

Article XIV. — A NEW WINGLESS FLY (*PULICIPHORA*
BORINQUENENSIS) FROM PORTO RICO.

By WILLIAM MORTON WHEELER.

PLATE XXXIV

The genus *Puliciphora* was established by Dahl in 1897 for some wingless and halterless flies which he had collected in the Bismarck Archipelago on dead birds and the carrion-scented flowers of the Aroid *Amorphophallus*. Being of the opinion that these flies would shed a new light on the phylogenetic origin of the fleas (Aphaniptera) from dipterous insects, he named the new species *P. lucifera*, and assigned it to the well-known family Phoridae. In the following year, Wandolleck, while studying the types or co-types of *P. lucifera*, found that Dahl had described two species under the same name; that he had, in fact, designated as the male of *P. lucifera* the female of another wingless and halterless species. As if to show his distaste for Dahl's views on the phylogeny of the fleas, and in utter disregard of all precedent among systematic naturalists, he brushed aside the name *Puliciphora lucifera* and substituted two new generic and specific names, calling the female of *P. lucifera*, *Stethopathus ocellatus*, and the supposed male, *Chonocephalus dorsalis*. These two insects, together with a third which in the meantime Cook had described from specimens collected on a Liberian land-snail (*Achatina*) as *Wandolleckia* (since named *W. cooki* Brues), were removed from the Phoridae by Wandolleck and elevated to the rank of an independent family, the Stethopathidae.

It is only too evident that Wandolleck's *Stethopathus ocellatus* is merely a synonym of Dahl's *Puliciphora lucifera*. It follows also that the word Stethopathidae must be abandoned even if Brues had not shown that the three wingless genera supposed to constitute this group are closely related to two older genera of subapterous flies (*Psyllomyia* Loew and *Ænigmatias* Meinert), and to several subapterous genera first described by Brues himself (*Ecitomyia*, *Comoptera*, *Xanionotum*, and *Aconstistoptera*). Brues's further discovery of the male of *Ecitomyia wheeleri*, which has well-developed wings

with typical Phorid neurulation, makes it very probable that all the other genera, which happen to be based on females only, have similar winged males. It is even doubtful whether we should follow the example of Melander and Brues and include all the apterous and subapterous Phoridæ in an independent subfamily. If this is insisted on, however, the group should be known as the Puliciphorinæ, unless, indeed, we revert to Loew's *Psyllomyia testacea* as the type. In that case, the subfamily should, of course, bear the name Psyllomyinæ.

There is opportunity for some difference of opinion in regard to the systematic position of the singular termitophilous and physogastric genera *Termitomyia* and *Termitoxenia* recently described by Wasmann. According to this author they represent an independent family which should be inserted between the Eumyid and Pupiparous sections of the order Diptera. He bases his opinion on his discovery that these insects are protandric hermaphrodites and develop directly, that is, without metamorphosis, from very large eggs. Brues regards these termitophiles as very aberrant Phoridæ, allied to the above-mentioned apterous and subapterous genera. While there can be little doubt that the forms in question have arisen from Phorid-like ancestors, it seems to me that the arguments adduced by Wasmann for regarding the Termitoxenidæ as a distinct family are not easily set aside. It may be contended, however, that we know nothing as yet of the development of the apterous and subapterous Phoridæ. The eggs of some of these insects seem to be very large, like the eggs of the Termitoxenidæ, so that it is not impossible that their development may be ametabolic or at least much abbreviated. This is most probable in some of the extreme forms like *Wandolleckia*, *Puliciphora*, and *Ænigmatias*.

The genus *Puliciphora* remained monotypic till 1903 when Melander and Brues found specimens of a second species (*P. occidentalis*) running on the ground in the immediate neighborhood of *Halictus* burrows at Wood's Hole, Massachusetts. As in the case of *P. lucifera*, only female specimens were taken. I am able to add a third species, which I recently captured in Porto Rico. On March 16, Professor N. L. Britton, Director of the New York Botanical Garden, handed me a large beetle (*Strategus julianus* Burmeister) which he picked up while we were walking through the streets of Utuado. The beetle, which was nearly dead, was placed in a tin box with a perforated lid and left in my room at the hotel. On opening the box the following day I found that a lot of "crazy ants" (*Prenolepis longicornis* Latr.),

together with a number of small Phoridæ, which I at first took to be *Podurans* allied to *Sminthurus*, had entered it through the small apertures. There was nothing to indicate any myrmecophilous relationship between the ants and the Phorids. Probably both had been independently attracted to the box by the strong odor of the decomposing beetle. The Phoridæ, which on closer examination were found to belong to an undescribed species of *Puliciphora*, were running about on the surface of the beetle and the adjacent walls of the box with a rapid skating gait, interrupted by quick turns and sudden halts. The beetle was examined at intervals of a few hours during the three following days, but though from one to half a dozen *Puliciphora* females were taken on each of these occasions, no males were to be found. It is not improbable that these have well-developed wings with a typical Phorid neurulation like the males of *Ecitomyia wheeleri* Brues. I subjoin a description of the new species from the types in the American Museum of Natural History, and a list of the literature pertaining to the apterous and subapterous Phoridæ.

