

GUIGLIA SCHAUINSLANDI (ASHMEAD)
(HYM. ORUSSIDAE) A PARASITE OF *SIREX NOCTILIO*
(FABRICIUS) IN NEW ZEALAND

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At the 10th International Congress of Entomology held at Montreal in 1956 reference was made to a recent paper by Cooper (1953) expressing doubt as to whether Orussid larvae are parasitic in habit, as has been believed since the publication of the papers by Burke (1918) and by Rohwer and Cushman (1918). That this doubt should still exist is surprising since Gourlay (1951) stated definitely that *Guiglia schauinslandi* was a parasite of *Sirex noctilio* in New Zealand. In studying the infestation of *Sirex noctilio* in stands of the exotic pine, *Pinus radiata* D. Don, in New Zealand, *Guiglia schauinslandi* has several times been bred out from *Sirex*-infested logs. In view of the doubts expressed by Cooper the following notes may be of interest.

The adult Orussid may be found sheltering under loose bark or in *Sirex* exit holes. She becomes very tame when handled and may be watched under a microscope quite easily. On finding a suitable spot for oviposition she becomes motionless and there is no indication that she is doing more than resting. However, the ovipositor is worked into the wood and frequently a *Sirex* larva is located and parasitized. It was noted that when the wood was wet she did not seem able to locate the *Sirex* and did not attempt to oviposit. A small dry section from the top of a tree of *Pinus radiata* was kept on a desk for a few days with a female *Guiglia* on it. She wandered about at will and whenever she was seen to be motionless the spot was marked with a pin. Later the wood beneath the pins was carved out and in many cases a *Sirex* larva was found beneath the pin. The larvae had all been punctured, as indicated by a yellow stain in the wood, and each larva had an egg deposited on it.

The egg is similar in shape to that of *Rhyssa*, that is very elongate with a small expansion on the anterior end and a long expansion on the posterior end. The egg is coiled on the host. Attempts were made to rear the *Guiglia* from the eggs and it was found that this could be done by selecting a short length of glass tubing of the appropriate diameter, placing a *Sirex* larva and egg on a strip of blotting paper cut to line the tube, but leaving a window in the blotting paper through which progress could be watched.

The tube was plugged at both ends with cotton wool and placed in a jar with damp cotton wool to maintain humidity.

In one example three holes were drilled by the *Guiglia* over a

Sirex larva which was then extracted and found to have been punctured three times and to bear three eggs. In a tube one of the eggs hatched and the others disappeared. The *Guiglia* larva wandered around for a while and then settled down to feed near the tail of the host. It later moulted and moved to near the head of the host where it settled down once more. Later the *Sirex* larva was seen to be black and putrid, and the *Guiglia* larva appeared to be the same. It was thought that the three punctures had killed the *Sirex* larva and that the *Guiglia* larva had died. Daily records and measurements, which had been kept up till then, were now discarded and the jar was put away on a shelf.

Some months later the jar was removed for cleaning and a *Guiglia* pupa was found within the *Sirex* skin, and in due course an adult was reared. It is thus evident that the *Guiglia* lives externally for its first two instars and then enters the putrid(?) liquid in the dead host where it remains until the adult emerges. The changes in larval structure between the second and third instars should be of great interest.

It was noticed that during oviposition the ovipositor was driven down the walls of the tracheids and not through the lumen; and it is suggested that the ovipositor is so fine that it would buckle if driven into the lumen and is kept in the wood to obtain support.

Attempts to determine the native host have so far been unsuccessful. Formerly *G. schauinslandi* was thought to be confined to *Nothofagus*, but now it has been found far distant from "bush" containing any of these trees. The habit of parasitizing *Sirex* appears to have arisen spontaneously in both the North and the South Island, and in many isolated pine plantations. It is intended that work on the biology of *Guiglia schauinslandi* should be continued and that the results should be published in more detail later, but, as there seems to be little immediate prospect of finding the time for such work, this provisional note may be of some interest.

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