

Anatomy of *Barnea japonica* (Bivalvia: Pholadidae)

George A. EVSEEV

*Institute of Marine Biology, Far Eastern Branch
of Russian Academy of Sciences, Vladivostok 690032, RUSSIA*

The living bivalves *Barnea japonica*, previously known from the Peter the Great Bay (the Japan Sea) as empty shells and originally described from the Pliocene deposits of Honshu Island, were discovered during a scuba-diving survey in the Amur Bay (Peter the Great Bay). Morphology and anatomy of visceral mass, mantle, siphon, gills, pericardium combined with ventricle and auricles, components of stomach, mid-gut, and other internal organs of this species are described for the first time. The results and comparative analysis of two other species of Pholadidae allowed to reveal the taxonomic importance of some morphological and anatomical features of internal organs and to propose those as new characters of genera *Anchomasa*, *Umitakea* and *Zirfaea*.

АНАТОМИЯ ДВУСТВОРЧАТОГО МОЛЛЮСКА *Barnea japonica* (Pholadidae)

Г.А. ЕВСЕЕВ

Институт биологии моря ДВО РАН, Владивосток 690032

В Амурском заливе Японского моря во время гидробиологических работ были собраны моллюски *Barnea japonica*, до этого не встречавшиеся здесь в живом состоянии, но известные из плиоценовых отложений Хонсю. Приводятся первые сведения по анатомии и морфологии висцеральной массы, мантии, сифона, жабры, кардиального желудочка, предсердий, отделов желудка, средней кишки и других внутренних органов этого вида. Полученные результаты и сравнительные материалы по двум другим видам Pholadidae позволили увеличить число таксономических признаков за счет внутренних органов и предложить их для характеристики родов *Anchomasa*, *Umitakea* и *Zirfaea*.

INTRODUCTION

A great variety of works concerned with different aspects of ecology, physiology, development and distribution of bivalves can evoke an impression that their taxonomy is completely developed. Actually, there is a drastic contradiction between a generally accepted conchological systematics based on the differences in shell morphology and the system based on the morphology and anatomy of internal organs — a problem which was repeatedly mentioned in several works [Pelseneer, 1906, 1911; Thiele, 1935; Graham, 1949; Purchon, 1968; Neveskaya et al., 1971; Newell, Boyd, 1978]. A reason for different concepts of taxa is the scarcity of anatomical studies of main internal organs and, as a result, the insufficiency of comparative anatomy data for evaluation of position of the particular taxa within the class Bivalvia.

The present paper is a first account on morphology and anatomy of internal organs of *Barnea japonica* (Yokoyama, 1920), known from

the occurrence of empty shells in a number of localities of the Peter the Great Bay (the Sea of Japan) while having been originally described from Pliocene of Honshu Island.

MATERIAL AND METHODS

Living molluscs were first encountered during the underwater photography of macrobenthos of Amur Bay in summer of 1983. However, it was impossible to identify from the photographs thickened digitate processes observed in the muddy areas of the bottom. Later on, similar processes in the same area were discovered by A.V. Zhirmunsky. Intact specimens of *Barnea japonica* were collected by a group of scuba divers of the Institute of Marine Biology supervised by G.T. Belokonev.

Living *B. japonica* form aggregations of 5-7 individuals of different size. They burrow into mud for 25-30 to 40-50 cm. Only the apical part of the siphon bearing inhalant and exhalant