The Early Permian Callytharra Formation, Merlinleigh Sub-basin

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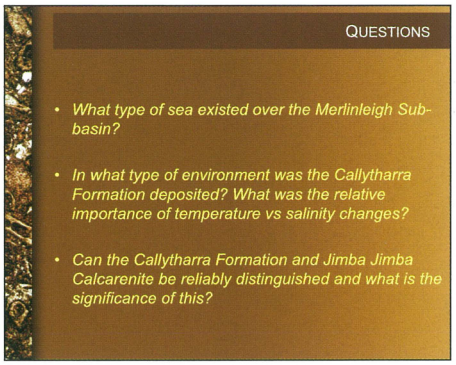
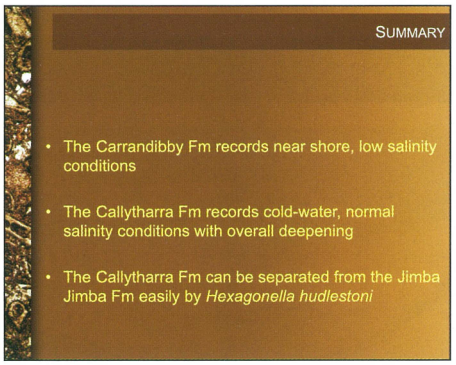
The Callytharra Formation is a well known Early Permian cool-water carbonate and fossil bearing unit, yet it is poorly understood. Contrary to widespread belief, the unit typically contains less than 5% indurated limestone. Biostratigraphic and lithostratigraphic analyses of the type areas of the Callytharra Formation and Jimba Jimba Calcarenite demonstate that the units, commonly mistaken for one another, represent different stages in the development of the Merlinleigh Sub-basin. An overall deepening occurred during the deposition of the Callytharra Formation whereas conditions during the deposition of the Jimba Jimba Calcarenite remained relatively constant. The characteristic succession of both formations, consisting of 'cycles' of mudstones and indurated limestones, was deposited below fair weather wave base but above storm wave base. Indurated limestones may be the effect of storm events and not necessarily related to relative sea-level fluctuations.

However, many questions remain. What type of sea was the unit deposited in? How cold was the water? What was the relative influence of warming versus salinity changes on the conformable transition from the underlying, largely unfossilifereous Carrandibby Formation to the Callytharra Formation? and, what was the relative importance of local facies changes versus migration events on the step-wise increase in diversity seen in the Callytharra Formation type-section? These questions will be discussed.





Biography

Matthew Dixon attended Mazenod College and graduated from the University of Western Australia with First Class Honours in Geology in 2000. Outside of study, he has represented WA in swimming and has also represented UWA against other Australian universities in waterpolo. Matthew has a keen interest in sedimentary basin analysis, especially past environments and past life. He is currently undertaking a PhD project in the Late Cretaceous palynostratigraphy and stratigraphy of the Carnarvon Basin. This forms a component of the wider research project on the Cretaceous of the area by the Biostratigraphy Group at UWA.

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