

The two species, *P. syriacus* and *P. Bottæ*, have already been sufficiently well defined by Pictet and Humbert (*op. cit.*), and an imperfectly defined larger species, *P. grandis*, is described by J. W. Davis (Trans. Roy. Dublin Soc. [2] vol. iii. (1887), p. 510, pl. xxviii. fig. 4). An examination of the original specimen of *P. longispina*, Davis (*loc. cit.* p. 511, pl. xxv. fig. 2), convinces me that it does not belong to this genus, but is referable to an entirely distinct fish commonly known as *Clupea Bottæ*, Pict. & Humb. *Pseudoberyx* has hitherto been found only in the Upper Cretaceous of Hakel, Mount Lebanon.

LXVIII.—*Four new Bees of the Genus Perdita collected by Dr. L. O. Howard in Mexico.* By T. D. A. COCKERELL, New Mexico Agricultural College.

Perdita Howardi, sp. n.

♀.—Length about 6 millim.

Bright lemon-yellow; tips of mandibles darkened; frontal fovea a black stripe; a narrow black line extending from each lateral ocellus to the adjacent eye; abdomen with four narrow entire black bands at the sutures between the segments; second abdominal segment with a longitudinal black stripe on each extreme side; pleura without any black patch; tarsi more or less fuscous; stigma faintly tinged with yellowish; nervures colourless; marginal cell obliquely truncate, its substigmatal and poststigmatal parts about equal in length; second submarginal cell narrowed rather more than half to marginal; third discoidal distinct. Head ordinary; lower part of face pellucid white; mesothorax naked, a very narrow black line along its anterior margin; tegulæ colourless, transparent.

♂.—Frontal fovea a black dot; no line from the ocelli to the eyes; abdominal bands more obscure; otherwise like the female. Claws cleft.

Hab. S. José de Guaymas, Mexico, April 10, 1898 (*L. O. Howard*).

It is a pleasure to name this beautiful species after its well-known and esteemed discoverer. *P. Howardi*, by its yellow colour and the absence of a black patch on the pleura, comes near to *luteola*, from which it is easily distinguished by the abdominal bands. It is also a vernal species, whereas *luteola* is autumnal. Seven specimens were obtained.

Perdita Ashmeadi, sp. n.

♀.—Length about $4\frac{1}{2}$ millim.

Head and thorax shining dark olive-green; abdomen flattened, very dark brown above, without marks, dull

yellowish beneath; tubercles and face-marks cream-colour; legs yellow, tarsi brownish; a patch at end of hind femora, hind tibiæ, and tarsi brown. Head subquadrate, but not particularly large, broader than long; clypeus low and broad; mandibles cream-colour, black at tips and reddish just before tips; labrum and clypeus cream-colour, the latter with the usual dots, and two longitudinal stripes vaguely indicated by brownish stains; supraclypeal mark present, produced above for a short distance as a narrow stripe or line, separated below from the clypeus by a distinct interval; dog-ear marks present but extremely minute, not nearly touching the clypeus; lateral marks consisting of a broad stripe below, abruptly narrowing just above the level of the antennal sockets to a narrow stripe, which continues along the orbital margin as far as the level of the middle ocellus; scape with a yellow or cream-coloured stripe beneath; flagellum very dark brown above, somewhat paler beneath; face and front without any conspicuous pubescence; cheeks very thinly pubescent; front granular. Mesothorax very shiny, very thinly pubescent, with a median furrow on its anterior half; metathorax bluer; pleura wholly dark; tegulæ transparent, with a cream-coloured spot; stigma pale brownish, with a darker margin; nervures brown, marginal cell obliquely truncate, appendiculate; second submarginal narrowed about one half to marginal, third discoidal distinct.

Var. *a*.—Hind border of prothorax yellow; second abdominal segment with a short transverse yellow stripe near the base; ventral surface of abdomen clear yellow.

Hab. S. José de Guaymas, Mexico, April 10, 1898 (*L. O. Howard*).

Named after the most active student of American Hymenoptera. In my table of *Perdita* in Bull. Denison Lab., *P. Ashmeadi* comes near to ♂ *crassiceps*, but it differs from that in many particulars. The var. *a* resembles rather *tarda*, but is easily separated from it.

Perdita sonorensis, sp. n.

♀.—Length about 6 millim.

Black, with a metallic lustre and cream-coloured markings. Head ordinary; front strongly æneous or dark olive-green, with scattered distinct punctures; clypeus cocked-hat-shaped, cream-coloured, with the usual black dots rather large, and two median longitudinal black bars, very broad and slightly coalescing; labrum black; mandibles ordinary, basal half cream-colour, apical half rufous; face not very hairy; a distinct linear groove running down from middle ocellus; antennæ dark, flagellum light brown beneath; lateral face-marks triangular, rapidly narrowing from a broad base to a point on

a level with the antennal sockets; supraclypeal mark a transverse band, more than twice as broad as long; dog-ear marks present, separated by an interval from the lateral marks. Mesothorax very shiny, with scattered punctures, greenish and hairy in front, otherwise black and nearly nude; hind margin of prothorax with an interrupted cream-coloured band; tubercles cream-coloured, with a dark spot; metathorax dark bluish, contrasting with the black scutellum and postscutellum; tegulæ hyaline, with a cream-coloured spot; stigma hyaline, with a brown margin; nervures brown; marginal cell with the poststigmatal portion a little the longest; second submarginal large, narrowing rather more than half to marginal; third discoidal very distinct; legs brown-black, anterior knees and anterior tibiæ in front cream-colour; abdomen black, with straight pale yellow bands, more or less interrupted in the middle, at the extreme bases of segments 2 to 4, and two spots representing a rudimentary band on the fifth segment. Ventral surface dark.

