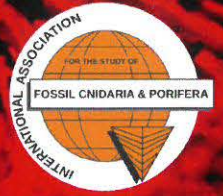


13th International Symposium on Fossil Cnidaria and Porifera



Modena, 3-6 September 2019



Dipartimento di Scienze
Chimiche e Geologiche



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ABSTRACT BOOK

Edited by

*Francesca BOSELLINI, Markus ARETZ,
Cesare A. PAPAZZONI, Alessandro VESCOGNI*

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Università di Modena e Reggio Emilia, Dipartimento di Scienze Chimiche e Geologiche
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A new Bathonian coral fauna in Lorraine (Middle Jurassic, France)

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During the Jurassic period, the distribution and development of coral environments were highly unequal among stages, suggesting complex interactions between evolutionary processes and environmental fluctuations. Bathonian is an age during which the development of coral environments was rather weak. At a global scale, reefs are rare and most of the Bathonian coral faunas correspond to ancient coral meadows rather than true reefs. Among the classical Bathonian localities Kachchh (India) Saint Gaultier (Indre, France), Fairford (England) Madagascar (Morondava basin) deserve to be mentioned as examples.

The present communication brings some new light on this poorly known period with the discovery of a new fauna distributed in two different Bathonian stratigraphic units in the northern part of the French Lorraine near Longuyon. A large set of corals was collected by one of us (B. M.) and by A. Navel† in agricultural lands for many years. The collection is accompanied by an extensive and rich sampling of other macrofossils allowing a precise biochronology. A first stratigraphic unit belongs to the *Caillasse à Anabacia* Formation (Zigzag zone, Lower Bathonian) and has provided the richest collection (1096 specimens). The facies of the *Caillasse à Anabacia* is well known in Lorraine for the abundance of *Chomatoseris*. In the investigated area, a bed just above this formation, indicated on the local geological map and observed by AN & BM provides locally a rich fauna of *Montlivaltia*. Another stratigraphic unit is a very local lateral calcareous development of the *Caillasse à rhynchonelles* Formation assigned to the *Retrocostatum* zone, Upper Bathonian. This unit has provided a much less numerous collection of corals (20).

The outcrop was at a paleolatitude higher than 30°N. It was backed on the southern shore of the Brabant-London Land.

Concerning the first stratigraphic unit, colonies are generally of small size, with their own form only occasionally distorted by neighbouring colonies. The calicular surface is often naturally observable suggesting a rather loose matrix, the texture of which is dominantly a packstone (occasionally grainstone) rich in bioclasts and ferruginous ooids. The taxonomic study is undertaken, some thin sections have been made and allow a first approach of the faunal composition. In the order of their decreasing abundance the taxa belong to *Isastrea*, *Hexaflos*, *Dimorpharaea*, Actinastreidae gen. indet., *Microsolena*, *Chomatoseris*, *Montlivaltia*, *Kobya*, *Periseris*, *Thamnasteria*.

Numerous colonies (196) belong to a new species of the genus *Hexaflos* and lead to a new understanding of the mode of life of this genus that was known only from Iran.

Among the remarkable absences we note plocoid (stylinid or cyathophorid), meandroid and phaceloid forms suggesting that oversedimentation and turbidity do not explain the rather moderate diversity and the short lifespan of colonies. The regular growth bands of some colonies of *Microsolena* suggest a slow annual growth. Corals colonised a rather soft and granular substrate. Very numerous colonies are incrustated by oysters and serpulids, more rarely by unilamellar bryozoans. A significant proportion is also impacted by bioerosion (mainly *Gastrochaenolites*).

After the necessary correction due to more or less typological results available from the literature, comparison with Kachchh, St Gaultier, Fairford or Madagascar point to a lower richness despite the very extensive sampling. The lower diversity cannot be explained only by the high paleolatitude as Fairford was still higher to the North. The new fauna of Lorraine brings a reference more to back a general statement on the Bathonian fauna apparently characterised by a weak carbonate skeletal production compared to Bajocian or Oxfordian stages which were periods of extensive reefal development. The hypothesis of a lowered pH of ocean waters should be investigated.

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