

LATE JURASSIC CHAETETIDS: A REVIEW AND A CASE STUDY FROM THE HOLY CROSS MTS., POLAND

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The acme of post-Palaeozoic hypercalcified sponges with chaetetid-grade skeleton occurred during the Late Jurassic-Middle Cretaceous. This review summarizes some aspects of knowledge on the Late Jurassic chaetetids and suggests future research opportunities. About 20 species of chaetetids representing 5 genera (however there is no distinct borders between chaetetids and stromatoporoids) have been described from the Upper Jurassic. Most of them were established in the 19th or the first half of 20th century (see review by Fischer, 1970). On the basis of spicules, it was possible to establish taxonomical position within the Porifera only a few fossil chaetetids. One of the problems is the need for work on criteria used for speciation. Studies of Carboniferous chaetetids revealed that the two most commonly used characters, i.e. tubule diameter and tubule wall thickness, are not species specific (West, 1994). Carefully comparative studies of types and new collections of post-Palaeozoic specimens would cast some light on species problem. Another perspective research area is the palaeoecology of post-Palaeozoic chaetetids. Results of modern studies of the biology, ecology and biocalcification processes of living coralline sponges may provide a key for understanding the ecological role of fossil forms. However, compared with Palaeozoic chaetetids and stromatoporoids, some aspects of palaeoecology of post-Palaeozoic fossil representatives have not been studied, either in terms of autecology or their relationships to facies and associated biota.

The Late Jurassic chaetetids are considered as part of typically Tethyan biota (nearly all localities are in Europe), however, in contrast to stromatoporoids, they are still locally abundant in the Paris Basin (N France), Lower Saxony Basin (NW Germany) and in the Holy Cross Mts. (HCM) in Central Poland.

The material studied by the author was collected mainly from the Lower Kimmeridgian carbonates from Sulejów (NW margin of the HCM), Bukowa and Ptasznik (SW margin of the HCM). Chaetetids are sparsely distributed within shallow water carbonates, along with coral meadows. Preliminary results of work on the taxonomy of chaetetids from the HCM suggest that although abundant, they are not taxonomically diverse and that intraspecimen variability of selected features is not great. Although the morphology of chaetetids can be controlled by environmental factors that could act concurrently (genotypic factors should be also considered), it is possible to speculate on the environmental significance of some general morphological features. Chaetetids from Sulejów are mostly domical forms with smooth or more rarely ragged margins. Growth interruption surfaces are not common, except borings. At Bukowa, there are more specimens with ragged domical growth form and overturned skeletons suggest turbulent episodes. Oncolites from Ptasznik contain overturned chaetetids, or chaetetids that formed the outermost layers of oncolites. Such oncolites also suggest more turbulent events.

References

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