Var. *a*.—Clypeus all black, except a minute mark at each side adjacent to the lateral face-marks; fifth abdominal segment without spots.

Var. *b*.—Clypeus black, with the lateral corners cream-coloured; dog-ear marks mere specks; the three abdominal bands reduced to inconspicuous widely separated pairs of yellowish stripes.

Hab. S. José de Guaymas, Mexico, April 10, 1898 (*L. O. Howard*). Four specimens.

Related to *P. sexmaculata*. In my table of *Perdita* in Proc. Phil. Acad. 1896, it comes close to *P. exclamans*, from which it is separated by many characters. The var. *b* approximates to *tarda*, but is not really related to that insect.

Perdita Lucie, sp. n.

♂.—Length about 4 millim.

Bright lemon-yellow, with dark markings. Head ordinary, cheeks unarmed; face nude, entirely yellow except the black dots representing the frontal foveæ; cheeks yellow, sparsely hairy; vertex dark metallic green; scape yellow, with a black spot at the top behind; flagellum yellow beneath and blackish above; prothorax and sides and under part of thorax entirely yellow; mesothorax practically nude, very shining dark metallic olive-green, with the lateral margins narrowly yellow, and a yellow patch near the hind margin; scutellum yellow, with the sides dark; postscutellum similarly coloured; metathorax dark blue dorsally, yellow at sides; tegulæ hyaline; stigma hyaline, with a sepia-brown margin; nervures light brown; marginal cell obliquely truncate, with its substigmatal portion a little the longest; second submarginal narrowed

about one half to marginal; third discoidal indistinct; legs entirely yellow except a brown stripe on the posterior tibia and tarsus; abdomen yellow, with five broad entire dark brown bands, or the fifth subobsolete, and the base of the first segment dark; venter entirely yellow. Claws cleft. Tips of mandibles bright rufous.

Hab. S. José de Guaymas, Mexico, April 10, 1898 (*L. O. Howard*).

Named after Dr. Howard's little daughter. This in my tables comes near to *P. Martini*, but is easily distinguished by the yellow sides of the thorax and the brown nervures. Seven specimens. There are sometimes two yellow spots on the anterior half of the mesothorax.

Dr. Howard also collected at S. José de Guaymas, on the same day, examples of *P. tarda*, Ckll., var. *P. salicis*, Ckll. (1 ♂), *P. punctosignata*, Ckll., and *P. exclamans*, Ckll. (♂ ♀). He informs me that most, if not all, of the specimens of *Perdita* from that locality were taken at the flowers of mesquite (*Prosopis glandulosa*).

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

April 26th, 1899.—W. Whitaker, B.A., F.R.S.,
President, in the Chair.

The following communication was read:—

‘On three Species of Lamellibranchs from the Carboniferous Rocks of Great Britain.’ By Wheelton Hind, M.D., B.S., F.R.C.S., F.G.S.

The first part of this paper describes a new species of *Anthracomya* which occurs in the North Staffordshire and Manchester Coal-fields at horizons higher than that characterized by *A. Phillipsi*. The fossil is found at Etruria, Bradwell, Stoke-on-Trent, and Fallowfield. It appears to indicate a special zone of shales and *Spirorbis*-limestone about 300 feet below the Penkhull Sandstone, and to be the only molluscan form known from the zone.

A new species of *Carbonicola* is next described, partly from specimens previously supposed to be a gasteropod, a brachiopod, or even a crustacean, and partly from better-preserved specimens obtained from calcareous bands about 10 yards above the Bassey Mine Ironstone in North Staffordshire. It appears to be the latest species of this genus known, and to occur in higher beds than any other species.

Lastly, a new species of *Otenodonta* from Penton Linns (Dumfriesshire) is described. It occurs in a marine shale below the highest limestone of the locality, in beds referred to the horizon of the Hurlet Limestone by the officers of the Geological Survey. The bed contains gasteropods, crinoids, cephalopods, etc., with *Productus giganteus*. The species has some resemblance to *C. Halli*, Barrois, found in Spain.



Cockerell, Theodore D. A. 1899. "LXVIII.—Four new bees of the genus *Perdita* collected by Dr. L. O. Howard in Mexico." *The Annals and magazine of natural history; zoology, botany, and geology* 3, 492–495.

<https://doi.org/10.1080/00222939908678157>.

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DOI: <https://doi.org/10.1080/00222939908678157>

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