THE AMPHIBOLITE AND METASEDIMENTS OF THE NORTH-WEST WEEKEROO INLIER, OLARY PROVINCE

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ABSTRACT

The northwest Weekeroo Inlier, Olary, consists of Lower Proterozoic, Willyama Supergroup metasediments and amphibolites. Upper Proterozoic cover metasediments of the Adelaide Supergroup overly these basement rocks.

The basement rocks of the area are dominated by structures of the third Olarian event. Macrosocopic anticlines and synclines are open to tight, easterly plunging with a southerly dipping axial surface. The third generation penetrative schistosity cross-cuts a former schistosity (S_1 or S_2) which is parallel or oblique to layering. Abundant crenulations and kinkbands are likely to belong to the first Delamerian folding event which reactivated many basement structures of the Weekeroo Inlier.

A stratigraphic sequence is recognized whereby pelites ('Mica Schists') overly psammo-pelites and quartz-albite rocks ('Bedded Schists'). A very broadly conformable sequence of massive, brecciated and layered amphibolite is "stratigraphically positioned" at the top of the Bedded Schists. From consideration of abundant sedimentary structures, together with facies changes and overall stratigraphic relations, likely depositional models include a very shallow marine shelf, a broad shallow inland lake-alluvial fan toe complex, and a river dominated, regressive deltaic-sabkha situation.

Olarian metam orphic conditions ranged from those characteristic of the upper greenschist facies to those typical of the mid-amphibolite facies. These were followed by strongly retrogressive metamorphism (lower greenschist facies grade) associated with the cover deformation events during the Delamerian Orogeny. The Olarian metamorphism is manifested by paragenetic relations between actinolite, hornblende, epidote, albite, opaques and sphene in amphibolites and

between fibrolite, chloritoid, almandine, biotite, muscovite, sericite, quartz, minor staurolite and minor chlorite in pelites.

Closely associated with the amphibolite bodies of the Weekeroo Inlier are albitites and calc-albitites. Previously, a metasomatic origin was proposed for these albite rich rocks. An evaporitic sediment with a possible tuffaceous component is now considered more likely.

The Weekeroo amphibolites are chemically similar to ferro-tholeiites of ocean floor/mid oceanic ridge transitional to continental origin.