The Geology of the Eastern Mt. Babbage Block and a study of the genesis of the Jurassic and Cretaceous sediments of the Southern Eromanga Basin.

by

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ABSTRACT

Mesozoic sediments in the Southern Eromanga Basin reflect the change from fluvial deposition in the Jurassic to shallow marine deposition with the onset of an Early Cretaceous transgression.

Rocks of the fluvial Algebuckina Sandstone outcrop around Mt. Babbage, in the Northern Flinders Ranges. They consist of several cycles of coarse, pebbly sandstones and conglomerates that fine upwards into well-sorted fine to medium-grained sandstones that are crossbedded throughout and represent a braided stream environment. An upper silicified sandstone contains numerous fossil-wood and leaf impressions which allow correlation of the sequence with those observed elsewhere around the Basin margins.

Further out into the Basin, the Algebuckina Sandstone is a well-sorted, fine to medium-grained sandstone that represents an alluvial plain environment. The overlying Cadna-owie Formation forms the transition between this and the marine Bulldog Shale above. This change is reflected in the decrease in grain-size of the sediment and the transition from kaolinite-dominated assemblages in the fluvial sandstones to marine clays of the Bulldog Shale containing predominantly montmorillonite.

Most of the material supplied to the Algebuckina Sandstone and Lower Cadna-owie Formation was derived from the Gawler Range Volcano-plutonic Province and the Mt. Painter Province to the south.

The occurence of such a thick sequence of montmorillonitic silts and clays containing high-silica zeolites and authigenic quartz may represent a change to a volcanogenic source.

As the terrigenous supply was waning, with the onset of the marine transgression, volcanogenic detritus may have been supplied by a volcanic arc system that was developing to the east.