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# *Pseudoscorpions*

by P. E. KING

THE PSEUDOSCORPIONS, also called the Chelonethi, have 2000 species spread over the world. They are small animals, rarely more than a few millimetres long, which live in leaf mould, in soil, beneath bark and stones, in moss and similar types of habitat. A few species inhabit caves and some occur in crevices amongst algae in the inter-tidal zone. Because of their small size these animals are rarely seen though they are quite common, particularly in beech-leaf litter. The reason for their abundance in this particular litter is unknown. A few handfuls of litter sorted, either by hand or dried out in a Berlese funnel (Fig. 1), will usually yield several species.

Superficially, pseudoscorpions resemble true scorpions but differ from them in several important characters. The body is composed of eighteen segments (Fig. 2). The first six of these are fused and covered on the dorsal surface by a single plate or carapace. This unit is referred to as the prosoma and usually one or two eyes are located at each anterior lateral corner though in some species the eyes are absent. The remaining twelve segments

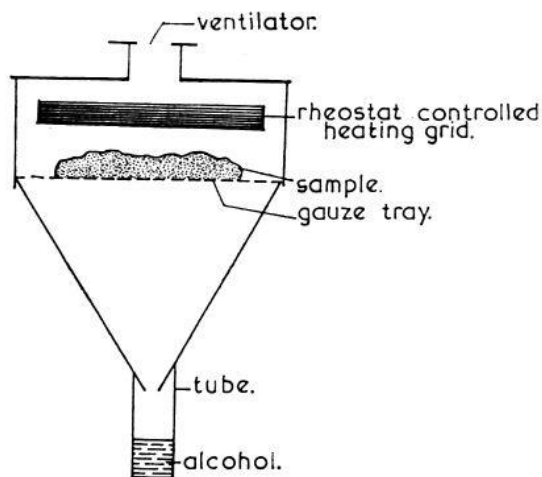
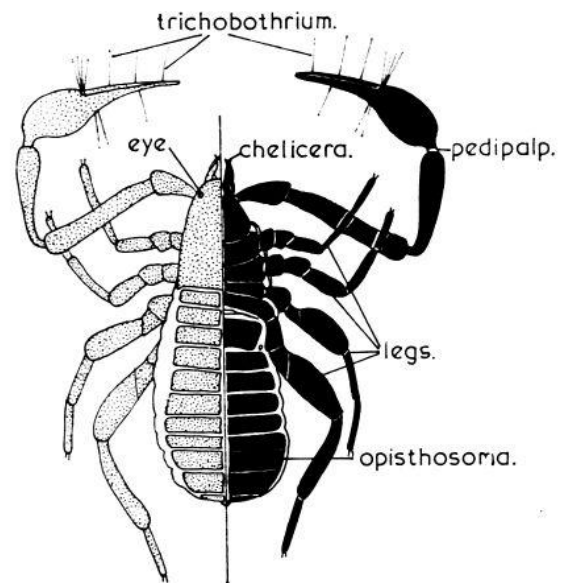


Fig 1.



dorsal aspect.      ventral aspect.

Fig 2.

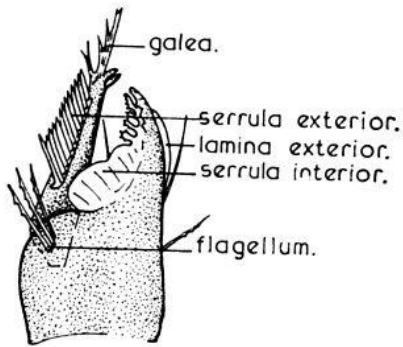


Fig. 3.

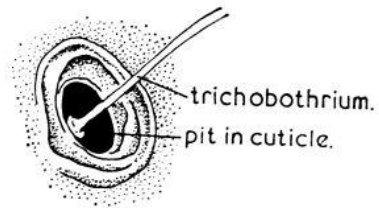


Fig. 4.

are visible and together constitute the abdomen or opisthosoma. The pseudoscorpions have a number of appendages. Anteriorly there is a pair of two-segmented structures, the chelicerae (Fig. 3), each of which has a terminal pincer, formed from a fixed and a movable finger. These fingers have a number of ducts leading into them from glands situated in the prosoma. Sometimes these ducts open onto a protuberance known as the galea. When eggs are about to be laid, or in some species during the winter months, silken chambers are constructed. This silken material is produced from the ducts in the chelicerae. Associated with the chelicerae there are a number of spines called collectively the flagellum and a number of comb-like structures called the serrula interna and serrula externa. These all participate in feeding activities. The second pair of appendages are the pedipalps, each terminating in a pincer which has a poison gland within it opening by a duct at the end of one of the fingers. The pseudoscorpions feed on small arthropods such as collembolans and mites and the prey is caught and paralysed, or killed, by the venom of the pedipalps. The prey is then passed to the chelicerae which tear it apart and the tip of the head is then inserted into it and digestion is started externally in a typical arachnid manner. A barrier of hairs at the front end of the alimentary canal strains out solid particles during injection of the food material and when a mass of these particles has accumulated on the hairs they are removed by the flagellum of the chelicerae and after feeding the mouth region is cleaned by the combs on the chelicerae.

Posterior to the pedipalps there are four pairs of walking legs which are usually provided with terminal claws and some type of adhesive organ.

Gaseous exchange occurs through two pairs of pores or spiracles, situated on the ventral side of the third and fourth abdominal segments. These pores lead into a network of tubes or trachea which pass to the organs of the body.

Excretion occurs through glands opening at the base of the limbs.

In addition to eyes there are sense organs in the form of numerous tactile hairs and some of these which are particularly long and fine are called trichobothria. These occur on the pedipalps and other parts of the body. Each is situated in a deep vase-like depression and are believed to detect objects by minute air movements at distances up to 15mm (Fig. 4) and the largest occur on the pedipalps. The pedipalps are frequently groomed by the chelicerae which presumably keeps the trichobothria functional.

There is little difference between the sexes. The males deposit a spermatophore on the substratum and, in the more primitive members, the females are presumed to find it by chemotaxis. In more advanced forms such as members of the Chernetidae and Cheliferidae the male courts the female and leads her to the spermatophore. Intermediates between these two extremes exist.

Species which are common under stones, particularly in Clyne Woods and Parkmill, are *Neobisium muscorum* Leach, *Roncus lubricus* Koch and *Microcreagris cambridgei* Koch. All these species have a geographical range including Southern England, South Wales and Ireland. Other common species which occur amongst leaf litter on Gower are *Chthonius dacnodes* Navás and *C. orthodactylus* Leach. *Neobisium maritimum* Leach lives in crevices or amongst weed on the upper shore and is widespread on southern and western shores of Britain and Ireland.

The pseudoscorpions are important predators in the litter although relatively little is known about individual species and useful observations could easily be made on seasonal abundance and food preferences by the keen naturalist.



## **Bios**

'*Bios*' an annual which is published by the Biological Society of the University College of Swansea is now in its fifth year. Copies of the current issue, price 35p, and several back issues, price 15p, are available from Mr. Clive Morgan, Zoology Dept., U.C.S. The magazine consists mainly of articles written by undergraduates. There are usually several articles of local interest, those in the current issue being concerned with Bass populations, Coelenterates of Gower and Metal pollution.