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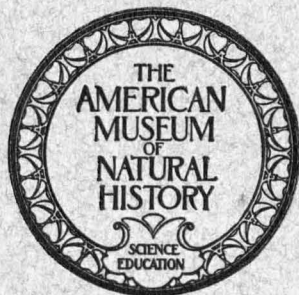
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By T. D. A. COCKERELL



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TWO NOCTURNAL BEES AND A MINUTE *PERDITA*

BY T. D. A. COCKERELL

The bees described below were received from Dr. J. Bequaert, to whom I am greatly indebted for the opportunity to examine and describe such unusual and interesting forms. The types will be placed in the American Museum.

Megalopta (*Megaloptella*) *vigilans*, new species

Figure 5

♂.—Length about 11 mm., anterior wing, 8.4 mm. Rufotestaceous, the head and thorax strongly suffused with yellowish green; apical half of flagellum dusky; wings dusky. Very like *M. idalia* Smith (specimen from Manáos, Brazil, compared), at first sight appearing identical, but clearly separable by the following characters: face not bicolored; the clypeus and supraclypeal area (which is conspicuously narrower than in *idalia*) testaceous, strongly suffused with golden green; lateral margins of front (along emargination of eyes) brilliant rosy-purple; third antennal joint shorter (about as broad as long); first recurrent nervure joining second submarginal cell before end; scutellum shorter; third ventral segment of abdomen strongly and narrowly emarginate, and with a very fine raised median line running its whole length. By the structure of the third ventral segment this approaches *M. ægis* Vachal from Brazil and *M. æthautis* Vachal from Peru.

Exact locality unknown. The unique specimen was collected by Mr. Austin Curtis at one of the harbors of the Caribbean Sea, perhaps on the coast of Venezuela.

Megalopta has been found as far north as Mexico (*M. tabescens* Cockerell); it has not been reported from the West Indies. *Megaloptella* Schrottky, to include the group of *M. idalia*, is certainly a valid subgenus.

XEROPHASMA, new genus (Panurgidæ)

Pale nocturnal bees, with immense ocelli; compound eyes large, inner orbits approximately parallel, facial quadrangle much longer than wide; thorax thinly hairy. Abdomen rather broad, with little hair except at apex. Legs thinly hairy. Wings ample, with very large stigma; lower section of basal nervure strongly arched, falling a considerable distance short of the nervulus; marginal cell moderately elongate, broadly and squarely truncate, forming an angle with the costa a little less than a right angle; three cubital cells, the first very long, much longer than the others combined; second small and triangular, petiolate above, receiving the first recurrent nervure a short distance before its end; third large and subquadrate, broader below than above, receiving the second recurrent nervure at its extreme end, meeting the

outer intercubitus; other features of venation, and hind wings, as in *Perdita*. Female with mandible straight and simple; facial foveæ linear, but short; a Y-shaped carina on front, the anterior ocellus between the forks; claws with an inner denticle; pulvilli very large. I have not ventured to extract the mouth-parts of the unique type.

TYPE.—*X. bequaerti*.

***Xerophasma bequaerti*, new species**

Figures 1 and 2

♀.—Length about 10.5 mm. Light testaceous, without dark markings, but eyes dark; flagellum rufescent apically. Wings clear hyaline; stigma pale clear ferruginous, lighter in middle; nervures very pale, reddish. Mesothorax with four longitudinal grayish-pellucid stripes, and a faint median one; base of metathorax large, dullish. Abdomen moderately shining, with obscure reddish subapical bands, and on the fifth segment a pair of spots. Hind tibiæ long and slender; hind basitarsi somewhat longer than the remaining joints together.

Fabens, El Paso Co., Texas (about 30 miles southeast of El Paso, in the valley of the Rio Grande); taken at light, about 10 p.m., July 9, 1917; (J. Bequaert).

This is a most extraordinary bee, closely related to *Perdita*, but with the gigantic ocelli of the halictine *Megalopta* and a small second submarginal cell. Large ocelli have developed in nocturnal Mutillidæ and various groups of bees, evidently quite independently. The testaceous color is also characteristic of these nocturnal insects, no less in the present insect than in the great *Xylocopa tranquebarica* (Fabricius) of India, which Bingham says "is crepuscular; on fine moonlight nights its loud buzzing can often be heard all night long." On the whole, however, *Xerophasma* is the most extreme of the nocturnal bees yet discovered.

It is an interesting question whether *Xerophasma* diverged from the ancestral stem of *Perdita* before the second submarginal cell had been lost, or whether the small second cell is a later development. I strongly incline to the latter view, and it is possible that the nervures bounding it are not the two intercubitals of ancestral bees, but one intercubital which has become split to admit the small cell. In any event, *Xerophasma*, which is undoubtedly allied to *Perdita*, shows us how striking characters may arise independently in different series and illustrates the possibility of artificial classifications based on such characters.

