DEPARTMENT OF MINES
SOUTH AUSTRALIA

# PALYNOLOGICAL EXAMINATION OF SAMPLES FROM NORTH EAST TASMANIA, CAPE BARREN AND FLINDERS ISLANDS

by

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PALAEONTOLOGY SECTION

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## ABSTRACT

Spore and pollen evidence is presented to date several samples from N.E. Tasmania, Cape Barren and Flinders Island. Samples from Cape Barren Island and N.E. Tasmania are equivalent and are of either Lower Miocene or Upper Oligocene age. A sample from Flinders Island is distinct from all others and is dated tentatively as Pliocene or possibly younger.

## INTRODUCTION

At the request of the Tasmanian Department of Mines and Utah Development Co. a further nine samples of Tertiary sediments from N.E. Tasmania and adjacent islands have been examined for their spore and pollen content.

The stratigraphy and correlations of the major microfloral units has been discussed in a previous report (Harris 1965) and this investigation is an extension of the palynological analysis of N.E. Tasmania.

Most samples yielded well preserved spores and pollen but those from the basalt-Tertiary interface yielded few sporomorphs. One sample from this locality was barren. This is due either to pre-basalt weathering or the effects of the basalt flow.

Relevant stratigraphic information and localities of the samples are appended to this report.

## RESULTS

### N.E. Tasmania and Cape Barren Island

Distribution of the species is plotted in the following table.

Microfloras from this group of samples are characterised by abundant Nothofagus spp. together with Proteacidites spp. and coniferous pollen.

| Species | N.E. TASMANIA | | | | | Cape Barren Island |
|---|---|---|---|---|---|---|
| | UDC 8244 | UDC 8242 | UDC 8243 | UDC 8245 | UDC 8246 | |
| Alisporites grandis | | | | | | x |
| Araucariacites australis | | | x | x | | |
| Beaupreaidites elegansiformis | x | | | | | x |
| Blechnum sp. | | | | | | x |
| Baculatisporite comaumensis | | x | x | x | | x |
| Cyathidites annulata | x | | x | x | | x |
| C. minor | x | x | | | x | x |
| Cingutriletes clavus | x | | x | x | | x |
| Cupanieidites sp. | x | | x | x | | x |
| Dacrydiumites florinii | x | x | | | x | x |
| Dacrycarpites australiensis | x | x | | x | x | x |
| Ericipites sp. | x | | | x | | x |
| Hemitelia sp. | x | | x | x | | |
| Liliacidites sp. | | | | x | | x |
| Laevigatosporites ovatus | x | | x | x | x | |
| L. major | x | | | | | x |
| Microcachryidites antarcticus | x | x | | | | |
| Monosulcites sp. | x | | | x | | x |
| Myrtaceidites parvus | x | | | | | x |
| Nothofagus emarcida | x | x | x | x | x | x |
| N. vansteenisi | x | | | | | x |
| N. falcata | x | | | | | x |
| N. aspera | x | x | | x | | x |
| N. hetera | | x | | | | |
| Podocarpidites ellipticus | x | x | x | x | x | |
| Phyllocladidites paleogenicus | x | | | | | x |
| P. mawsonii | x | | x | x | | |
| Perinomonolites sp. | x | x | | | | x |
| Proteacidites scaboratus | x | | | x | | x |
| P. spp. | x | | | x | | x |
| Sparganium sp. | | | | | | x |
| Todea sp. | x | x | x | x | | x |
| Triletes ornamentalis | x | | | | | |
| T. tuberculiformis | x | x | x | x | | x |
| Triorites harrisii | x | x | x | x | | x |
| Tetracolporites sp. | x | | | x | | x |
| Tricolpites sp. | x | | | | | x |
| Tricolporites sp. | x | x | | x | | x |
| Verrucatosporites sp. | x | x | x | x | | x |
| Winteraceae pollen | | | | | | |

Flinders Island

Species assemblage:

Banksieacidites spp.

Casuarinidites cainozoicus

Camarozonosporites sp.

Ericipites spp.

Graminidites sp.

Gleicheniidites circinidites

Haloragacidites haloragoides

Myrtaceidites parvus

Nothofagus emarcida

Podocarpidites ellipticus

Proteacidites sp.

P. sp. ("Grevillea" type)

Restionaceae

The assemblage is dominated by abundant pollen of the family Restionaceae and that of the genus Banksia. Gleicheniidites sp. is very common.

AGE OF THE MICROFLORAS AND COMPARISONS

The older microflora from both Cape Barren Island and N.E. Tasmania is equivalent in age to the samples discussed in the previous report. Here a lower Miocene or upper Oligocene age was suggested. This present report does not indicate any refinement of this determination. However it would appear that the subdivision into two microfloras as indicated in the previous report is not valid outside of the area described in that report

The younger assemblage from Flinders Island is difficult to date precisely due to the absence of distinctive zone species and to the lack of detailed stratigraphic analyses of Upper Tertiary sediments. The very low frequency of Nothofagus suggests a post middle-Miocene age. It is therefore tentatively dated as Pliocene and it has some similarities with Pliocene sediments of Victoria but lacks the distinctive species Dacrycarpites australiensis and Dacrydiumites florinii which are

usually abundant in these sediments. This may be due to the fact that the assemblage is stratigraphically higher in the Pliocene or is even of Pleistocene age.

## REFERENCE

Harris, W.K. 1965.

Palynological examination of samples from the tin leads of North East Tasmania.

Geol. Surv. S.Aust. Rept. 60/15, Palyn. Rept. 11/64 (unpubl.)

## APPENDIX

Data on samples studied

| Sample No. | Locality |
|---|---|
| U.D.C. 8242 | Great Forrester River Area (Mt. Stronach workings) |
| U.D.C. 8243 | U.D.C. Bore 21, Arba Area at 95 ft. |
| U.D.C. 8244 | U.D.C. Bore 22, Lawry's Area, Gladstone. 51 ft. |
| U.D.C. 8245 | Arba Pit Face, Branxholm - lignitic clay 20 ft. below basalt. |
| U.D.C. 8246 | Arba Pit Face, Branxholm, Basalt-Tertiary interface |
| U.D.C. 8247 | Arba Pit Face, Braxholm, Basalt-Tertiary interface. |
| S 752 ) S 753 ) | Rooks River, Cape Barren Is. - Pit on North East |
| S 754 | Tanners Bay Tinfield 11-12 ft., Flinders Island. |

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