

Adelphi-Sulfolk College, Oakdale, N.Y.

ABSTRACT

A Preliminary Report on Host Responses by the Blue Mussel Mytilus edulis
to the Infection of the Larval Trematode Cercaria milfordensis

by

D. R. Franz and S. Y. Feng

Dept. Zoology and Marine Research Laboratory
University of Connecticut

Cercaria milfordensis is a trematode parasite of the blue mussel Mytilus edulis. The parasite was described by Uzmann in 1953 from material collected from Mill Neck, L.I. and is also known from Milford and Bridgeport, Conn. The life cycle has not been worked out, but Uzmann tentatively placed it in the family Fellodistomatidae. According to Uzmann, C. milfordensis is primarily a parasite of the blood vascular system with sporocyst development particularly confined to the horizontal veins, external plicate canals and longitudinal veins (in descending order of importance). He reports that "sporocyst of C. milfordensis invade and mass in the dorsal region of the mantle gonad" where by growth and reproduction of the parasite, blockage of the horizontal veins of the mantle occurs. As a consequence, sporocysts are forced downward via the ascending pallial veins into the distal reaches of the mantle eventually causing complete deterioration of the pallial circulatory system.

Based on a preliminary histopathological study of parasitized mussels from Noank, Conn., our results on the distribution of the sporocysts and the host responses may be summarized as follows:

1. An apparent host response occurs which may lead to the destruction of a considerable number of parasites.
2. All stages in the deterioration of sporocysts were observed.
3. Inactivated sporocysts, characterized by destruction of the parasite and leucocytic infiltration of the sporocyst lumen, occur throughout the host.
4. The proportion of inactivated to active sporocysts is greatest in the distal lobes of the mantle.
5. Host responses as indicated by encapsulation were observed in all stages of sporocyst deterioration.
6. Parasites were seen in all major blood and tissue spaces excluding the gill proper (except the efferent branchial veins), and the lumina of the digestive tract.
7. Sporocysts in the gonoducts cause distention, metaplasia of the ciliated epithelium and rupture.