In describing *Perdita bradleyi*, Viereck states that in a specimen before him "the left wing has three submarginal cells by virtue of the first transverse cubitus forking near its base where it joins the cubitus. In the right wing there are but the normal (for this genus) two submarginal cells." In describing *P. novæangliæ*, he leaves us to suppose that the venation is quite normal for the genus; but in 1917 he erects for

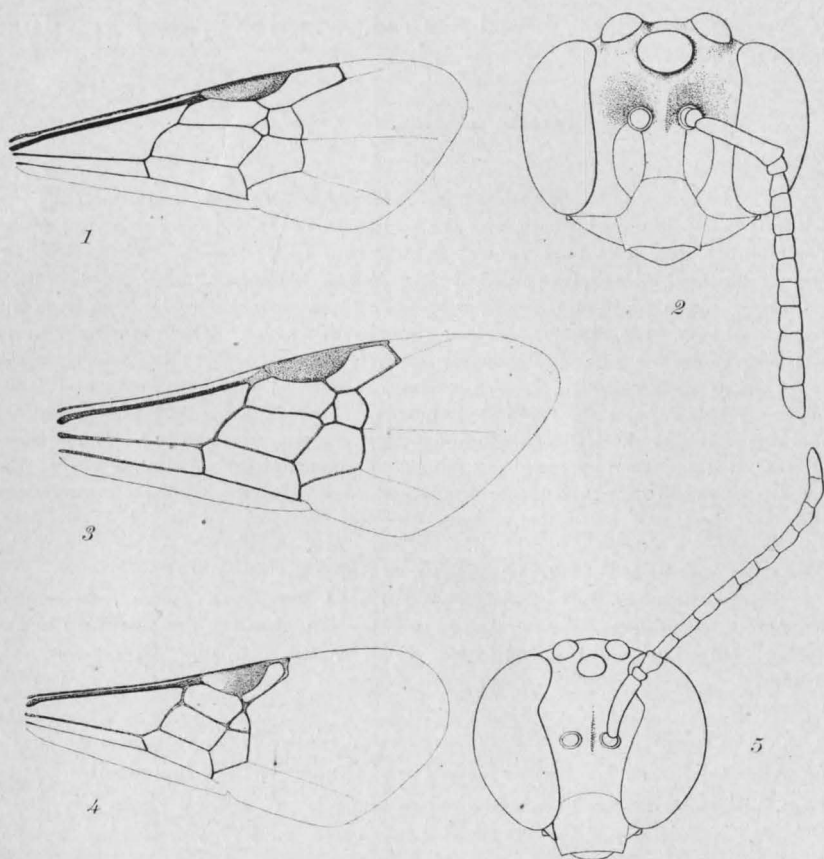


Fig. 1. Forewing of *Xerophasma bequaerti*, ♀.
 Fig. 2. Head of *Xerophasma bequaerti*.
 Fig. 3. Forewing of *Alloperdita novaeangliae* Viereck.
 Fig. 4. Forewing of *Perdita minima*.
 Fig. 5. Head of *Megalopta vigilans*, ♂.

it a subgenus *Alloperdita* and states that there are three submarginal cells. Thus it would seem that *Xerophasma* might be allied to *Alloperdita*, but this is not necessarily the case.¹

The scanty or thin hair on the legs of *Xerophasma* might suggest that it was parasitic, but I feel confident that this is not the case. Species

¹Robertson (1922, *Psyche*, p. 159) thinks that in *Perdita* the original first and second intercubital or transverse cubitals have united, and according to this view they are partly separated in *Xerophasma*, the small cell being the genuine second cubital.

of *Perdita* with thinly haired legs can, nevertheless, carry very large loads of pollen.

***Perdita minima*, new species**

Figure 4

♀.—Length about or not quite 3 mm. Head and thorax shining rufotestaceous, without dark markings, except that the metathorax is dark brown dorsally; scape pale reddish, flagellum dark brown; legs brown, pallid basally. Wings hyaline; stigma dilute sepia; nervures pale but not colorless. Abdomen highly polished, dark red-brown above and below, without bands. Head normal, circular seen from the front, face very wide, cheeks unarmed; clypeus rather high. The following features were seen under the compound microscope: sides of face coarsely reticulate, the small areas transversely wrinkled, front very finely reticulate; eyes with green and pinkish tints; hair of head and thorax very scanty, mainly on lower part of mesopleura; marginal cell very short, the substigmatal part almost or quite twice as long as post-stigmatal; second submarginal cell small, triangular, slightly petiolate above, the recurrent nervures meeting the intercubitals; abdomen very minutely transversely lineolate; pygidial plate narrow, very minutely reticulate, with a beaded effect; claws without a subapical tooth. The abdomen is not uniformly darkened, and the dark color appears to depend largely upon its contents.

Tempe, Arizona; July 30–August 6, 1917; (J. Bequaert). Taken at flowers of *Euphorbia serpyllifolia* Persoon. Type in American Museum, one specimen in the author's collection, and one will be sent to U. S. Nat. Museum. Others were collected by Professor Bradley at the same time and are in the collection at Cornell University.

This minute reddish *Perdita* is very distinct; it reminds us of *P. (Perditella) larreae* Cockerell from New Mexico, which has similar venation, but is larger and the cheeks are armed. *P. larreae* visits *Covillea*.

P. minima is not the smallest known bee, as *Trigona duckei* Friese, from Brazil, is only 2 mm. long.

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FRANK E. LUTZ, Editor

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