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1984/16. A radiometric age for the Crown Hill Andesite, western Tasmania.

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Abstract

A hornblende concentrate from the Crown Hill Andesite, western Tasmania, has yielded a K/Ar age of 474 ± 3 Ma. This age is too low, probably due to resetting.

INTRODUCTION

The Crown Hill Andesite and associated intrusive rocks occur within the Mt Read Volcanics in the Crown Hill-West Queen River area, some six kilometres north of Queenstown, western Tasmania. The area is currently being mapped by the Regional Section of the Geological Survey Branch as part of the 1:50 000 Lyell Sheet.

Andesitic intrusions, ranging from small dykes to large lens-shaped bodies several hundred metres wide and over one kilometre long occur near the contact between the main central volcanic belt and a western flanking belt of volcano-sedimentary rocks.

To the east the andesites are overlain with apparent unconformity by a mixed sequence of volcanic rocks and volcaniclastic conglomerate (Tyndall Group: Comstock Tuff and Jukes Conglomerate). A limestone near the base of this sequence contains trilobites of probable late Middle Cambrian age (Jago *et al.*, 1972).

Indications from mapping imply that the Crown Hill Andesite represents a very late event in the evolution of the volcanics prior to the deposition of the Tyndall Group.

The dated sample was from the western flank of Zig-Zag Hill [CP81404664] and contains abundant phenocrysts of fresh hornblende up to 12 mm in length.

RESULTS

Hornblende concentrates were obtained from a bulk sample of the rock, and -150 μm and +150 μm concentrates were forwarded to Amdel for K-Ar dating.

The analyses and calculated age are given below:

%K	Ar^* ($\times 10^{-10}$ moles/g)	$^{Ar^*}/_{^{40}Ar\ total}$	Age ($\times 10^6$ years)
0.502 0.500	4.7085	0.957	474±3

* Denotes radiogenic Ar

Constants used:

$^{40}K/K = 1.167 \times 10^{-4}$ mol/mol
$\lambda\beta = 4.962 \times 10^{-10}\ y^{-1}$
$\lambda\varepsilon = 0.581 \times 10^{-10}\ y^{-1}$

DISCUSSION

Using the time scale of Harland *et al.* (1982) the measured age of the sample is middle Early Ordovician which is in disagreement with the stratigraphic evidence as deduced from mapping. Some resetting is most probable, but the age of this event is conjectural at this stage.

REFERENCES

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