

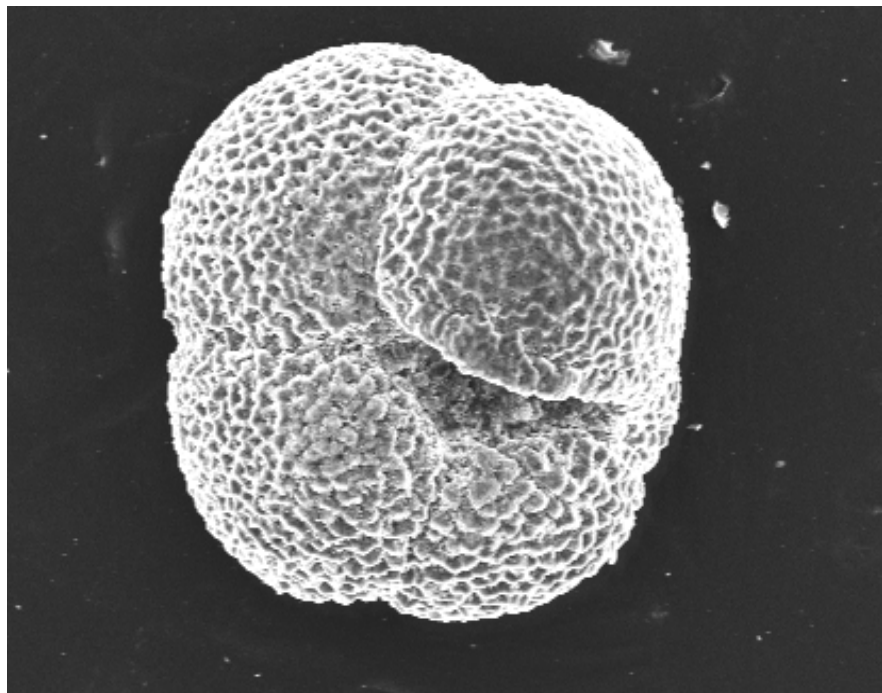


**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Quaternary Foraminifera from borehole 63 -01/11 (Møre Sheet)

Internal Report IR/03/065



BRITISH GEOLOGICAL SURVEY

INTERNAL REPORT IR/03/065

Quaternary Foraminifera from borehole 63 -01/11 (Møre Sheet)

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Summary

Foraminifera from the lower part of borehole 63 -01/08 were extremely rare and probably reworked from the shelf area. Reworked Palaeocene foraminifera and coalified wood were also seen. At and above 0.42-0.45m foraminifera became common and there was a slight increase in diversity towards the top of the hole. Cold water sinistrally coiled *Neogloboquadrina pachderma* are abundant throughout and the benthos is characterised by *Planulina ariminensis* and *Oridorsalis umbonata*. These deeper water species are characteristic of water depth in excess of c. 500m. Possible warming was present at and above 0.18-0.21m

1 Introduction

Samples (MPA 51813-51854) from Borehole 63 -01/11, between 1.23-1.27m and 0.0-0.03m were examined for foraminifera in order to provide biostratigraphical and palaeoenvironmental interpretation.

2 Conclusions

The lower part of the borehole, between 1.23-1.27m and 0.54-0.57m, contained very rare foraminifera. Although some were entirely barren, other contained one or two specimens of benthonic foraminifera, including *Elphidium clavatum*, *Elphidium williamsoni*, *Cassidulina laevigata*, *Cassidulina reniforme* and extremely rare planktonic taxa (sinistral *Neogloboquadrina pachyderma*). The majority of species are normally associated with shallow, near-shore environments. Their provenance is unknown, but they are unlikely to be in situ. Occasional species apparently from the Palaeogene were recorded at 1.02-1.05m and 0.90-0.93m and the latter also contained coalified plant chips, indicating reworking had occurred.

At 0.54-0.57m depth rare sinistral *Neogloboquadrina pachyderma* were present in a monospecific association. Arctic conditions are suggested and the Arctic Faunal Province (BE, 1977) is suggested.

More diverse assemblages were encountered at and above 0.42-0.45m depth. Floods of sinistral *Neogloboquadrina pachyderma* were found indicating the Arctic Faunal Province. Of the benthonic taxa, *Planulina ariminensis* is frequent and *Cassidulina reniforme* and *Cassidulina laevigata* were also present, although very rare. *Planulina ariminensis* has been recorded at depths between 100 and 2500m in the Møre area (MACKENSEN et al., 1985; MURRAY, 1991) and it is also present at depths below 500m around the Azores (HERMELIN & SCOTT, 1985).

Oridorsalis umbonata joined the fauna at 0.30-0.33m depth, possibly suggesting increased water depths. *Oridorsalis umbonata* is found living off Newfoundland at depths of 2695m and temperatures of 3-3.5°C (SCHAFER & COLE, 1982) and off northern Europe (North East Atlantic, Norwegian-Greenland Sea and Møre area (WESTON & MURRAY, 1984; BELANGER & STREETER, 1980; MACKENSEN et al., 1985) is often found living below 1000m off in the Møre area and especially at depths of 1734-1877m and in temperatures between -1 and +4°C. Planktonic sinistrally coiled *Neogloboquadrina pachyderma*, remains present in flood proportions.

Abundant sinistrally coiled *Neogloboquadrina pachyderma* is accompanied by frequent *Globigerina bulloides* at 0.18-0.21m depth. This implies a warming of surface waters and the Subarctic Faunal Province may be suggested. The benthos is composed of common *Planulina ariminensis* and *Oridorsalis umbonatus* together with frequent *Pyrgo depressa* and rare *Criboostomoides subglobosa* implying that bottom waters were similar to those suggested for the sample at 0.42-0.45m depth. Essentially similar faunas were seen through to the top of the borehole.

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