

**SOME OBSERVATIONS ON PARENTAL CARE IN *OCTOPUS DOLLFUSI* ROBSON (CEPHALOPODA : OCTOPODIDAE)\***

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SOME of the octopi are well known for their complex behaviour during the brooding period. The present paper describes certain remarkable habits observed in a brooding adult of *Octopus dollfusi* Robson. *O. dollfusi* appears to be a species of restricted distribution, having been recorded so far only from Nias, Amoy, and Ennore (Madras) (Adam, 1960 and 1962). However it seems to be a common littoral form on the southeastern coast of India.

**OBSERVATIONS AND REMARKS**

A gravid female, 223 mm. in total length trawled from Vedalai (79° 7' long.; 9° 14' lat.) near Mandapam on January 10, 1968, was kept under observation in an aquarium with continuous circulation of fresh sea water. On January 22, 1968, the octopus was found to have spawned a great number of egg capsules arranged in festoons. They were laid inside an empty shell of *Pinna bicolor* Gmelin. It was observed that the spawn was continuously under the vigilant care of the female, till hatching.

Throughout the brooding period, the female never let go the egg festoons which were held close to the body on the aboral side of the broad extensile interbranchial membrane. The bunch of egg festoons was frequently set in 'rocking movement' by the movement of the arms and the body. Several times jets of water were squirted over them by the female from the funnel, probably to keep them clean and free from any contamination by otherwise accumulating debris. Now and then the female changed the position of the egg festoons over the web and swept them by the arms. Such behaviour, like squirting water over the egg capsules and manipulating them with the arms, has been reported for many species of littoral octopods (Batham, 1957; MacGinite and MacGinite, 1949; Lane, 1957 and Vevers, 1961).

Towards the close of the brooding period the female became more active and vigilant. Extreme care was taken to remove anything that came near the spawn and food had no appeal to the female. When a dead piece of (about 3.5 mm long) infested egg festoon (reared in still water) was offered to the female it was readily seized by the 'exploratory' arm and passed on to the suckers at about the base of the arm. Immediately the piece was rejected by the suckers and it was swiftly squirted away from the vicinity of the fresh developing eggs. Such behaviour is of interest in that the egg festoon appears to have been immediately detected as objec-

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tionable by the suckers, possibly by their capacity for 'taste by touch'. The suckers of species like *Octopus vulgaris* (Lamarck) are known to be highly chaemotactile (Wells, 1963 and Graziadei, 1962).

On January 28, 1968 another type of behaviour was noticed. Just before the commencement of hatching the female occupied one of the corners of the aquarium with the oral side against the glass wall. The arms were curled backwards and the egg festoons were retained inside the pouch like space formed by the interbrachial

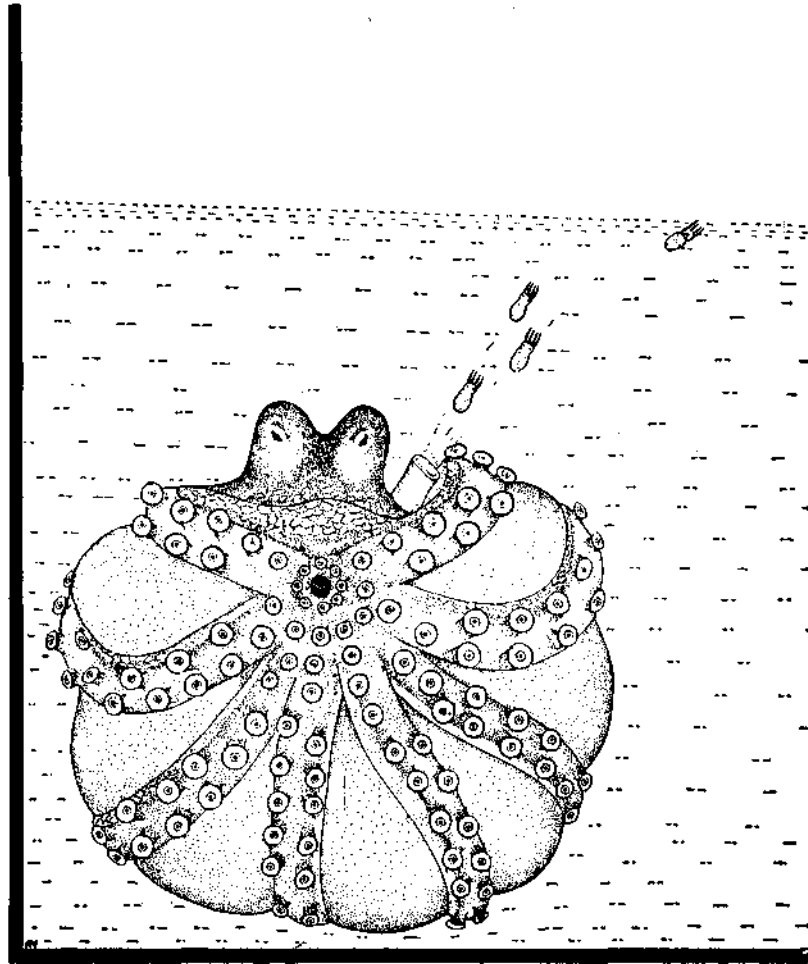


FIG. 1. View of the Octopus in a characteristic pose ejecting the young ones through the funnel from the mantle cavity (diagrammatic representation).

membranes. Only the tip of the funnel and eyes were visible between the dorsal pair of arms. At the time of hatching, the female frequently directed jets of water from the funnel over the egg festoons and agitated them vigorously with the help of the arms. A portion of egg festoons was brought near the mantle opening on the left side. The egg capsules were then pressed against the 'funnel flap' by the

inner wall of the mantle opening during respiratory movement. This mechanical stress presumably facilitated the hatching of the young. As a result, a few young ones were hatched in the mantle cavity, the majority of them being outside. The young still enclosed in the interbrachial membrane, were 'sucked' into the mantle cavity with the respiratory water current and expelled out forcibly through the funnel (fig. 1). Two to five such tiny young ones within a size range of 3.3 to 3.8 mm. in dorsal mantle length, were pumped off through the funnel at a time. The hatching of the entire brood at varied intervals took about three days.

The hatching process in *Octopus dollfusi* was observed subsequently in three other individuals which also showed the same interesting process. Although the functional significance of such behaviour is not yet fully known, it appears to be perhaps linked with the habitat of the adult. The females confine themselves to the crevices among rocks or to lairs made of stones, shells etc. for brooding purposes. The young are liberated into these confined spaces, and it seems likely that the female taking them into the mantle cavity and expelling them with force would serve to disperse them considerably away from the confines of the web or lairs. Otherwise there is the possibility of the young ones aggregating inside the lair or the space enclosed by the web. As the young ones are sucked into the mantle cavity of the adult only once, and expelled instantly, this innate behaviour could hardly have any bearing on affording protection to the young ones inside the mantle of the female.

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