

substratum. When walking, the 4 long posterior setae, and also the 3 large ventral pairs (placed one pair just in front of the eyes, two pairs behind them), are pointed downwards, and prop the body behind. The posterior setae are mobile, both antero-posteriorly and laterally. However, they do *not* show the kicking, swimming movements that thoracic cirripede cyprid legs show, and no trace of cirri was discerned in the cyprid stage, either in live animals or in sections. When these *Cryptophialus* cyprids were raised from the bottom in a dish of seawater, they drifted passively down again, and could not be induced to swim.

These cyprid larvae have been found chiefly in the mantle cavities of females, but are also at times seen crawling on the surfaces of *Perna* shells, or on the outsides of *Cryptophialus* females in their pits. They thus represent the dispersal phase for the species, but it is a free-crawling and not a free-swimming larval phase.

The average size of the cyprid is 0.53×0.23 mm, the largest of 12 specimens measured being 0.56×0.26 mm, the smallest 0.50×0.20 mm.

Comparisons: The nauplius is close to that of *Cryptophialus minutus* (Darwin, 1854), although its posterior process is less pronounced. Both these non-free-swimming nauplii contrast sharply with the characteristically cirripedian nauplius of the acrothoracican *Trypetesa* (= *Alcippe*) *lampas*, that has the usual cirripedian biramous antennae and mandibles, fronto-lateral horns and median eye (Hancock, 1849). The *C. melampygos* cyprid is more typically cirripedian. It differs from that of thoracic cirripedes, but resembles the *Cryptophialus minutus* cyprid, in the dorso-ventrally flattened carapace with setae on it, and in the absence of cirri. It differs from *C. minutus* chiefly in the anterior prolongation of the carapace. Both these two species (unlike other Acrothoracica) are liable to be extremely abundant in the shells of the animals in which they occur. This abundance in a suitable host is presumably due to the fact that, in both species, the dispersal phase can only crawl and not swim, and thus usually settles close to its parent.

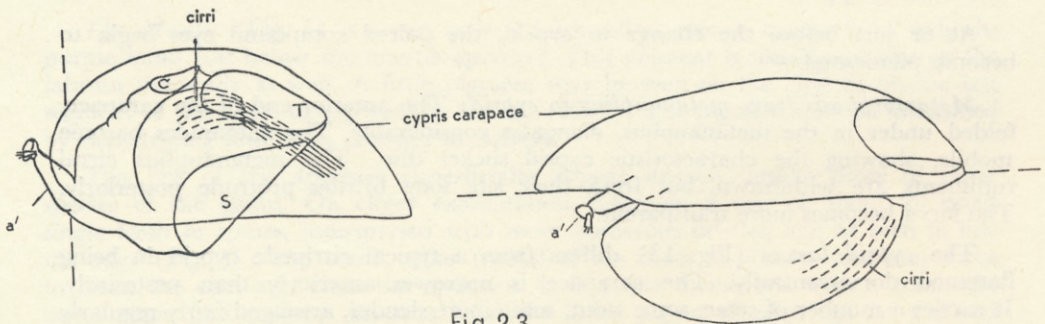


Fig. 23

Fig. 23.—Lateral views of newly metamorphosed adults in relation to cypris carapaces. Left, in thoracic cirripede (*Pollicipes spinosus*), $\times 60$; right, in *Cryptophialus melampygos*, $\times 100$. Note how, when cyprides are similarly orientated, adult cirri in *Cryptophialus* are mirror-image of those in a thoracic cirripede. a'—antennules. Broken line indicating substratum shows that, whereas thoracic cirripede cyprid is at right-angles to this, *C. melampygos* cyprid lies flat, parallel, on it. Later, in *Cryptophialus*, the anterior end of the female sinks deeper into the shell, so that the resting position of the cirri is at right-angles to the shell surface and not at angle shown.

SETTLING OF CYPRID TO BECOME A FEMALE

(Figs. 15, 16 and 17 and Plate 1, B and C)

The cyprid larva attaches itself to a shell surface by its antennules, and flattens its carapace on the shell, dorsal surface uppermost. Beneath the protection of the cyprid carapace, metamorphosis occurs. The cyprid musculature de-differentiates,