RB 54/160

DEPARTMENT OF MINES

SOUTH AUSTRALIA

FLAGSTONE DEPOSIT

SECS. 141, 144, HD. UPPER WAKEFIELD

(W. E. Solly)

by

J. G. Olliver
Geologist

NON-METALLICS SECTION

GEOLOGICAL SURVEY

CONTENTS

Plan No.	Title	Scale
S3084	Flagstone Deposit Secs. 141, 144, Hd. Upper Wakefield (W. E. Solly).	1 inch = 1 mile

Rept. Bk. 54/160

G.S. 2369

D.M. 1576/61

12th June, 1962

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SECS. 141, 144, HD. UPPER WAKEFIELD

(W. E. Selly)

1. ABSTRACT

Considerable reserves of flagstone from the Mintaro Shale horizon and similar to the stone quarried near Mintaro township are available in the property examined. Depth of soil overburden and the presence of sandstone layers in the shale need to be determined eitherby boring or trenching. Gold was not detected in the sample assayed.

2. INTRODUCTION

Following a request from Mr. J. Mack, sections 141 and 144, Hd. Upper Wakefield at Watervale, 73 miles north of Adelaide, were inspected by the writer on 26th February 1962. The geology on the accompanying plan no. S3084 is based on the work of Wilson (1952). Samples of the flagstone were submitted to Australian Mineral Development Laboratories for microscopic examination and analysis for gold content.

Previous Reports

Mansfield, L.L. (1960) Mintaro Slate Quarries.
Mining Review No. 109, p. 31-35

Ward, L.K. (1923) Mintaro Slate, p.28-35 in The Building Stones of South Australia.
Bull. Geol. Surv. South Aust. No. 10 (ed. R.L. Jack)

Wilson, A.F. (1952) The Adelaide System as developed in the Riverton-Clare Region, Northern Mount Lofty Ranges, South Australia.
Trans. Roy. Soc. S. Aust. vol. 75, p. 131-149.

3. GEOLOGY

The rocks in the Watervale area which belong to the Adelaide System (Proterozoic Era) range from the Undalya Quartzite in the west to

the younger glacial sequence in the north (see plan no. 53084).

Grey laminated shales with interbedded silty and sandy layers often containing cubes of pyrite up to ¼ inch are exposed in a creek which flows north-south through the property. These shales, although older than the flagstones quarried at Hintere, belong to the same stratigraphic unit, viz. the Hintere Shales (equivalent to the Glen Osmond Shales near Adelaide).

Microscopically the rock is described as:-

"a banded dolomitic shale. Quartz is the most abundant mineral, varying in grain size from very fine to fine and showing some recrystallisation. Dolomite and, to a lesser extent, calcite occur as irregular crystals of a fairly uniform size. Biotite is present as fine flakes and minor amounts of muscovite as needles. Dust-like opaques and possibly some carbon occur in bands. Where the opaques are concentrated the biotite is practically absent and the opaques have given rise to minor iron staining. An occasional zircon is present as an accessory."

The strata have been folded into a syncline around the central core of glacial sediments producing a steep west limb and a gentle east limb. The flagstones dip 75° to the east at Watervale compared with 22° to 27° to the west in the Hintere quarries.

Four sets of joint planes were measured, the first two are well developed and regularly spaced whereas the last two are poorly developed and irregular:-

(1) Strike 275°, dip 60° to 80° to the north

(2) Horizontal

(3) Strike 260°, dip 40° to the south

(4) Strike 120°, dip 25° to the south

Chemical analysis failed to detect any gold in the sample submitted to Australian Mineral Development Laboratories.

4. CONCLUSIONS

The shales belong to the same stratigraphic unit as the flagstones quarried at Hintere.

Provided sandstone layers are not over abundant, large reserves of shale suitable for building purposes are available.

Testing by hand or machine auger would determine soil overburden

within the property.

The near vertical attitude of the strata should assist quarry operations.

The sample submitted for analysis did not contain any gold.

