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New and Little-Known Bees From Nebraska

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NAMES AND DEFINITIONS OF HYBRIDS.

By T. A. CHAPMAN, M.D., F.E.S.

Ent. Record, vol. xiii. p. 183; Dr. Standfuss, "Experiments on Hybridization," reprinted from the 'Entomologist,' pp. 23 and 34. These two recent items remind me of a simple expedient for defining hybrids that, I imagine, must have occurred to someone and been adopted, yet Dr. Standfuss's unwieldy notation, that compels him to use a number in the text, and his reader to refer back to pp. 23 and 34 to see what the number means, implies that it has not been adopted, or probably proposed. The idea simply is to abbreviate the name of the insect as much as possible, often to an initial, and to place the two names thus abbreviated together, the male always first. Thus, if dealing with Saturnias, as on Dr. Standfuss's p. 23, his most complicated cross, No. 18, which he writes :—

$$\text{Sat. } \frac{\left(\frac{\text{pavonia } \delta}{\text{spini } \varphi} \right) \delta}{\frac{\text{pavonia } \varphi}{\left(\frac{\text{pavonia } \delta}{\text{spini } \varphi} \right) \varphi}}$$

would be written Sat. Pa S. Pa Pa—Pa S. Pa Pa, or simply Sat. Pa S Pa Pa Pa S Pa Pa. A hybrid being always designated by its 2, 4, 8, 16, or more parents. This one is a little complicated by having to write Pa, to distinguish *pavonia* from *pyri*.

Similarly Dr. Standfuss's No. 30—

$$\text{Pyg. } \frac{\left(\frac{\text{curtula } \delta}{\text{anachoreta } \delta} \right) \delta}{\frac{\text{anachoreta } \varphi}{\left(\frac{\text{anachoreta } \delta}{\text{anachoreta } \varphi} \right) \varphi}}$$

would be written Pygæra C.A—A.A—A.A—A.A. If *P. anastomosis* comes into the experiment, then *Ac* must be used for *anachoreta*, and *As* for *anastomosis*.

The advantages of this notation are that it can be easily written in the text, and conveys at once to the eye the ancestry and constitution of the form before us.

NEW AND LITTLE-KNOWN BEES FROM NEBRASKA.

By T. D. A. COCKERELL.

THE following bees were kindly communicated to me by Mr. J. C. Crawford, Jun., and Prof. L. Bruner:—

Perdita affinis, Cresson.—West Point, Aug. 12th, 1900 (J. C. Crawford). Both sexes at flowers of *Solidago rigida*. New to Nebraska.

Perdita albipennis, Cresson.—Lincoln, Aug. 17th, 1900 (J. C. Crawford). Both sexes at flowers of *Helianthus annuus*.

Perdita bruneri, Ckll.—West Point, Aug. 6th, 1900 (J. C. Crawford). Two females at flowers of *Grindelia*; one is larger than usual.

Perdita perpallida, n. sp.—Lehigh, July (Cary). Both sexes at flowers of *Petalostemon*.

Length about 6 mm., very pale yellowish, colour of *P. wootona*, but without any black patch on pleura in either sex. Female with legs entirely pale, but male with a large black patch on inner side of anterior femora beneath. Male flagellum pale orange, not marked with black above. Stigma very pale yellow, nervures colourless. Abdomen entirely without bands. Ocelli black, but no black lines on vertex in either sex.

Perdita crawfordi, n. sp.—Lincoln, Nebr., Aug. 25th, 1900 (J. C. Crawford). Male at sunflower; female at *Grindelia*.

♂. Length about 5 mm.; head and thorax dark bluish green; head ordinary; cheeks with a short tooth on lower part; front, vertex and cheeks with short white hair; vertex minutely granular; antennæ dark brown above, very pale beneath; clypeus and lateral face-marks cream-colour; clypeus wholly pale except the usual dots; lateral marks transversely oblong, not quite reaching the level of the upper edge of the clypeus, the inner side bulging above, and thus larger than that adjacent to the eye; no supra-clypeal or dog-ear marks; thorax rather abundantly clothed with white hairs; no light markings on prothorax or pleura; wings milky-hyaline; nervures white, stigma faintly yellowish; marginal cell nearly squarely truncate, the sub-stigmatal portion about as long as the post-stigmatal; second sub-marginal cell greatly narrowed above; third discoidal cell only faintly indicated; legs black, knees, anterior tibiæ in front, and the tarsi, pale

yellowish; abdomen shining piceous, without light markings, but the hind margins of the segments hyaline.

♀. Length 5 mm.; similar to the male, but the lateral face-marks are nearly equilateral triangles; and the second, third, and fourth abdominal segments have basal straight pale yellowish bands, narrowly interrupted in the middle, and those on the third and fourth segments terminating abruptly some distance before the lateral margins.

In my tables of *Perdita*, the male runs to *P. vagans*, and the female to *P. bigeloviae*; but the face-markings are not as in those species, and other differences are apparent on comparison.

Perdita maura, n. sp.—Cedar Bluffs (L. Bruner). Both sexes at flowers of *Aster*.

♂. Length about $4\frac{1}{2}$ mm.; head and thorax dark bluish-green, metathorax blue; abdomen broad, shining black without marks, the hind margins of the segments not hyaline. Head ordinary, cheeks unarmed; face-marks yellow; clypeus yellow except the sides above, and the whole of the upper median margin, the yellow therefore occupying all the lower half of the clypeus, and sending a broad tongue upwards in the median line; supra-clypeal mark divided into two adjacent patches; no dog-ear marks; lateral face-marks broadly triangular, their upper angles (of about 45°) about level with the antennal sockets; scape and flagellum dark brown above and yellow or brownish yellow beneath; face not hairy; mesothorax granular, with feeble punctures, median groove very distinct; thorax with sparse short hair; wings hyaline, nervures and stigma very dark brown, third discoidal cell ill-defined; marginal cell ordinary; legs black, knees, anterior tibiae and tarsi, and middle tibiae and tarsi, more or less yellow.

♀. Length about $5\frac{1}{2}$ mm.; similar to the male, except as follows: face wholly dark, but the mandibles are yellow with dark ferruginous tips; third discoidal cell distinct; anterior tibiae behind, and middle tibiae, black.

P. maura in my tables runs in the male to *P. asteris*, var., but it is quite distinct from that species, which has milky wings with almost colourless nervures and stigma. The female runs in the neighbourhood of *phymatæ*, but that is a much smaller and less bulky insect.

Spinoliella australior (Ckll.), Sioux Co. (L. Bruner). Both sexes at *Cleome* flowers. New to Nebraska.

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