

RECONSTRUCTION OF SOFTBODY BEHAVIOUR DURING PARRICIDAL INCREASE OF RUGOSE CORALS: BIRTH BY DEATH?

¹GUDO, M. and ²HUBMANN, B. ¹Forschungsinstitut Senckenberg, Frankfurt am Main, Germany; ²Institut fuer Geologie und Palaeontologie, Universitaet Graz, Austria

During parricidal increase a corallite shows subsequent substitution into four proceeding corallites. This suggests a partitioning of a polyp into four hystero-polyps featuring the same volume ratio of the preceeding auto-polyp. Asexual reproduction is realised by creation of daughter polyps and concurrent killing of the mother polyp. This dramatic scenario of birth by death is well documented in *Argutastrea quadrigemina*, a Middle Devonian coral. Since Rugosa are distinct organisms we have to reconstruct the polyp's shape, bodystructure and function in comparison with recent scleractinians. In our case study, the softbody was a polyp with single mesenteries (in contrast to scleractinian corals!) which were added in a symmetrical pattern in four sectors. In growth zones two single mesenteries were generated, the older ones were shifted to lateral and to perpendicular positions. The calyces are remarkable deep and narrow and feature quite short septa suggesting rather short mesenteries. Arrangements of mesenteries and positions of their insertion imply that from each growth sector the bodywall of the polyp increases until enough bodymass is present to divide the existing polyp into four new ones. Hereby the new bodywalls are arranged in a certain way comparable to four bubbles getting into close contact. They may arrange orthogonally but this arrangement is not a stable one and passes over to the stable five-wall-situation characterised by a central polar wall corresponding with four partition-walls at 120° angels. The latter is visible in the hystero- corallite arrangement of *A. quadrigemina* suggesting similar hydraulic effects during creation.