

ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

MAPSTONE, G. M., 1970. Feeding activities of veligers of *Nassarius reticulatus* and *Crepidula fornicata* and the use of artificial foods in maintaining cultures of these larvae. *Helgoländer wiss. Meeresunters.*, Bd 20., pp. 565-75.

The velum of prosobranch veligers gathers food particles in suspension and sweeps up into suspension those which have settled. The majority of algal cells used in feeding experiments remained in suspension whereas artificial foods settled on a substratum but were nevertheless accessible to the larvae. In the presence of algal foods on which the larvae of *Nassarius reticulatus* and *Crepidula fornicata* grow well (*Cricosphaera* sp. *carterae* and *Exuviaella baltica*), a pattern of feeding activity is evident. In a tall column of water larvae feed at the surface and when the stomach is adequately full drop down to a lower level to digest the meal. They subsequently rise again to feed. In the presence of algal foods on which the larvae grow poorly, they are distributed more evenly throughout the column and undergo random swimming movements.

All cells of an algal meal are retained in the stomach where they are treated mechanically and their contents digested. However, whilst all particles of an artificial food are apparently chemically identical, only some are retained; the remainder pass on to the mid and hind gut for defaecation. In cornflour, defaecation occurs 10 minutes after the first mouthful; in algal foods it occurs after 30 minutes.

Two-day-old larvae of *Nassarius reticulatus* grew for 6 days on a cornflour diet, although at a slower rate than on *Cricosphaera* (both at 20×10^3 cells or particles/ml). The growth rate then decreased and finally stopped after 12 days. The larvae remained healthy. At 2×10^3 particles/ml. of cornflour growth was retarded, probably as a result of starvation. Cornflour and Liquifyr (an artificial food for newborn fish) sustain growth for short periods. Some artificial foods such as drinking chocolate stimulate the growth of bacteria and should be avoided.

G.M.M.

PILKINGTON, M. C. & FRETTER, V., 1970. Some factors affecting the growth of prosobranch veligers. *Helgoländer wiss. Meeresunters.*, Bd. 20, pp. 576-93.

Shell length measurements were used to compare the effect of ten species of unicellular alga on the growth of veligers of *Crepidula fornicata* (L.) and *Nassarius reticulatus* (L.). All food types were collected by the velum and subjected to mechanical treatment in the stomach, but not all produced good growth and two were toxic. Differences in food value are discussed in relation to the treatment of the food in the larval gut and the amount of faecal waste produced. *Cricosphaera* sp. *carterae* produced the best growth in both larval species and its good value was still evident when the food was two species of alga mixed in equal proportions. Larvae did not feed selectively on this alga; when the second alga was one with smaller cells these were ingested in greater numbers in accordance with the ease with which the velar cilia manipulated them. Good algal foods may be better supplied with micronutrients and vitamins essential to growth.

Experiments with 8 strains of gram-negative bacteria showed that occasional high intake of these bacteria is not injurious to healthy veligers provided an abundance of good food, moderately free from bacteria, is otherwise available.

In addition to diet, other conditions for the successful growth of veligers are dealt with. Differences in light and temperature greatly affected larval growth, and standard conditions of these were maintained throughout the experiments. Larvae were handled by means of a pipette.

In the sea, organic detritus is probably an important item of food.

V.F.