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PALYNOLOGICAL EXAMINATION OF EARLY CRETACEOUS SEDIMENTS FROM OUTCROP IN THE SOUTHWESTERN EROMANGA BASIN.

BIOSTRATIGRAPHY

by

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TITLE: PALYNOLOGICAL EXAMINATION OF EARLY CRETACEOUS SEDIMENTS FROM OUTCROP IN THE SOUTHWESTERN EROMANGA BASIN.

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LOCALITY: Various localities near Mt Dutton, Peake and Denison ranges, William Creek and Coober Pedy.

SAMPLE DATA:

Branch (S) No.: 6474, 6475, 6480, 6542,6543, 6544, 6546, 6548, 6549, 6550

Depth (in metres): All outcrop

Lithology: Carbonaceous mudstone, siltstone and limestone concretions.

Submitter: Dr J.E. Francis (Department of Geology, The University of Adelaide) and Dr. N.F. Alley.

LOCATION:

Mapsheet:

MURLOOCOPPIE S6474, S6475, S6548 Oolgelima Creek fossil log locality, limestone concretions.

WARRINA S6480 cliff on edge of Lake William, 11 km southeast of William Creek, mudstone.

S6542 north bank of Levi Creek, eastern edge of the Peake and Denison ranges, mudstone.

S6543, S6544, S6546 2 km southwest of Mt. Dutton, carbonaceous clay and silt.

S6549 Sunny Creek near Turnaround Dam, mudstone.

S6550 4 km northeast of Mt Kingstone North on track to "Peake" ruins, mudstone.

STRATIGRAPHIC INFORMATION:

Stratigraphic unit: All are Bulldog Shale, apart from the samples from southwest of Mt. Dutton which may be from Cadna-owie Formation.

Geological Province: Eromanga Basin.

Rock Sample (RS) No:

S 6474, 6475, 6548 are 584ORS41, 42 and 43.
S6542 is 6141RS66
S6543, 6544, 6546, 6550 are 6042RS165 to 168
S6549 is 614ORS77

ANALYTICAL DATA:

Laboratory technique: Standard with 10 um and 130 um sieves Microscope used: Zeiss Photomicroscope III.

Palynomorphs counted: No counts, preservation and yield very poor. Only the limestone concretions from the Oolgelima Creek area and mudstone from Lake William produced any palynomorphs.

RESULTS:

Zonation:

In view of the state of the palynofloras the palynofloral zonal determinations are only tentative.

S6474 cannot be assigned to a spore/pollen zone other that it is Foraminisporis wonthaggiensis Zone or younger. Sufficient microplankton are present to allow a correlation with the Odontochitina operculata dinoflagellate Zone (Helby et al., 1987).

S6475 cannot be assigned to any zone, although since it is in the same locality as S6474 it is undoubtedly of the same age. The palynoflora contains recycled Permian pollen.

S6480 is at least as old as the Cyclosporites hughesii spore/pollen Zone and perhaps as young as the Crybelosporites striatus Zone. No microplankton are present.

Zonal Species and Associates Present or Absent:

S6474, Foraminisporis asymmetricus and Odontochitina operculata present; Pseudoceratium turneri absent.
S6480, Foraminisporis asymmetricus and Crybelosporites striatus present.

Age:

S6474, Aptian, indicating that the older part of the Bulldog Shale is present in the area.

S6480, Aptian to possibly early Albian, indicating that the older to middle part of Bulldog Shale is present.

Palaeoenviroment: Shallow water marine.

Other comments: Samples were collected as part of a study of Early Cretaceous palaeoclimate.

REFERENCES:

Helby, R., Morgan, R. and Partridge, A.D. 1987. A palynological zonation of the Australian Mesozoic. In: Jell, P.A. (ed.) Studies in Australian Mesozoic palynology. Association of Australasian Palaeontologists. Memoir. 4:2-94.