

Aragonitic rostra of the Turonian belemnite *Goniocamax*: Arguments from diagenesis


Yannicke Dauphin, C. Terry Williams, and Igor S. Barskov
Acta Palaeontologica Polonica 52 (1), 2007: 85-97

The hypothesis that belemnite rostra are formed by primary biogenic low-Mg calcite is widespread. However, the coexistence in the same rostrum of both aragonitic and calcitic components has been reported in true belemnites (*Goniocamax*, Turonian). A combined microstructural and chemical composition study of the comparison of shells with undisputed mineralogy from the same site as the Turonian *Goniocamax*, shows that these aragonitic shells display the effects of diagenetic alteration. These observations favour the hypothesis that belemnite rostra are composed of primary aragonite, rather than low-Mg calcite, and are consistent with all other cephalopod shells. Calcitic and aragonitic rostra are also known in other Dibranchiata such as Triassic Aulacocerida and Eocene *Belopterina*. Diagenetic changes such as shown here may clearly affect palaeo-environmental interpretations based on carbonate shells.

Key words: Cephalopoda, Belemnitida, *Goniocamax*, palaeo-environment, aragonite, calcite, diagenesis, Turonian, Piasina River, Siberia.

Yannicke Dauphin yannicke.dauphin@u-psud.fr, UMR IDES du CNRS, bat 504, Université Paris XI-Orsay, F-91405 Orsay Cedex, France; C.T. Williams ctw@nhm.ac.uk, Department of Mineralogy, Natural History Museum, Cromwell Road, London, SW7 5BD, United Kingdom; I.S. Barskov, Department of Paleontology, Geological Faculty, Moscow State University, 119899 Moscow GSP V-234, Russia.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

 [Full text \(1,169.1 kB\)](#)