

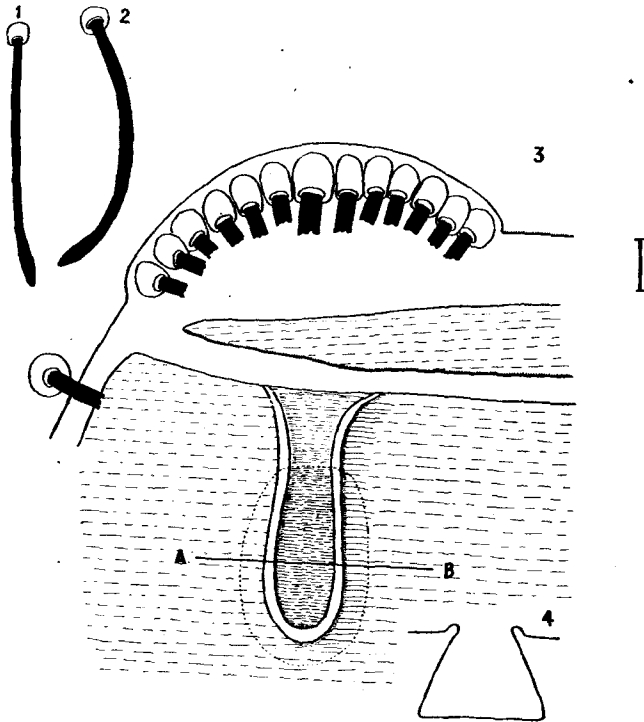
A NEW TYPE OF EXTERNAL ORGAN FOUND IN THE MALLOPHAGA.

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Two female specimens of a new genus and species of Mallophaga recently examined show an external cuticular organ of a type hitherto undescribed in the Mallophaga, or, as far as is known, in any other insect.

The species belongs to the subfamily MENOPONINAE and its affinities would seem to lie with those of *Menopon* Nitzsch *sens. str.* As only one sex of this species is known and as there is some doubt as to its true host¹ the genus and species will not be described until further material is available.



FIGS. 1-4.—(1) Single seta from pocket, $\times 500$; (2) central seta from pocket, $\times 500$; (3) part of terga 6 and 7 showing pocket and origin of setae. Line=0.008 mm.; (4) longitudinal section of pocket at level A-B in fig. 3.

¹ The specimens were taken from a skin of *Ptilinopus bellus* (Sclater), a New Guinea pigeon; a large number of skins of many species of *Ptilinopus* have been searched in vain for further specimens. It is possible, therefore, that another New Guinea bird is the true host, contamination having taken place during collecting. Much confusion has already been caused in the systematics of the Mallophaga by the describing of new genera and species from one sex and with incorrect type hosts.

Each specimen shows a single pair of these organs on the dorsum of the abdomen. Each organ comprises a curved row of stout elongate setae arising immediately posterior to the sixth tergite; the setae are directed backwards and their apices, which are clubbed, are held in a pocket-like depression in the adjoining posterior tergite (fig. 3). The posterior margin of the sixth tergal plate is indented to allow for the curvature of the row and there is a strip of intertergital sclerotization between the sixth and seventh tergites. There are 11-13 of these setae, the most central one of each group being longer and stouter than the lateral setae (figs. 1 and 2). The apices of some of the setae of each organ are spirally twisted about each other within the pocket. Each seta appears to be a modified type of the normal setae found along the posterior margin of the tergites of this and other segments.

The pocket, lying in tergite 7, has a thickened rim round the dorsal opening, and its ventral base is nearly flat (figs. 3 and 4). Whether or not this base represents a direct opening of the pocket into the abdomen cannot be determined.

It is not possible, with the present material, to say what the function of the setae may be nor that of the whole organ. The specimens were dead and in a dried condition when collected, and it has therefore been impossible to determine whether or not there are glands associated with the pocket or the setae. I have discussed this organ with Dr. H. E. Hinton, Dr. W. H. Thorpe and Mr. J. F. Gates Clarke, to whom I am much indebted for the following suggestions. Dr. H. E. Hinton has pointed out that the clubbed setae are not very dissimilar in shape to the setae which in some other insects are known to be associated with the openings of odiferous glands, and he suggests that if it should prove to be the case that an odiferous gland opens in the pocket or on the apex of each seta, that the posterior pocket may function in one or both of the following ways: (1) to hold the setae close together so that any excess secretion is carried by capillarity between their adjoining surfaces, and the surface area of the liquid, and therefore its rate of evaporation thus greatly increased; (2) to serve as a reservoir for the secretion.

Dr. W. H. Thorpe has suggested a proprioceptive function for these organs. Pringle (1938: 467) has shown that the hairs of the "hair plates" on the legs of the cockroach (*Periplaneta americana*) are excited by a fold of the intersegmental membrane, the excitation varying with the position of the joint, and suggests that these plates and similar structures in other parts of the bodies of insects act as proprioceptive organs. The fact that the setae involved in the organ described here appear to be modified types of the sensory setae normally found on the abdomen would make such a function possible. These organs may, therefore, have a proprioceptive function associated with some unusual movement of the abdomen, and in which the intertergital sclerotization may act as a hinge.

Mr. J. F. Gates Clarke has drawn my attention to a somewhat analogous condition found in some of the Microlepidoptera. In five species of *Stenoma* the males have a "hairpencil" arising from the basal part of the anal section of each hind wing; the end of each "hairpencil"

is held in a groove in the abdomen, which, depending on the species, passes over two to four segments. Meyrick (1930: 29) refers to this condition in *S. vacans*. There is no indication of what the function may be of the "hairpencil" (formed, of course, from modified scales, not setae) in the *Stenoma* species.

Some knowledge of the biology of the species and whether these organs are also present in the male is essential before any suggestions can be made for the function of an odiferous secretion, if this proves to be associated with the organs; or if the organs prove to have a proprioceptive function, why such a function should be necessary in this particular part of the body.

REFERENCES.

- MEYRICK, E., 1930, *Exotic Microlepidoptera* 4 (1): 29.
 PRINGLE, J. W. S., 1938, *J. exp. Biol.* 15: 467-473.