

**STRUCTURAL AND METAMORPHIC
INVESTIGATION OF THE CATHEDRAL
ROCK – DREW HILL AREA, OLARY
DOMAIN, SOUTH AUSTRALIA.**

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This thesis is submitted as a partial fulfilment for the Honours
Degree of a Bachelor of Science

November 1999

Australian National Grid Reference
(SI 54-2) 1:250 000

ABSTRACT

The Cathedral Rock – Drew Hill area represents a typical Proterozoic high-grade gneiss terrain, and provides an excellent basis for the study of the structural and metamorphic geology in early earth history. Rocks from this are comprised of Willyama Supergroup metasediments, which have been subjected to polydeformation.

The highly strained nature of the area has been attributed to three deformations. These have been superimposed into a single structure, the Cathedral Rock synform, which represents a second-generation fold that refolds the F_1 axial surface.

Pervasive deformation with a northwest transport direction firstly resulted in the formation of a thin-skinned duplex terrain. Crustal thickening in the middle to lower crust led to the reactivation of basement normal faults in a reverse sense. Further compression, led to more intense folding and thrusting associated with the later part of the Olarian Orogeny.

Strain analysis has shown that the region of greatest strain occurs between the Cathedral Rock and Drew Hill shear zones. Cross section restoration showed that this area has undergone approximately 65% shortening. Further analysis showed that strain fluctuated across the area and was affected by the competence of different lithologies and the degree of recrystallisation.

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