



## Cenozoic bryozoan biota: their palaeoecology and climatic environmental significance in Antarctic ecosystems

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The distribution of the bryozoans in the shallow-marine-estuarine sediments of the late Early–Late Eocene La Meseta Formation, Seymour Island shows a sharp decline in bryozoan biodiversity between the lower, basal transgressive facies of Telm1 and upper part of the formation (Telm6-7) at the end of Eocene (Hara 2001). In the lowermost part of LMF (Telm1) the cheilostome bryozoans, preserved as internal moulds systematically belonging to bugulooids and cateniculoideans, at the present day are widely distributed in the tropical-warm temperate latitudes and deposited in the shallow-water settings (Hara 2015). Within a 2 meters thick interval of the basal transgressive facies of Telm1 unit, the most common are multilamellar colonies, showing a great variety of shapes dominated by celleporiforms and cerioporids.

The middle part of (LMF, Telm4-5) reveal a presence of the microporoideans and disc-shaped lunulitiform - warm-loving, free-living bryozoans. Environmentally, Recent, lunulitids are known to occur in warm, shallow-shelf conditions, at temperatures of 10-29 °C, on coarse, sandy to muddy bottom, what suggest the shallow-water setting for the middle part of the LMF.

10 million years older, the Cape Melville Formation on King George Island dated as Early Miocene is dominated by the infaunal bivalves, which provide a unique fossil record in the Antarctic Peninsula region during the latest Oligocene to earliest Miocene interglacial to glacial transition. Only one bryozoan was described identified as *Aspidostoma melvillensis* (Hara and Crame, 2004).

The shallow-marine, pectinid-rich biofacies of the *Pecten* Conglomerate of CIF, Cockburn Island, taxonomically shows the mosaic pattern in occurrence of bryozoan taxa, which are known from the Middle and Late Cretaceous, another originated in the Paleogene, as well as those which are solely common in the Neogene. Exclusively encrusting colony growth-form of the Pliocene biota suggests sedimentation in the shallow-water environment and indicates an interglacial palaeoenvironment of the CIF Formation (Hara & Crame, in revision).

The cold-water geographical distribution of the Recent bryozoans with dominant Neocheilostomatina of Buguloidea and the ascophoran lepraliomorphs of Smittinoidea and Schizoporelloidea, shows a dynamic history of this highly endemic fauna, which evolved over long period of time.

Hara, U. 2001. Bryozoa from the Eocene of Seymour Island, Antarctic Peninsula. *Palaeontologia Polonica*, In: Palaeontological Results of the Polish Antarctic Expeditions, Part III, 60, 33-156.

Hara U., 2015. Bryozoan internal moulds from the La Meseta Formation (Eocene) of Seymour Island, Antarctic Peninsula. *Polish Polar Research*, 36: 25-49.

- Hara and J. A. Crame 2004. A new aspidostomatid bryozoan from the Cape Melville Formation (lower Miocene) of King George Island, West Antarctica. *Antarctic Sciences*, 16, 319-327.