

PREDATION OF EARLY JURASSIC AMMONITES

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Predation of ammonites is widely recognised in Mesozoic findings and has been attributed to decapod crustaceans, reptiles, teleost fish, turtles and other cephalopods. The aim of the present study is to find a correlation between the location of the damaged part of the body chamber and the most likely predators.

Although predated ammonite remains are found through the entire Mesozoic this study concentrate on ammonites from the early Toarcian Posidonia Shale of Southwest Germany. This shale is characterised by a very fine lamination and ammonites occur as periostracal coatings of both flanks collapsed into a common plane subsequent to aragonite dissolution during early diagenesis. This kind of preservation has the advantage that bodychamber and phragmocone are preserved but the disadvantage that only one flank of the ammonite can be examined.

Comparing patterns in shell damage two different types can be distinguished; Type A comprehend shell fractures varying from disappeared bodychambers to crushed phragmocones (fig 1A), and a Type B where the crushed area is restricted to the adapical part of the body chamber (fig 1B).



Figure 1. Schematic drawings of specimens *mab a 1518* (A) and specimen *mab a 1528* (B) from Oertijdmuseum De Groene Poort collections representing the two types of predated ammonites.

Type A crushed shell remains are often found clustered in such a way that crushing may be assumed to have taken place at or just above the seafloor and not high in the water column. The most likely predators for type A crushing are generalist moluscivorous predators like fish or decapod crustaceans. Type B shell damage is much more restricted to a small part of the shell indicating a more specialised moluscivorous predator and is more common than the Type A shell damage. The relative position of the damaged part is characteristic for the examined genera (*Hildoceras*, *Harpoceras* and *Dactyloceras*) and implies that the predator was capable of catching, handling and positioning the ammonite prey preceding the crushing of the shell.

In recent ecosystems *Octopus vulgaris* attacks *Nautilus* sp. in a similar way by positioning the prey prior to perforating the shell making it likely that endocochleate cephalopods were main ammonite predators.