

- Calosoma irregulare*, Walker. Vancouver.
 — *laterale*, Kirby. Brazil.
 — *retusus*, Fabr.* Patagonia.
 — *patagoniense*, Hope. Patagonia.
 — *tegulatum*, Woll. Cape Verde Is.
 — *curvipes*, Kirby. Brazil.
 — *helenæ*, Hope. St. Helena.
 — *haligena*, Woll. St. Helena.
 — *chinense*, Hope. China.
 — *maderæ*, Fabr. Madeira.
 — *frigidum*, Kirby. N. Amer.

XIV.—Puliciphora, a new Flea-like Genus of Diptera.

By FRIEDRICH DAHL, of Kiel †.

AT last we appear to be obtaining a clue to the origin of the flea: in sorting out my wholesale captures from the Bismarck Archipelago I found a Phorid which, owing to the total loss of wings and halteres, had acquired a great similarity to a flea—a similarity that appears to be by no means confined to purely external and adventitious characters. Since we are still completely in the dark concerning the question with what other family of insects the Pulicidæ are most closely allied—there has even been a dispute as to the order to which they are to be assigned—all data of this sort must be of interest.

For the form before me I establish a new genus, and since it is intermediate between the Phoridæ and Pulicidæ, I term it *Puliciphora*. I designate the species *lucifera*, since it appears for the first time to bring light to bear upon a dark matter. The genus has decided affinity to the Phoridæ, and I unhesitatingly assign it to this family. The antennæ, mouth-parts, legs, and female genital organs all agree perfectly in type with the corresponding organs of the members of the family in question. The genus, however, is distinguished from almost all other known genera of the family by the entire absence of wings and halteres, by the unusually great reduction of the thorax, and by the eyes being greatly reduced in size. The thorax, which in the winged genera of Phoridæ is much longer and thicker than the head, is here much smaller than the latter, a sign that the

* This, I think, is certainly not the species known to me as *alternans*, F., with which it is placed in Gemminger's Catalogue. The sixth interstice of the elytra is a little narrower than the fifth and seventh, which are nearly smooth.

† Translated by E. E. Austen from the 'Zoologischer Anzeiger,' Bd. xx. No. 543 (October 21, 1897), pp. 409-412.

muscles of flight must also be absent or rudimentary. The eyes, which in the case of *Phora* (when the head is regarded from the side) occupy nearly half of the cephalic surface, here cover barely a third of it in the case of the female, and in the male are still further reduced. The male genital organs also show divergence; they protrude to a far less extent. As in *Phora*, the dorsal side of the abdomen is overlaid with shining dark-coloured chitinous plates, corresponding with the number of the segments. The female possesses five and the male six of these dorsal plates, besides which the male has a similar plate on the ventral side in front of the genital organs.

The only wingless genus of Phoridae hitherto described is *Ænigmatias*, of Meinert (Entomol. Meddelelser, Bd. ii. p. 212, 1890). In bodily form this genus differs from *Puliciphora* just as greatly as from the winged Phoridae. The body is like that of a cockroach in shape, without incisions between head, thorax, and abdomen, and the thoracic rings, which, when viewed from above, are indistinguishable from the abdominal ones, are broader than the head. In *Puliciphora*, just as in the winged Phoridae, the narrower thorax is separated from the head and abdomen by deep incisions. The arista, too, which in *Ænigmatias* is bare, is here, as in *Phora*, pubescent. The first joint of the tarsus of the hind legs is, as in *Phora*, provided with a brush consisting of several rows of setae. While *Ænigmatias*, which is an inquiline form found in ants' nests, appears to constitute a transition towards the bee-parasite *Braula*, and has nothing in common with the Pulicidae, *Puliciphora* itself exhibits distinct affinity to the fleas.

In colour *Puliciphora lucifera* is brownish yellow, on the upper side almost blackish brown. The size of the female varies between $\frac{3}{4}$ and $1\frac{1}{4}$ millim.; the male is smaller and only about $\frac{2}{3}$ millim. in length.

On showing the new form to Privy Councillor Möbius, this gentleman drew my attention to the fact that a similar insect had been discovered in Africa by Mr. Cook, of Washington, U.S.A.; Herr Möbius informed me that the affinities of the insect in question had still to be elucidated by Dr. Wandolleck; all that was certain was that it must belong to the Diptera. We thereupon compared the two forms: they proved to be closely allied, but must nevertheless be assigned to different genera.

Now, since I was not only myself the discoverer of the form before me, but also recognized with certainty its affinity to the Phoridae—a thing which, as he himself told me, would

have been difficult, if not impossible, for Dr. Wandolleck to do in the case of the other still more aberrant species—I consider that I am justified in being the first to introduce this interesting series of forms to science, especially as I have been engaged for a long time past in collecting material for a monograph on the Phoridae. Since, however, the anatomical investigation of the allied form was already commenced some weeks ago by Dr. Wandolleck, I am in addition handing over to him adequate material for a similar purpose. From him therefore we shall have to expect in the near future further interesting results dealing with this group of forms.

In the present paper I would merely add a few observations on the ethology of the species discovered by me. I found the insect in numbers in my wholesale captures (“quantitativen Fängen”) which I made in the Bismarck Archipelago, and particularly in the forest, with a dead bird as bait. For obtaining creatures of this kind I can therefore recommend my method of capture, which I have described in detail in the ‘*Berichten der Academie der Wissenschaften in Berlin*,’ Jahrg. 1896, ii. p. 17. At first on examining it with the naked eye I took the insect to be a *Sminthurus* (Poduridae). With us representatives of this genus are frequently found among captures made upon carrion, but in the Bismarck Archipelago they appear to be absent. I allude to the outward resemblance merely in order to facilitate their possible discovery. Subsequently under the microscope I actually considered the first specimen to be a *Phora* which had lost its wings, so great is the resemblance to that genus. I may add that I found a few specimens besides other carrion-insects upon the flower of *Amorphophallus*, an Aroideid, which has an unpleasant carrion-like odour and grows almost upon the ground. The insect is therefore decidedly a carrion-feeder, like the rest of the Phoridae.

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GEOLOGICAL SOCIETY.

June 23rd, 1897.—Dr. Henry Hicks, F.R.S.,
President, in the Chair.

The following communication was read:—

‘Pleistocene Plants from Casewick, Shacklewell, and Grays.’
By Clement Reid, Esq., F.L.S., F.G.S.

The plants from Casewick and Shacklewell were obtained by washing two lumps of clay in the collection of the late Sir Joseph



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