

## Ecology, evolution, distribution and population of *Hexagonaria* in Western Europe

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The record of *Hexagonaria* in the Lower and Middle Devonian shows that only slow rates of change occurred at these times, whereas in Frasnian time there occurred complex diversity and speciation patterns. Very rapid faunal changes and mass extinctions in corals have been observed near the boundary of Middle Devonian and Upper Devonian and at the end of *Fr* 1 time. Based on the study of population variation, ecological variation and phylogenetic lineage, the complete evolutionary patterns of *Hexagonaria* can be traced in the Givetian and Frasnian. The evolutionary patterns observed in different facies demonstrate that: 1. most changes in diversity and speciation were strictly related to differences in the biology of species adapted to different or changing environments, 2. the critical factors in encouraging diversification of species appear to be a combination of ecologic conditions and paleogeographic situations, 3. some parallel evolutions were independent of environments and paleogeographic isolation but were due to time.

**Key words:** Corals, Rugosa, evolution, population variation, ecological variation, Upper Devonian, Europe.

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