

## **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](mailto: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](mailto: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](http://creativecommons.org)), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

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