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Palaeobotanical Report on Samples from the Planet

Casterton No. 1 Bore, Cores 17, 18 and 19.

Summary: Cores 17, 18 and 19 from the Casterton No.1 Bore containing plant fragments were submitted for examination. The fragments in Core 17 are indeterminate. Plants with Jurassic to Lower Cretaceous range are identified in cores 18 and 19 (7385 - 7749 feet.)

Introduction:

The fossils in Cores 18 and 19 are in the form of carbonised impressions. Most of the plant material is finely dissected and indeterminate. However, some portions of leaf lamina up to 1.5cm long and 1cm wide, in which the venation can be discerned under correct illumination, occur, and also a few determinate pinnule fragments and a small frond.

The six specimens in which determinate plant material occurs have been numbered 1 - 6 and the determinate forms ringed. These specimens are packed separately in case it is desired to retain them when the bulk of the samples (which contain no worth while plant evidence) are sent to Dr Evans for Palynological examination.

Descriptions of specimens 1 - 6 , determination of plant species and information on the range and occurrence of the species follows :-

I. Core 18. 7385 - 7395 feet.

- Specimen 1: (a). Three portions of lamina 1.5cm X 1cm , 1cm X .8 cm , and 1 cm X .6 cm (ringed B and D) are referred to Taeniopteris spatulata Mc Clell. They show the prominent midrib of the species with fine lateral veins parallel to each other at right angles to the midrib.
- (b). A leaf fragment with .5 cm of midrib and maximum width .4 cm preserved is ringed at A. The fine midrib gives rise to lateral veins at an acute angle which bifurcate close to the midrib. This fragment is too incomplete for positive identification but is possibly part of a leaf of Phyllopteris sp.
- (c). At C , two lobes of a very small lamina .4 cm long and .15 cm wide (half width only preserved) occurs. This is too fragmentary for positive identification but may be referable to Microphyllopteris sp.
- (d). Terminal pinnules of Coniopteris delicatula Shirley (impression .7 cm long, maximum width .3 cm ) are seen ringed at E.

Specimen 2: Part of a lamina of Taeniopteris spatulata McClell. 1.5 cm long and .9 cm wide is ringed on this specimen. The midrib is prominent and the parallel lateral veins at right angles to it can be seen under side illumination.

Specimen 3: Portions of three smaller laminae of

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Taeniopteris spatulata McClell. are ringed on this specimen. A is .5 cm wide and both laminae ringed B show approximately 1.5 cm of lamina which tapers from .4 cm wide to .25 cm wide.

Specimen 4 : shows Coniopteris delicatula Shirley (the counterpart of the impression on specimen 1 (E)).

II. Core 19. 7739 - 7749 feet.

Specimens 5 and 6 show impression and counterpart of a small frond with two-ranked, somewhat falcate leaves. The frond is 1.25cm long, its width is .4 cm below and it tapers to .2 cm at the apex. The venation of the leaves can be discerned by careful examination under correct lighting and appears to consist of a number of divergent veins to each pinnule. This venation, together with the mode of arrangement of the pinnules on the rachis, identifies the frond as an Otozamites or similar Bennetitalean frond and precludes it from Coniferae and other groups which have fronds which look similar as impressions. A young, terminal portion of frond such as this is difficult to assign to a species. Often mature fronds have less acutely pointed pinnules, etc.

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Also ringed on specimen 6 is part of a lamina of Taeniopteris spatulata McClell.

Notes on Species of Plants Identified:

Taeniopteris spatulata McClell. is the most characteristic plant of the Jurassic in Australia. It occurs also in Lower Cretaceous horizons.

Phyllopteris occurs in Jurassic and Lower Cretaceous.

Microphylopteris occurs in Lower Cretaceous.

Coniopteris delicatula Shirley is recorded from Triassic and Jurassic strata.

Otozamites and other Bennettitalean fronds occur in Jurassic and Lower Cretaceous horizons.

AGE of Plant assemblage in Casterton No.1 Bore:-

Plant evidence indicates a Jurassic or Lower Cretaceous age for the plant fossil horizon between 7385 and 7749 feet.

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