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A palynological investigation of the Dogger Formation (Middle Jurassic) of the Malton area, North Yorkshire

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A palynological investigation of the Dogger Formation (Middle Jurassic) of the Malton area, North Yorkshire

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Key words

palynomorphs, Jurassic, biostratigraphy, palaeoecology, England.

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Foreword

This report describes a study of the palynology of a single sample of the Dogger Formation from a disused quarry at Mowthorpe Dale Wood, near Malton, North Yorkshire.

Contents

Summary

The sample proved barren of Jurassic palynomorphs, hence no conclusion as to the biostratigraphical age is possible. This paucity of organic material is thought to be due to the weathering of the sample material.

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1 Introduction

The palynology of a single sample of the Dogger Formation from North Yorkshire was studied in order to determine its biostratigraphical age. There is a major dinoflagellate cyst bioevent in the Dogger Formation which can distinguish the Opalinum and Murchisonae chronozones. This is the range top of the *Parvocysta* group (Riding, 1984). This study was undertaken in order to help better understand the regional geological history of the area, and to contribute to the geological mapping of this area.

2 Sample Details

The sample was collected by J. Ford on the 29th September 2006 from a disused quarry at Mowthorpe Dale Wood, near Terrington, approximately 10 km WSW of Malton, North Yorkshire. The grid reference of this locality is 469060 469160, and the elevation is approximately 85 m. It was registered as BGS micropalaeontological sample MPA 55861.

The field relationships suggest that the Dogger Formation, which is the quarried unit, attains a thickness of around 2-3 m. It is underlain by grey mudstones which are probably the Whitby Mudstone Formation. The overlying unit is a ferruginous non-marine sandstone, probably the Saltwick Formation.

3 Palynology

The palynoflora is described in this section of the report. Because the sample is a pure limestone, it was prepared using HCl dissolution (Riding and Kyffin-Hughes, 2004).

The sample residue proved to be extremely organically sparse. Wood and plant tissue are present in low/moderate levels. Modern fungal material is also present. Several modern pollen grains (contaminants) were observed. The sample proved entirely barren of *in-situ* Jurassic palynomorphs.

The absence of autochthonous palynomorphs is probably due to the sample being highly weathered. Surface weathering can destroy organic material via oxidation. Unweathered Dogger Formation material is known to be relatively organic-rich (Riding, 1984). It is recommended that, in future, unweathered sample material of this unit is used.

4 Conclusions

The sample proved barren of Jurassic palynomorphs, hence no conclusion as to the biostratigraphical age is possible. This paucity of organic material is thought to be due to the weathering of the sample material.

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5 References

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