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NON-METALLICS SECTION

JGO:CEF
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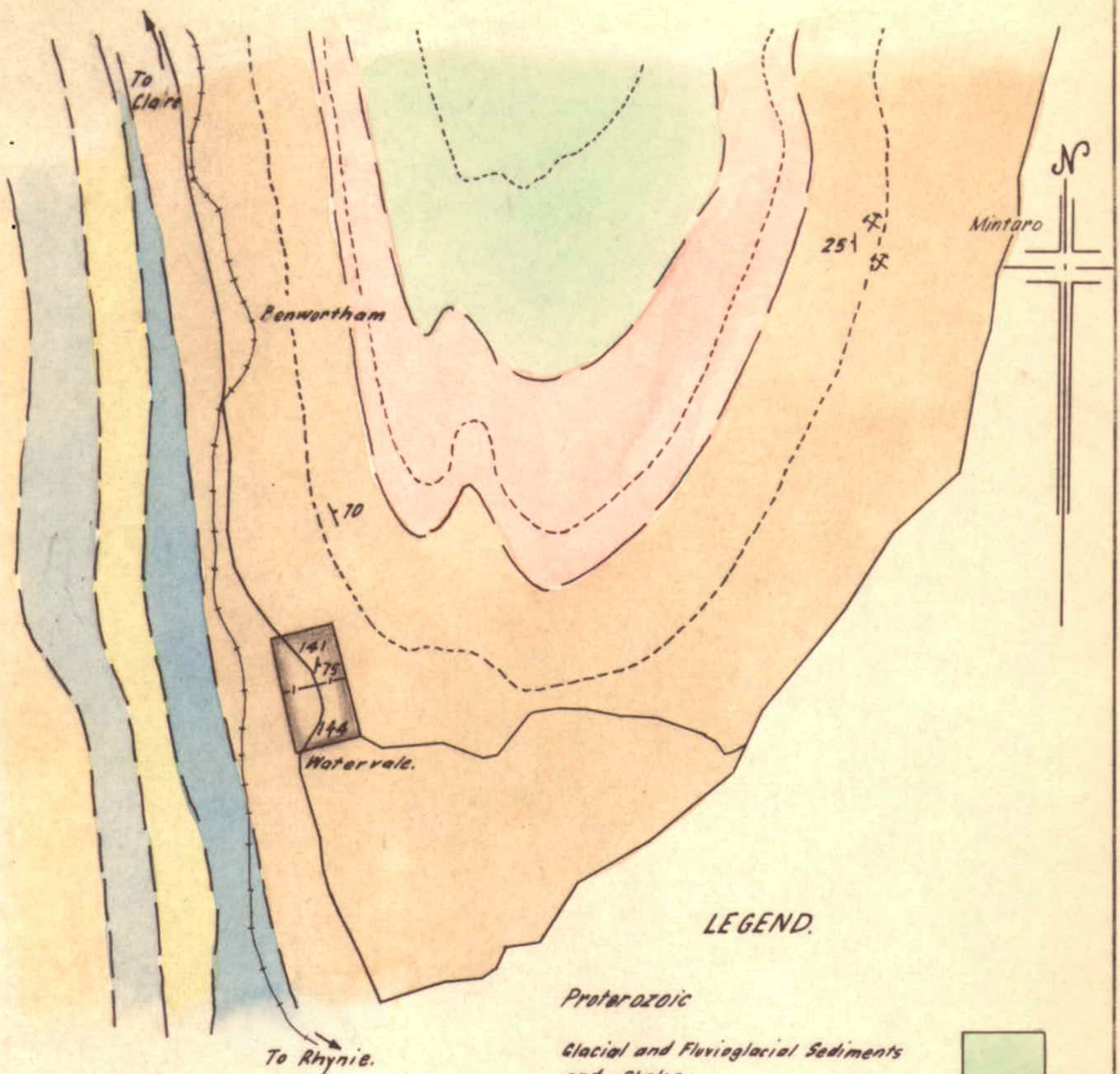

LEGEND.

Proterozoic

Glacial and Fluvioglacial Sediments and Shales.

Gilbert Range Quartzites and interbedded Fluvioglacial Sediments.

Mintaro Shales with minor quartzite.

Auburn Dolomite - Upper.

Watervale Sandstone.

Auburn Dolomite - Lower.

Undalya Quartzite.

Tentative Geological boundaries.

Strike and dip of Bedding

Quarry

Geology based on Wilson (1952)

To accompany report by J. Olliver.

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn.	Flagstone Deposit Sects 141, 144. Hd. Upper Wakefield. W.E. Solly.	D.M.	Scale 1 mile to 1"
		Tcd. G.W.		Req.	S 3084
		Ckd. R.R.			Od 16
Director		Exd.			Date 16-3-62

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