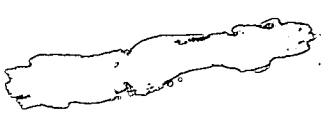


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1953/102

REPORT ON MESOZOIC PLANTS FROM THE MULLAMAN GROUP  
IN THE VICINITY OF WILLEROO STATION, NORTHERN TERRITORY.

(Samples No. F-12 - Collection D. Traves)

by

R.O.,. Brunnschweiler

CANBERRA.

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## SUMMARY

6 species belonging to 4 genera of Mesozoic plants are identified in a small collection from the basal sandstones of the Mullaman Group. The flora is regarded as Jurassic, possibly Middle Jurassic, in age.

The Traves-F-12 collection discussed hereafter was received not long before the fire which gutted the Bureau's premises in April 1953. Only a preliminary examination of the material had by then been carried out; the notes were destroyed in the fire.

The present report is based chiefly upon such material as has been recovered from the ashes; only the presence among the assemblage of Otozamites cannot any more be demonstrated by a specimen. But the writer remembers to have identified this form in the F-12 collection before the fire.

The F-12 samples are all from the basal part of the Mullaman Group (Noakes 1949). There are about two dozen rock specimens, most of them fine-grained sandstone, yellowish or grey in colour and evidently solidified by secondary silicification. A few specimens consist of a more ferruginous type of the same silicified sandstone.

The following form-genera and species are present in both types of sandstone:

<u>Filicales</u>	<u>Cladophlebis</u> cf. <u>C. roylei</u> Arber <u>Cladophlebis</u> n.sp. cf. <u>C. roylei</u> Arber
<u>Bennettitales</u>	<u>Taeniopteris</u> <u>spatulata</u> McClelland <u>Taeniopteris</u> cf. <u>T. tenison-woodsii</u> Eth.fil. <u>Otozamites</u> sp. indet.
<u>Coniferales</u>	<u>Elatocladus</u> cf. <u>E. plana</u> (Feistm.)

This plant assemblage seems to be characteristic of the lower part of the Mesozoic sequence in the Northern Territory. It has previously been found in collections from the Cloncurry-Campowear area and the Barkly Tableland.

The most abundant forms are the species of Cladophlebis and Elatocladus cf. E. plana. Only about one fifth of the assemblage consists of species of Taeniopteris. Otozamites Braun/ appears to be extremely rare.

The absence of the genus Brachyphyllum Brong. (Cupressineae) is somewhat surprising, because it is a fairly common form in the other collections from the Northern Territory mentioned above. However, its absence is not believed to be of any particular significance and is probably due to the chances of collecting.

It can be said with some certainty that the present assemblage is a post-Triassic but pre-Cretaceous one, because typically Triassic or typically Cretaceous plants are absent. But an exact determination of the relevant Epoch, not to speak of an Age, is not possible.

The relative abundance of a form closely akin to Cladophlebis roylei may appear to be very suggestive of an early to middle Jurassic age, because that species - which is particularly characteristic of the Permian "Bowen Series" of Queensland - is generally believed to have failed to survive into the Cretaceous Period. It was probably already extinct by late Jurassic times. However, the apparent affinity of the Mullaman Cladophlebis to Cladophlebis roylei may not be real, and it is possible that the Mullaman species is either a variety of the ubiquitous Cladophlebis australis (Morris), which ranges from the Upper Triassic well up into the Cretaceous, or a new species altogether.

The species of Taeniopteris in the Mullaman flora are the same as those characteristic of the Triassic (Ipswich) and Jurassic (Walloon) sequence in Queensland. According to modern views (Walton 1940, Moret 1949) Taeniopteris is chiefly a Jurassic genus. It appeared in the late Triassic and became extinct with the onset of the Cretaceous Period. Otozamites has a similar range. In the Mullaman flora there is therefore only one form whose range is known to cover not only the whole of the Jurassic but also most of the Cretaceous Period; this form is the ubiquitous Elatocladus.

From the above discussed aspects of this flora it is therefore concluded that the plant-bearing sandstones in the lower part of the Mullaman Group are of Jurassic age, possibly Middle Jurassic.

On present knowledge the Mullaman Group appears to be a rather heterogenous stratigraphical unit. Since its upper part is said to be of Middle Cretaceous age it seems that it incorporates deposits of two sedimentary cycles, a Middle/Upper Jurassic and a Middle Cretaceous one. There is, however, no evidence of a break in the Mullaman sequence; all geologists who have studied it regarded it as one unit. On the other hand it is unlikely that this unit is a "Série compréhensive" reaching from the Middle Jurassic to the end of the Middle Cretaceous. The conclusion is that our present knowledge about the Mesozoic sequence in the Northern Territory is both inadequate and in need of revision.

The problem presented by the Mullaman Group can only be solved by a revision of the stratigraphy and palaeontology of key areas such as Pt. Charles near Darwin, Bathurst Island, Melville Island, etc. The Mesozoic sequence in these areas has always been known only in a very sketchy way, and it is evident that extrapolations based on it and applied to the Mesozoic sediments on the continental hinterland are liable to be fallacious.

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