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Abstract

A summary of lithostratigraphic and chronostratigraphic information on the Tasmanian Proterozoic rocks is presented. There is concordance between the age of the Cooee Dolerite, the age of an amphibolite at Savage River and the oldest ages of granitoids on King Island.

INTRODUCTION

A working group on Australian Proterozoic Rocks was convened by the Geological Survey of Western Australia in September-October 1982. In order to provide up-to-date lithostratigraphic and chronostratigraphic information on the Tasmanian Proterozoic rocks, a review of the relevant literature and of recent mapping was carried out. The results of this review are summarised in Figures 1, 2, and 3.

CONCLUSIONS

The principal result of the review has been to show that there is concordance, within experimental error, between:

1. the age of the Cooee Dolerite
2. the age of an amphibolite at Savage River
3. oldest ages of granitoids on King Island.

Thus, the early phase of the Penguin Orogeny is a chronostratigraphic event well established by concordance in age in three quite different geological settings.

A total rock isochron for the west King Island granite was excluded because its variance is outside experimental error. An age for the Dove Granite is concordant with the above group but its error limits (±140 my) are too great for much significance to be attached to it.

Syn-tectonic (D1-2) metamorphic ages within the Tyennan region are either concordant with the above group or not significantly older. These ages question the occurrence of a Frenchman Orogeny and a programme of further work has been initiated to resolve this problem.

REFERENCES


MCDougALL, I.; LEGGO, P.J. 1965. Isotopic age determinations on granitic rocks from Tasmania. J.geol.Soc.Aust. 12:295-332. [Ages (King Island) have been adjusted in accordance with modern decay-constant convention].


Figure 1. Tasmanian Proterozoic rocks. Unpublished sources are:

(1) Adams, in prep.; (2) Brown, 1980; (3) Calver, 1982;
(4) Cox, 1973; (5) Black, in prep.
Figure 2. Tasmanian Proterozoic rocks. Igneous: • ◊ Metasediment: • ◊
K-Ar: • ◊ Rb-Sr: □ ◊

AGE (m.y.)

Isochron with variance outside experimental error

KING ISLAND

ROCKY CAPE GROUP

ARTHUR LINEAMENT

BURNIE & OONAH FORMATIONS

TYNNAN REGION

TYNNAN REGION

Cooee Dol.

Dove Granite

PENGUIN OROGENY (early phase)

Dl-2 Ph+Tr

Dl-2 Ph+Tr

5 cm

45-4
NOTE: Hb—hornblende, M—muscovite, Ph—phengite, T.R.—total rock

Figure 3. Tasmanian Proterozoic rocks. (N.J. Turner, 8 October 1982).