

# Eifelian corals and reefs of S Belgium, new insights on a cold case

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The Eifelian is well exposed in S Belgium where it displays facies ranging from stromatoporoid biostromes to outershelf fine siliciclastics to proximal redbeds. The carbonate factory begun in the Late Emsian displays a vertical evolution from parabiostromes first with stromatoporoids and Heliolitids, then progressively enriched in solitary then colonial rugose corals. Eastwards the biostromes pass to bioherms dominated by colonial corals and stromatoporoids (Nismes). Their thickness decreases eastwards and in the Meuse valley, they are replaced by bioclastic siltstones. In the Beauraing area, a biohermal complex displays exceptional facies extremely rich in fauna. Eastwards siliciclastics replace the carbonate. The position of the reefs, stratified carbonates and siliciclastics was seemingly driven by synsedimentary faults, witnessing that the structuration of the Basin started in the Early Devonian. This contribution focuses on the faunal assemblages of a yet undescribed early-middle Eifelian biohermal complex in the Beauraing area. Four successive faunal assemblages are encountered, witnessing the development of the reef. The base of the bioherm is made of thick lamellar stromatoporoids stabilizing with metre-thick beds of white crinoidal rudstone. The coral fauna is dominated by Alveolitids, the solitary *Stringophyllum*, and the colonial *Fasciphyllum* and *Beugniastraea*. This first phase corresponds to the colonisation and stabilisation of the crinoidal deposits by stromatoporoids and generalists. The framework of the reef is constructed by large stromatoporoids, Thamnoporids, Heliolithids, Chaetetids and abundant and diverse rugose corals (*Stringophyllum*, *Fasciphyllum*, *Beugniastraea*, *Spongophyllum*, *Xystriphyllum*, *Acanthophyllum*, *Mesophyllum* and *Cyathophyllum*). In non-constructed facies the same genera are joined by *Cystiphyllum* and *Mesophyllum*. This diversification phase is paralleled with the development of micro-environment within the reef structure. The reef-crest facies are dominated by large bulbous stromatoporoids and massive Heliolithids with few *Dendrostella* and *Fasciphyllum*. When hydrodynamic conditions increased, only high-energy groups (stromatoporoids, Heliolithids) continued to develop. The reef is interrupted by an emersion surface (sequence boundary) and then covered by fine siliciclastics that yield abundant but poorly diverse association of *Cystiphyllum*-*Mesophyllum*-*Acanthophyllum*-*Calceola*, together with Alveolitids, Coenitids, and Favositids.

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