***Puliciphora borinquensis* sp. nov.**

(Pl. XXXIV.)

Female. Length, .7-1 mm.

Head slightly broader than long, with subparallel sides, straight posterior border and slightly convex and projecting front. Ocelli present. Eyes small, flattened, distinctly hairy. Antennæ set in deep frontal concavities, as in the other species of the genus; basal joint globose, second and third joints very small, cylindrical, subequal and, like the long arista, distinctly plumulose. Palpi long, projecting beyond the head when the latter is seen from above; in profile, their upper surfaces are straight or slightly concave, their lower surfaces convex. Proboscis well developed, projecting, laterally compressed, as long as the height of the head. The head has the following chaetotaxy: There are four or five long macrochaetæ on the outer apical surface of each palpus, four close together and projecting forward on the middle of the front, one on each side of the anterior ocellus, two between the posterior ocelli, and one at each of the extreme posterior corners of the head.

Thorax shorter than the head, but about twice as broad as long, a little narrower in front than behind, with feebly convex sides. It is as broad as the head, but hardly a third of the width of the greatest transverse diameter of the abdomen. There are no traces of either wings or halteres. The pleuræ are steep and flattened, the three segments being very short and indistinctly indicated. On each side of the notum there are three macrochaetæ, which increase in length from before backwards; the middle one is inserted further dorsally than the other two, the posterior higher than the anterior. Between the posterior pair, which occupies the extreme posterior corners of the thorax, there is a smaller pair near the posterior edge and about as far apart as each of them is from the posterior corner. There are very few hairs on the pleuræ.

Abdomen very voluminous, egg-shaped. The chitinous investment is

thin and finely and very regularly chagreened, except on the dorsal surface, where there are six thickened sclerites, the first being very narrow, the last reduced to a minute lunule, the second as long as the subequal third and fourth together, the fifth narrow and with a large crescentic glandular opening in its middle. There are no ventral sclerites. The seventh, eighth, and ninth segments are suddenly attenuated, and the last bears a pair of small foliate flaps. The dorsal sclerites are covered with short uniformly distributed hairs; the remainder of the abdomen, except a large patch on each side just back of the hind leg and extending over about four segments, is covered with similar hairs, each of which arises from a small but conspicuous, elliptical brown spot. There is a circlet of macrochætæ along the posterior edge of the sixth and on the anterior portion of the much smaller seventh segment.

Legs rather stout, covered uniformly with short hairs except the coxæ which are nearly bare. Tips of hind coxæ with a row of bristles. Tibiæ with prominent spurs. Empodia fimbriated. Hind metatarsus slightly flattened and bearing on its plantar surface six transverse rows of bristles.

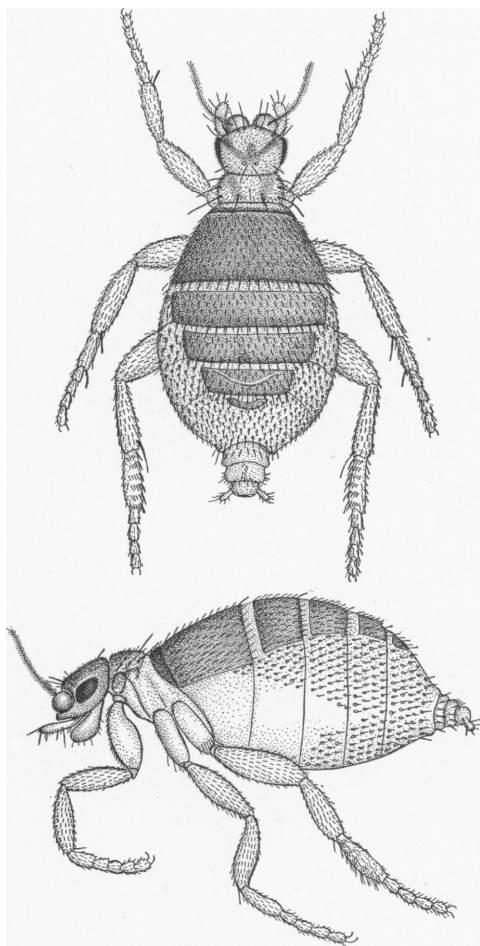
The body and legs are yellowish; abdomen white, except the dorsal sclerites and the spots from which the hairs arise, which are dark brown. Upper surface of head and thoracic dorsum light brown, the former with a dark brown, V-shaped mark with its angle over the ocelli, the latter with two indistinct longitudinal dark brown bands.

