

A PETROLOGICAL STUDY OF THE WALLAROO
AND MOONTA MINING DISTRICTS

By R.H. Jones.

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Introduction.

Description of the Area.

The country in the neighbourhood of the mines is flat or slightly undulating. On the west coast there is usually a low cliff; the country then rises slowly to the east side of the peninsula. There are almost no lines of drainage and there are no creeks at all.

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At the time when the mines were first discovered the area was covered with scrub, mallee, broombush, sheoak, sandalwood, quondong, saltbush and various grasses and herbage, and was held under pastoral lease. It has now been cleared and is used for farming, mainly wheat.

Deep soil, a light sandy loam, covers the whole district and this is underlain by a layer of travertine of varying thickness.

Except for the coastal cliffs there are no rock outcrops. This made prospecting difficult and has made any detailed geological study of the area impossible.

General Geology.

The rocks of the area are:-

Tertiary limestone
Cambrian siliceous conglomerate
Pre-Cambrian basal complex of metamorphosed sediments with intrusive igneous rocks.

These Pre-Cambrian metamorphosed sediments form the country rock of the Wallaroo Mines. They have apparently been intruded by the feldspar porphyry of Moonta Mines and by granite. This granite outcrops along the coast between Wallaroo and Tickera, and its presence is indicated by granitic stones in the fields about 5 miles east of Arthurton. A similar granite outcrops along the east coast of Yorke Peninsula near Mulcowurtie. There are some small copper mines associated with this.

The conglomerate and some quartzites outcrop at various places along the coast from Port Hughes to Wallaroo and has also been found in prospecting shafts sunk between Wallaroo Mines and Moonta. On top of these rocks is a siliceous quartzite conglomerate. It has not been proved definitely Cambrian in this area but a similar conglomerate is conformably overlain by limestones and shales containing lower Cambrian fossils at Curramulka and along the eastern coast of Yorke Peninsula. Jack^{10b} records that "at Port Hughes it lies horizontally upon the tilted Pre-Cambrian schist and upon the edges of the granitic dykes which penetrate the schist, but do not penetrate the quartzite conglomerate". Unfortunately this junction has since been covered by the drifting sand dunes.

Tertiary, algal and polyzoal limestone overlies these older rocks in places. It outcrops in the sea cliffs from Pt. Riley to Tickera where it overlies the gneissic granite. It also covers a considerable area E. and N.E. of Wallaroo Mines.

Source of Specimens.

Since all the mines have been closed down for some time, no specimens of the country rock of the mines could be obtained in situ. Thus the only study that could be made was petrographical. Specimens for examination were obtained from the S.A. Museum from several collections, the main ones being, one presented by H.R. Hancock on behalf of the proprietors of the Wallaroo

10a & 10b. R. Lockhart Jack: Geological Survey of S.A. Bulletin No.6 pp. 9 & 30 respectively.

examined *collected*

Mines Limited, and another presented by H. Lipson Hancock. Other specimens were obtained from the University, collected by Professor Howchin and others. Rocks collected by R. Lockhart Jack, and rock slides cut from them, were obtained from ~~the~~ the Mines Department ~~Museum~~. Numerous specimens were collected from the Mine Dumps. *and surrounding country.*

by me