

FACETOTECTA ('Y-LARVAE'): ONE DAY'S CATCH IN OKINAWA, JAPAN (CRUSTACEA: MAXILLOPODA)

The Facetotecta ('nauplius y' and 'cypris y,' adults unknown) is classified together with the Cirripedia and Ascothoracida in the maxillopodan subclass Thecostraca. These 'Y-larvae' were considered rare curiosities until Itô began a series of reports on the estimated 30 species he has found in Tanabe Bay, Honshu, Japan. Itô's (1986, 1987a, b, 1990, in press) are the only previously published descriptions of Pacific Facetotecta. In order to confirm whether y-larvae are similarly abundant and diverse elsewhere, I have been collecting them in Okinawa in the Ryukyu Islands.

Methods

Four plankton samples were taken with a small, fine-mesh net during a 24-hour period on 31 Aug and 1 Sept 1989 from the pier of the Sesoko Marine Science Center on Sesoko-jima, Okinawa (26°38.5'N, 127°51.5'E). All y-larvae were immediately pipetted into a common holding dish and, after the last sample, fixed in formalin. Later the nauplii were processed for SEM: dehydration in ethanol, critical point drying from liquid CO₂, mounting on stubs, coating with gold. Most of the 'long-tailed' specimens were lost, so 15 similar ones from a sample taken on 5 Sept 1989 were substituted. In all, 103 nauplii were examined in a Hitachi S-510 scanning electron microscope and most were photographed.

Results and Discussion

Fifteen distinct 'forms' of nauplius y (1–22 specimens each), some with two or three putative instars, were recognised. Facetotectans are thus diverse and abundant in Okinawa, and Tanabe Bay is not unique in this regard. However, not every 'form' may represent a distinct species and instars may not have been surely discriminated. Such determinations require the rearing of individual larvae through all their stages (Itô, in press).

Of the 15 Okinawan 'forms', perhaps five also occur in Tanabe Bay. Two correspond to two supposed instars of nauplius y Pacific type I (Itô, 1986), that probably actually belong to distinct species. These and three undescribed but similar 'forms' are the only likely planktotrophs in the lot. One 'form' corresponds to nauplius y type VIII-c (Itô, 1987b). Two of the three 'long-tailed forms' may correspond to nauplius y type XI (Itô, 1987a) and an unnamed type (Itô, in press: fig. 1), but this is less certain. Of the six other

undescribed Okinawan 'forms,' four 'whale-shaped' ones may represent as few as one or two species.

Itô (1990, in press) shows that at least five naupliar instars may be expected, but no more than three were recognised for any 'form' here.

Some morphological observations may be important in defining the Facetotecta. Three of the present 'forms' have few or no cuticular ridges on the cephalic shield; however, many ridge pattern elements are clearly common to all the other 'forms.' Only the five supposedly planktotrophic 'forms' have a dorsocaudal organ. Frontal filaments are absent except possibly as a pair of swellings in two 'forms,' and rudimentary maxillules are also absent.

This is the first extensive SEM survey of the nauplii of any crustacean group.

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