

PALYNOLOGICAL AGE DETERMINATION OF A SAMPLE FROM THE PORT
CAMPBELL No.1 BORE, FROME BROKEN HILL CO. PTY. LTD.

Bore..... Port Campbell No.1.
Depth..... 5706'.
Rock Type.. Core No. 23, Black carbonaceous shale
with pyritic nodules.
Supplier... Frome Broken Hill Co. Pty Ltd.
Date..... 3/12/59.

The rock was pulverized and treated by the Hydrofluoric acid-Schulze's maceration method to free contained microfossils from the matrix. The normal treatment schedule was considerably shortened to speed operations, and this resulted in the isolation of many imperfectly cleaned microfossils. All but a very few however were readily recognizable. Much cellular plant debris was isolated, as well as spores and Gymnosperm pollens.

Forms present included:-

- (I) Cicatricosisporites australiensis (Cookson)
- (II) Osmundacidites comaumensis (Cookson)
- (III) Cyathidites sp.
- (IV) Di- and Tri-saccate Gymnosperm pollen grains.

Apart from (I) all the above have a long time range (Tertiary-Jurassic) and are of no use as Index fossils. Cicatricosisporites australiensis is regarded by Dr. I.C. Cookson, of the Melbourne University Botany School as a Cretaceous Index Fossil, but is found in large numbers in the South Gippsland (Wonthaggi) Mesozoic coal measures. She has placed all the Victorian Mesozoic sequence in the Cretaceous, but has not however examined samples from the 1-2000' directly above the Mesozoic -Palaeozoic contact. Some controversy exists around her determination of the Wonthaggi coal measures as Lower Cretaceous.

However the purpose of this examination was to determine the relationships of the sample to the contact of the marine Cretaceous and non marine heavy sandstones. On this basis the sample would be in the latter group known as "Jurassic".

This "Jurassic" determination is made on correlation with Mines Department Timboon No. 5A and Belfast (Port Fairy) No.4 Bores. In the Belfast bore a narrow zone with a very similar floral assemblage to that described above has been examined some 600' below the Cretaceous -"Jurassic" contact, being determined on lithological and palaeontological evidence. At Timboon this same floral assemblage

has been found only 100' below the boundary.

The essential point for this enquiry is that the flora in question is found below the Cretaceous - "Jurassic" boundary and hence is determined as "Jurassic". The absence of Angiosperm pollen grains is negative evidence that also points to the inclusion of the sample in the "Jurassic" sequence.

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