Described from nineteen specimens taken at Utuado, Porto Rico, March 17 to 19, 1906.

This species differs from both *P. lucifera* and *P. occidentalis* in having the hind metatarsi somewhat dilated and furnished with rows of bristles, and in the shape of the thorax, which is much longer than in *lucifera* and without the lateral sinuosities of *occidentalis*. From the former it differs also in the wider distribution of the stout hairs on the membranous portions of the abdomen. There are also important peculiarities in the chætotaxy of the new species, as may best be seen by comparing the figures accompanying this article with those of Wandolleck and Melander and Brues. It is, perhaps, worth noting that all the bristles of *P. borinquenensis* are bare, that is, non-pubescent, just as they are in *lucifera* and *occidentalis*.

BIBLIOGRAPHY.

- Becker, Th. Die Phoriden. *Abhand. zool. bot. Ges. Wien*, 1901, pp. 1-100, Taf. i-v.
 Brues, C. T. Two New Myrmecophilous Genera of Aberrant Phoridae from Texas. *Amer. Natur.*, XXXV, 1901, pp. 337-356, 10 figs.
 Brues, C. T. New and Little-Known Guests of the Texan Legionary Ants. *Amer. Natur.*, XXXVI, 1902, pp. 365-378, 7 figs.
 Brues, C. T. A Monograph of the North American Phoridae. *Trans. Am. Entom. Soc.*, XXIX, 1903, pp. 331-404, pll. v-ix.
 Cook, O. F. A New Wingless Fly from Liberia. *Science*, VI, Dec. 20, 1898, p. 886.



PULICIPHORA BORINQUENENSIS SP. NOV.

- Coquillett, D. W. The Occurrence of the Phorid Genus *Ænigmatias* in America. *Canad. Entomol.*, XXXV, 1903, pp. 20-22.
- Dahl, Fr. Puliciphora, eine neue, flohähnliche Fliegengattung. *Zool. Anzeig.*, XX, 1897, pp. 409-412. Translated by E. E. Austin in *Ann. Mag. Nat. Hist.*, VII, 1898, pp. 99-101.
- Dahl, Fr. Ueber den Floh und seine Stellung im System. *Sitzber. naturf. Freunde Berlin*, 1898, p. 185.
- Dahl, Fr. Ueber Puliciphora lucifera. *Zool. Anzeig.*, XXI, 1898, pp. 308, 309.
- Loew, H. Psyllomyia testacea, eine neue Gattung der Phoriden. *Wein Entom. Monatschr.*, I, 1857, pp. 54-56, Taf. i, Figs. 22-25.
- Meinert, F. *Ænigmatias blattoides*, dipteron novum apterum. *Ent. Med.*, II, 1890, pp. 212-226, pl. iv.
- Melander, L., and C. T. Brues. Guests and Parasites of the Burrowing Bee *Halictus*. *Biol. Bull.*, V, 1903, pp. 1-27, 7 figs.
- Wandolleck, B. Ist die Phylognese der Aphanipteren entdeckt? *Zool. Anzeig.*, XXI, 1898, pp. 180-182.
- Wandolleck, B. Die Stethopathidæ, eine neue flügel- und schwingerlose Familie der Diptera. *Zool. Jahrb., Abth. f. Syst.*, XI, 1898, pp. 412-441, Taf. xxv, xxvi.
- Wasmann, E. Neue Dorylinengäste aus dem neotropischen und dem äthiopischen Faunengebiet. *Zool. Jahrb., Abth. f. Syst.*, XIV, 1900, pp. 215-289, Taf. xiii.
- Wasmann, E. Termitoxenia, ein neues flügelloses, physogastres Dipterengenus aus Termitennestern. I Theil, *Zeitschr. f. wiss. Zool.*, LXVII, 1900, pp. 599-617, Taf. xxxiii; II Theil, *ibid.*, LXX, 1901, pp. 289-298.
- Wasmann, E. Zur näheren Kenntnis der termitophilen Dipterengattung *Termitoxenia* Wasm. *Verhandl. V. Internat. Zool. Congr. Berlin*, 1901, pp. 852-872, Taf. i.
- Wasmann, E. Die Thorakalanhänge der Termitoxeniidæ, ihr Bau, ihre imaginale Entwicklung und phylogenetische Bedeutung. *Verhandl. deutsch. zool. Gesell.*, 1903, pp. 113-120, Taf. ii, iii.
- Wasmann, E. Termitophilen aus dem Sudan. In Results of the Swed. Zool. Exped. to Egypt and the White Nile, 1901, under the direction of L. A. Jägerskiöld. Part I, Upsala, 1904, No. 13, 21 pp., 1 pl.

