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The palynology of a peat sample from the Montrose district

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The palynology of a peat sample from the Montrose district

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1 Introduction

A single sample of peat from west of Borrowfield, near Montrose, Scotland collected by Nick Golledge was submitted for palynological analysis. The Quaternary sediments of this area are not well known. The locality is at the north side of the Montrose Basin at NO 70787 600 28 and the sample was registered as MPA 55211. It is close to known tsunami deposits related to the Storegga slide event. The sample is from a temporary trench exposure, and the peat is overlain by raised estuarine silt/clay deposits. A subsample was also submitted for ^{14}C dating.

2 Results

In this section of the report, the palynoflora is described. A full list of taxa is held on the respective BGS micropalaeontology/palynology data sheet, which has been archived.

The material was prepared using the acetolysis method. The residue is unsurprisingly organically productive and dominated by various plant tissues and pollen/spores. Woody fragments are virtually absent. The pollen and spore taxa recovered are listed in Appendix 1.

The palynoflora comprises only Quaternary pollen and spores typical of British interglacial periods. No marine grains were encountered, hence a freshwater setting is unequivocally indicated. The sample is overwhelmingly dominated by pteridophyte spores, largely *Dryopteris* (buckler fern), with markedly lower numbers of arboreal (tree), shrub and herb pollen. Other fern spores present are *Lycopodium* (club moss) and *Stereisporites* (moss) (see Appendix). The tree and shrub taxa present are *Alnus* (alder), *Corylus* (hazel), *Erica* (heather) and *Pinus* (pine). Herbs are of extremely low diversity and are extremely sparse; they comprise Gramineae (grasses) and *Succisa* (devil's bit scabious).

The dominance of pteridophyte (fern) spores indicates that the principal vegetational element was the buckler fern. The peat bog was relatively close to land areas supporting herbs and trees. The nature of the pollen/spore flora is entirely consistent with an interglacial setting. The spectrum of pollen and spores recovered is typical of the Flandrian Stage (Godwin, 1975). This interpretation is supported by the preponderance of fern spores, indicating swampy conditions, which is consistent with the Atlantic or Sub-Boreal periods of the Flandrian. This contention will be tested using radiocarbon dating.

3 Summary

The sample produced relatively abundant, typically British interglacial, pollen and spores. *Dryopteris* (buckler fern) spores dominate both samples, and arboreal (tree/shrub) and herb pollen is present in significantly lower proportions. These associations are indicative of a peat bog, dominated by buckler ferns. The palynoflora is typical of the Flandrian Stage.

Foreword

This report comprises a study of the palynology of a sample of peat from west of Borrowfield, near Montrose, Scotland.

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Appendix 1 Pollen and spores

The pollen and spore associations in the sample studied are outlined below. The numbers are respectively, the numbers of grains counted per microscope slide and, in parentheses, the overall percentage.

1 POLLEN GRAINS:		
a Trees/Shrubs:		
Alnus (alder)	2	(0.8)
Corylus (hazel)	14	(5.7)
Erica (heather)	1	(0.4)
Pinus (pine)	19	(7.7)
SUBTOTAL	36	(14.6)
b Herbs:		
Gramineae (grasses)	3	(1.2)
Succisa (devil's bit scabious)	2	(0.8)
SUBTOTAL	5	(2.0)
2 SPORES:		
Dryopteris (buckler fern)	203	(81.8)
Lycopodium (club mosses/ground pines)	1	(0.4)
Stereisporites (moss)	3	(1.2)
SUBTOTAL	207	(83.4)
GRAND TOTAL	248	(100)

4 Reference

GODWIN, H. 1975. *The history of the British flora. A factual basis for phytogeography.* Second edition. Cambridge University Press, 541 p.