Prothorax with upper border at least largely pale ..... 35.
34. Face black, with a pair of short quadrate chrome-yellow lateral marks ..... *quadriceps*, Sm.
- Clypeus, supraclypeal mark, and lateral marks deep yellow ..... *hobartiana*, Ckll. (? ♂ of 36. [*quadriceps*].
35. Males; the face yellow right across ....
- Clypeus black, with a large cream-coloured spot. \* (Celebes.) ..... *insularis*, Sm.
- Clypeus wholly black; light markings deep chrome-yellow ..... 37.
36. Very small, slender; face lemon-yellow. Size medium, robust; face deep chrome-yellow; abdomen with large processes, one on each side, beneath ..... *primulipicta*, Ckll.
37. Larger; punctures of mesothorax very distinct ..... *bituberculata*, Sm.
- Smaller; punctures of mesothorax so small as to be hardly visible separately under a lens ..... *amiculiformis*, Ckll.
38. Postscutellum wholly black, or (*percrassa*) with a very small elongate mark ..... *amica*, Sm.
- Postscutellum at least largely light (in every case the colour of it and the scutellum is deep chrome-yellow) ..... 39.
39. Very large robust species, of the build of *alcyonea* ..... 40.
- Species of ordinary form, not very large. ..... 41.
40. Clypeus with a median creamy-white stripe ..... *penetrata*, Sm.
- Clypeus wholly dark ..... *penetrata percrassa*, Ckll.
- (*P. percrassa* was described as a distinct species, but a specimen collected by Dodd in Queensland is clearly intermediate, having the clypeus with the upper part of the white mark only, and no light colour on postscutellum.)

41. Clypeus black, lateral face-marks very broad, deep chrome; mesothorax dull, sparsely punctured, the punctures of different sizes ..... *cyanura*, Kirby, ♀.  
 (This is *cyanura*, as determined in British Museum, but the abdomen is black, whereas original description says it is "*atrocærulescens*," as the specific name would suggest.)  
 Face lemon-yellow, but yellow of scutellum and tubercles deep chrome; mesothorax densely and minutely punctured. (Chowder, 1893: *Froggatt*).. *frederici*, Ckll., ♂, var.  
 (This insect was placed as *rotundiceps*, but type *rotundiceps* is a ♀ and has the abdomen minutely and closely punctured, but the mesothorax with coarse large punctures. The Froggatt insect, by the puncturation of mesothorax, cannot be the species ascribed to *cyanura*. Further search discovered the female, also from Chowder: this agrees essentially in face-marks with the "*cyanura*," but the mesothorax is punctured as in ♂. The postscutellum is all black and the area of metathorax dull. Both sexes have the prothorax black, except the bright yellow tubercles; no yellow mark on pleura behind tubercles. In sculpture of thorax the Chowder insect agrees with *frederici*, and I am sure it is a variety of that species.)
42. Face entirely black ..... 43.  
 Face with light markings ..... 44.
43. Tubercles yellow, and also a contiguous large yellow patch on pleura; front dull and densely punctured; mesothorax quite densely punctured; area of metathorax not ridged (it is also not ridged in *morosa*) ..... *nigrifrons*, Sm.  
 Tubercles black, but a quadrate yellow patch behind; front shining, with well-separated punctures ..... *diversipuncta*, Ckll.
44. No lateral face-marks whatever, but a large light area on clypeus, and a supraclypeal mark; large species .... 45.  
 With lateral face-marks ..... 46.
45. Second abdominal segment finely and quite closely punctured; light area on clypeus very broad (the whole width of clypeus) above, and ending abruptly below a little before the clypeal margin; supraclypeal mark hat-shaped .. *morosa*, Sm.  
 Second abdominal segment shining and strongly but sparsely punctured; light area on clypeus a broad parallel-sided band; supraclypeal mark approximately semicircular. (Sydney, N.S.W.: *Froggatt*.) ..... *desponsa*, Sm.
46. Face deeply sulcate on each side ..... 47.  
 Face not sulcate; all medium-sized species, looking very much alike .... 48.
47. Very large species, of build of *alcyonea*; area of metathorax shining and impunctate; lateral marks linear, not

- approaching clypeal mark, which occupies most of clypeus, but is deeply constricted on each side; a triangular supraclypeal mark; all these markings deep chrome-yellow, as also a patch on pleura behind tubercles ..... *impressifrons*, Sm.
- Medium-sized species, superficially like *rotundiceps*; face-marks white, though those of thorax are bright chrome-yellow; lateral marks reduced to a dot on each side near level of middle of clypeus, and a large round spot (caudate below) on each side of antennæ; clypeal patch large. (One hind leg of type carries the pollen-body of an Asclepiadaceous plant.) ..... *sulcifrons*, Sm.
48. Lateral face-marks linear; clypeus with a small elongate mark; face narrow; tubercles orange-yellow, but no yellow spot behind them. .... *nubilosa*, Sm.
- Lateral face-marks consisting of large round orange-yellow spots, the lower part of the usual marks being absent; clypeus black; tubercles orange-yellow, but no yellow spot behind them; abdomen faintly metallic ..... *rotundiceps*, Sm., ♀.
- (For *rotundiceps* ♂, see Cockerell, Bull. Amer. Mus. Nat. Hist. xxiii. p. 235.)
- Lateral face-marks ordinary ..... 49.
49. Males ..... 50.
- Females; clypeus black ..... 53.
50. Clypeus and lateral marks ivory colour; face very narrow. (Kuranda, Dodd.) ..... *aureomaculata*, Ckll.
- Clypeus yellow ..... 51.
51. Supraclypeal mark present; mesothorax minutely and densely punctured; anterior tibiæ and tarsi red; a constriction between first and second dorsal abdominal segments ..... *elongata*, Sm.
- (Another specimen is erroneously labelled *similis* ♂.)
- No supraclypeal mark ..... 52.
52. Lateral face-marks angular above, the point away from orbital margin; yellow on scutellum and postscutellum reduced; abdomen slightly purplish. (Tasmania.) ..... *honestata*, Sm.
- Lateral face-marks ending above in an acute angle on orbital margin, above level of antennæ; yellow of scutellum and postscutellum not reduced; abdomen quite distinctly bluish, with hind margins of segments reddish purple. (New South Wales.) ..... *simillima*, Sm., ♂.
- Lateral face-marks rounded above, ending in an angle on orbital margin, but much more obtusely than in *simillima*. ..... *metallica*, Sm.

53. Lateral face-marks ending above in an acute angle on orbital margin, above level of antennæ ..... *similima*, Sm., ♀.  
 Lateral face-marks not ending above abruptly and not above level of antennæ, the marks cuneiform ..... 54.
54. Punctures of mesothorax large, lateral face-marks very broad. (Swan R.) .. *obtusata*, Sm.  
 Punctures of mesothorax very minute .. *frederici*, Ckl. (*similis*, [Sm., preocc.]).

