

CTENOPHORA

Mnemiopsis leidyi

LIVING MATERIAL :

Since *Mnemiopsis* is not common at Woods Hole, Mass., until August, it is often difficult to obtain animals in the breeding condition. The adults can best be collected at night with a hand net, although they have been found at the surface of the water on calm days, between the hours of 9 and 11 A.M., and 4 and 6 P.M.

BREEDING SEASON :

Eggs have been obtained from May through July (from animals collected in Buzzards Bay); it is possible that *Mnemiopsis* continues to breed even later in the season.

PROCURING AND HANDLING MATERIAL :

A. Care of Adults: The animals survive well in laboratory aquaria, if they are provided with adequate amounts of fresh sea water.

B. Methods of Observation: Fertilized eggs are usually released 12 to 24 hours after the animals are brought into the laboratory.

NORMAL DEVELOPMENT :

A. Egg Characteristics: The spherical eggs are very transparent, and consist of an inner yolky sphere surrounded by a clear outer zone. Each egg is enveloped in a thin, structureless membrane.

B. Fertilization and Cleavage: Since the animals are hermaphroditic, the eggs are fertilized before shedding occurs. Cleavage is total but unequal; the first two cleavages are longitudinal, cutting from the animal to the vegetal pole. The next cleavage is oblique, producing four large central cells and four small lateral cells which migrate towards the animal pole to form a flat plate of eight cells. These eight large "macromeres" produce an octet of smaller micromeres by a fourth cleavage. A continued production and division of the micromeres leads to an epibolic type of gastrulation.

C. Time Table of Development: Details of developmental rate are not available, but it is apparently quite rapid, since gastrulation occurs within six hours and the embryos are ready to hatch in 30 hours.

D. Later Stages of Development: At the time of hatching, the embryo is well formed. Four double rows of ciliated plates and two long lateral tentacles are present. The apical sense organ is prominent on the aboral pole. The endodermal gut is connected to a large stomodeum, and has six lateral diverticula: two to the tentacles, and one to each of the four rows of comb-plates. See the paper of Mayer (1912) for diagrams of the larvae.

REFERENCES :

- AGASSIZ, A., 1874. Embryology of the Ctenophorae. *Mem. Amer. Acad. Arts and Sci.*, 10: 356-398.
- MAYER, A. G., 1912. Ctenophores of the Atlantic coast of North America. *Carn. Inst., Wash. Publ.* 162.

Note: Further descriptions of Ctenophore embryology and a complete bibliography can be found in the textbooks of MacBride, Hyman, and Korschelt.