

SHELL-ACCUMULATION OF THE NAUTILIDAE *ATURIA (ATURIA) ATURI* (BASTEROT, 1825) IN THE RETZ-FORMATION (LOWER AUSTRIA, UPPER EGGENBURGIAN, LOWER MIOCENE)

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Sediments of the Retz-Formation near Obermarkersdorf occur along a small crystalline crest, which corresponds to one of the numerous small offshore islands, characterising the coastal line along the Bohemian Massive in the area around Retz during the Upper Eggenburgian.

Gastropods predominate the taphocoenosis with abundant *Diloma (Paroxystele) amedei*, *Babylonia eburnoides* and *Ficopsis (Fulguroficus) burdigalensis gauderndorfensis*. Mytilidae prevail among the bivalves, besides *Acanthocardia moeschanum* and rare *Glycymeris fichteli*, which were embedded both partly with articulated, gaping shells. The fauna indicates a parautochthonous occurrence of rocky littoral species mixed with subordinate infaunal molluscs from the adjacent sandy littoral to sublittoral.

The most remarkable allochthonous component of the fauna is the Nautilidae *Aturia (Aturia) aturi* (BASTEROT). At least 16 specimens of the cephalopod within one concretion represent an unexpected abundance in this littoral, high energy environment. The shells are mainly broken and fragmented, only two specimens show an intact body chamber. The largest complete specimen has a diameter of 31mm, while single chamber-casts suggest a size about 40mm. Since the shells are dissolved, only steinkerns and moulds are present, but the excellent preservation of sutures and siphonal structures allows a distinct identification.

Another similar mass-occurrence is documented from a sand pit at Unternalb, where *Aturia aturi* is associated with littoral to shallow sublittoral infaunal molluscs.

The necroplanktonic characters of Recent *Nautilus*-shells are well documented, furnishing evidence for postmortal driftings of 3000km distance and floats of more than one year, which are reflected in bioerosion and epifaunal settlement. Open sea surface drift-routes are strongly associated with currents, whereas nearshore drifts are mainly induced by wind directions. Although the actualistic ecological comparison of *Nautilus* with the fossil *Aturia* is complicated by differences in shell outline and suture-line, which may be the result of an adaptation to different habits, the general drift-behaviour is supposed to be identical.

Thus the cephalopod shell-accumulations at Obermarkersdorf and at Unternalb are interpreted as postmortal, allochthonous occurrences. The absence of epifauna or bioerosion points to a short drift-stage, the high percentage of fragmentary shells at Obermarkersdorf corresponds with the high energy environment of the sedimentation area, therefore breakage took place at the shore after the drift-stage.

The high density of nautilid-shells in the coastal sediments of the Retz-Formation is explained by a fairly exposed position of the coastal line, where currents and storms washed the shells ashore from the adjacent deeper molasse-basin. Analogous shell concentrations of *Nautilus pompilius* at the west coast of Thailand suggest rather an accumulation of specimens during a period of several years than by a single storm event.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

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