

## AGGLUTINATED FORAMINIFERAL ASSEMBLAGES IN THE MIDDLE MIOCENE OF THE VIENNA BASIN

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In a study proposed by the Austrian Mineral Oil Company (ÖMV-AG) concerning the paleoecology of benthic foraminifera of the middle Badenian (Middle Miocene) of the Vienna Basin (Matzen Oilfield) and adjacent areas (Walbersdorf, Burgenland), the agglutinated foraminifera proved to be of ecological significance.

An R-mode clustering analyses (species cluster; reallocation clustering analyses based on an unweighted Pair Grouping Method using averages - SNEATH & SOKAL, 1973) of the total benthic fauna (50 species groups, based on generic level and/or observed co-occurrences) revealed several clusters composed mainly or exclusively of agglutinated foraminifera.

One cluster is built up of the species groups: *Pelosina* + filiform agglutinated foraminifera and *Textularia earlandi* + *Reophax nanus*. Both *T. earlandi* and *R. nanus* are found today in greater numbers in or near areas with higher freshwater influx (lagoons, estuaries, or deltas). Thus CULVER & BUZAS (1983) designated *T. earlandi* as indicative for the Mississippi Mouth Facies. In Matzen area these foraminifera were abundant in a similar facies (Prodelta, indicated by the total fauna and sporadically high numbers of allochthonous thecamoebians).

Another cluster of agglutinated foraminifera consists of three groups of species: *Ammoscalaria* (*A. tenulmargo*) + *Ammomarginulina*, *Trochammina* + ?*Tritaxis* and *Eggerella* (mainly *E. scabra*). Most of these foraminifera are euryhaline and often found in areas with high numbers in front of river-mouth systems (Mississippi delta, Rhone delta) and probably prefer nutrient-rich biotopes. These agglutinated foraminifera also fit to the picture of a delta-influenced shelf area such as that present in the Matzen oilfield.

The genera *Saccammina*, *Reophax* (excl. *R. nanus*), *Haplophragmoides* + *Cribrostomoides* + *Alveolophragmium* + *Discammina* and *Heterolepa* build up the next cluster. Most are stenohaline; the agglutinated foraminifera such as *Reophax*, *Cribrostomoides* or *Discammina* are considered to prefer lower temperatures. This association was mainly found in sediments of the outer neritic and to a lesser degree in middle neritic sediments of the Matzen area. Genera such as *Textularia* (excl. *T. earlandi*) and *Bilgenerina* + *Gaudryina* + *Karreriella* + *Cylinδροclavulina* were grouped into one cluster dominated by typical calcareous shelf-foraminifera (*Quinqueloculina*, *Reussella*, *Elphidium*, *Hanzawala*, *Nonion* and others).

The genera *Spiroplectammina* + *Semivulvulina* + *Martinotiella* were assigned to a cluster of calcareous foraminifera mainly found in bathyal depths (*Cibicides*, *Angulogerina*, *Uvigerina*, *Pullenia*, *Sphaeroidina* and others).

The agglutinated *Miliammina fusca* was linked with the genus *Haynesina* to one cluster. Both are found today as euryhaline elements of inner neritic and are often found together in hyposaline environments. With the exception of *Ammonia* and *Aubignyna* this cluster is rather isolated from the other species groups.