THE TERTIARY GEOLOGY OF THE COWARD CLIFF AREA, BETWEEN LAKE EYRE AND LAKE TORRENS, SOUTH AUSTRALIA.

by

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ABSTRACT

Fluvial and lacustrine sediment of presumed Tertiary age disconformably overlies the Early Cretaceous Marree Formation in the Coward Cliff area. Within the Tertiary succession, two periods of fluvial sedimentation are separated by a widespreadlacustrine deposit of clayey silt and very fine sand.

Silcrete formed in swampy environments and channel deposits in the first period of locally ponded fluvial deposition of conglomerate, sand and silt. Early formed silcrete was eroded and clasts were incorporated in succeeding fluvial deposits.

The second period of fluvial sedimentation blanketed the area with pebbly fine to medium sand. A continental sabkha and associated dune system developed. Sand underlying sabkha surfaces (interdunal areas) was ferruginised and cemented with silica and calcite in continuous linear zones. Later differential erosion etched out a system of parallel arcuate ridges capped by silica and calcite cemented sand. These are best developed west and south of the Coward Cliff area.

The Tertiary sediment correlates with the Mount Sarah Sandstone of probable Miocene - Pliocene age. Silcrete formed locally prior to widespread development in the ?Pliocene and is unrelated to the weathering profile developed in underlying sediment. Opal formation post-dates deposition of the Tertiary succession and is considered to be related to the widespread ?Pliocene silicification.