

WHAT ARE YOU DOING THERE? MYSTERIOUS ARTICULATE BRACHIOPOD SHELLS ASSOCIATED WITH AMMONITES FROM CRETACEOUS OF SERGIPE, BRAZIL

MELLO, L.H.C.^{1,2}; TORELLO DE MELLO, F.²; TEODÓSIO, C.²

¹ Departamento de Geografia, CECH/UFS; torello.mello@uol.com.br

² Laboratório de Paleontologia, Departamento de Biologia, CCBS/UFS

Cretaceous sedimentary rocks of Sergipe Basin has long been known for their macrofauna fossil record, mainly represented by invertebrate groups such as ammonites, bivalves, gastropods, and echinoids. As a rule, these invertebrates are associated with marine conditions during early South Atlantic Ocean opening. However, literature always highlights the rarity or even absence of brachiopod shells in the fossil record of this period of Sergipe Basin history. As widely known brachiopods were diverse and abundant during Paleozoic (especially Silurian and Devonian) but declined to a modest participation during Cretaceous time, being restricted almost entirely to Terebratulidae members. To date only three taxa are recognized for Cretaceous sequences of Sergipe Basin: one articulate specimen has been described (*i.e.*, terebratulid *Magas sergipensis*) and two other inarticulate taxa (*i.e.*, lingulid *Lingularia? bagualensis*; indeterminate discinid) have been identified, but not formally described. This is a preliminary contribution to improve the knowledge about diversity, distribution, and paleoecology of Brachiopoda in northeast Brazilian shores during Cretaceous. After exhaustive work on identification of hundreds of ammonite shells collected during the last five years in Cotinguiba Formation rocks (Eo-Meso Turonian, Laranjeiras area, Sergipe State, Brazil), some mysterious structures became extremely evident. Small shells of articulate brachiopods were attached to the external surface of ammonites (*e.g.*, *Pseudaspidoceras* sp.; *Hoplitoides* sp.). Up to now, preliminary analysis recorded: 150 shells; length ranging from 0.5mm to 20mm; each ammonite shell can present several brachiopod valves attached; great majority of disarticulated dorsal valves, although ventral valves and articulated specimens could be noted; shell sub-rectangular in outline, with rounded anterior margin; ornamentation of well marked concentric growth lines; valves (ventral and dorsal) are mainly with internal surface up; muscle scars and brachial apparatus unknown; hinge line straight, delicate, narrow, long; teeth and sockets evident. Taxonomic and systematic analysis are still in course and the taxon is being considered an indeterminate terebratulid, since morphological features do not fit any other identification available for brachiopods from rocks of Sergipe Basin. However, another question emerges: what are those shells doing there? Invertebrates attached to ammonite shells are well known from the literature. At first sight a cemented mode of life could be thought, since dorsal valves with internal surface up are very common. However, ventral valves are also present. Discussion about the taphonomic features of this uncommon occurrence will have obvious implications to the taxonomic meaning of those specimens, and paleoautoecological history of both, brachiopods and ammonites. Finally, even considering all the mystery and doubts about those brachiopods in this beginning of the analysis, the information presented here contributes a) to improve the knowledge of the diversity of brachiopods of the Cretaceous of Sergipe Basin, b) with an uncommon fossil occurrence to be taphonomically investigated, and c) new and abundant material to investigate the paleoecology of brachiopods and ammonites.