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TAPHONOMIC DESCRIPTION OF THE LOW HEAD PECTINID COQUINA (POLONEZ COVE FORMATION, EARLY OLIGOCENE), KING GEORGE ISLAND, WEST ANTARCTICA

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Antarctic isolation occurred during the Cenozoic in response to the separation between Antarctica from Australia (Eocene/Oligocene boundary) and from southern South America (early Oligocene). The followed reorganization of oceanic and atmospheric currents and the formation of ice sheets contributed to new environmental and climatic patterns in Antarctic and Subantarctic regions established probably during the Miocene onwards. In Antarctic Peninsula well-exposed rocks record Cenozoic glacial history of the region and, thus the environmental changes during Oligocene and Miocene. Despite the fossil abundance in the Cenozoic strata, publications related to bivalve faunas are sparse and only few taxonomic studies include detailed systematic description of fossil taxa. Moreover, fossiliferous deposits provide rare evidence of mid-Cenozoic evolution of West Antarctic cryosphere. The so called "pecten conglomerate" of the Polonez Cove Formation cropping out at King George Island contains marine macro- and microfossils with shells of *Austrochlamys gazdzickii* (Jonkers) as the main component of the fossiliferous concentration. This concentration is a coquina associated to deposition of breccia and breccio-conglomerate beds that was interpreted genetically as rapid and episodic events of slumping, debris flow and current reworking that originated lenticular or lobate beds. A geologic interpretation of the Polonez Cove Formation is detailed in Quaglio *et al.* (this volume). Analysis of taphonomic signatures allowed interpretation of processes involved in its genesis as related to high energy events. The coquina occurs in lenses with 12 cm thick, with sharp and erosive upper and lower boundaries. Shells occurs disarticulated in totality. The concentration is dominated by free-swimming pectinid bivalves. Shells are commonly abraded, and two sets of taphonomic groups are observed: small shell fragments of pectinid or other taxa, as well complete shells with no signs of bioerosion or incrustation. In lateral view (**fig. 1**) shells are mainly convex-down (60,53%) and nested, while in plan-view they show random orientation. Discontinuous grading is eventually observed. These taphonomic signatures suggest that the origin of the skeletal accumulation is related to high energy events in a proximal environment showing records of episodes (perhaps several) of erosion and deposition. So this parautochthonous coquinas, especially those enriched in intraclasts, may be interpreted as tempestites (storm deposits). Their mode of occurrence within the Low Head Member of the Polonez Cove Formation suggests that the sedimentation of this sequence was episodically interrupted by storm-generated energy peaks with reworking of shallow sea-floor deposits, causing re-sedimentation of the biota assemblages.

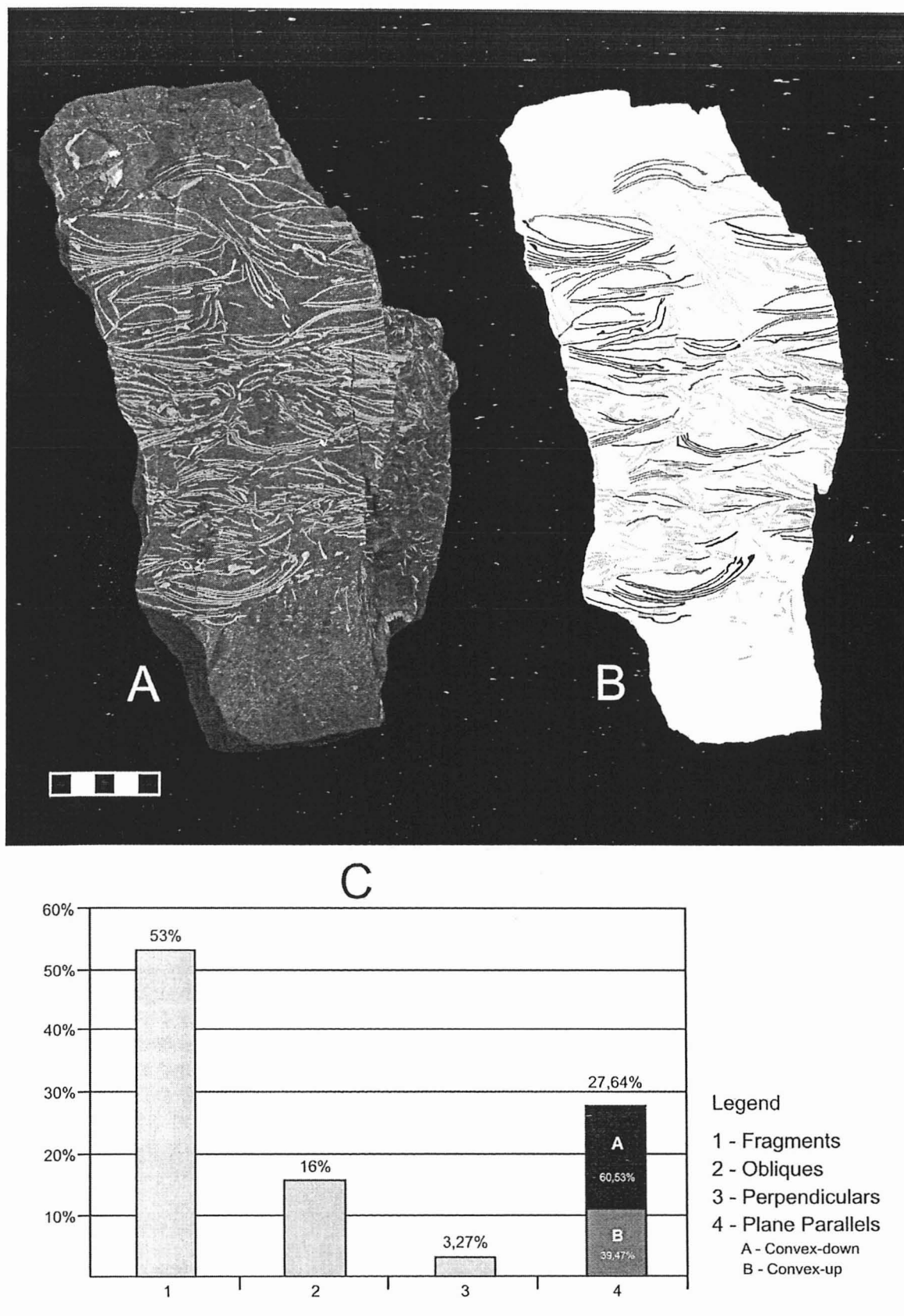


Figure 01 – Pectiniids coquina from Polonez Cove Formation, Ocidental Antarctica (A) with vectorized figure of the shells (B) and a graphic with taphonomic characteristics (C). Scale = 5cm.