PETROLOGY

OF THE

CUVIER AND PARITU PLUTONS

AND THEIR METAMORPHIC AUREOLES.

Thesis submitted for the degree
of
Doctor of Philosophy
in
Geology

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University of Auckland

June 1967
ACKNOWLEDGEMENTS

The writer wishes to express her gratitude to members of the Geology Department, Auckland University for their unfailing help and encouragement, and especially to Professors R.H. Brothers and E.J. Searle for their advice and critical reading of this manuscript; to Mr. T.H. Wilson for tuition and guidance in analytical techniques; to Mr. B.J. Curhan for some thin-sections; and to Misses B. Horne and P. Ward for typing this manuscript.

Dr. J.J. Reed of the Geological Survey, Lower Hutt generously lent thin-sections and gave the writer analyses and analysed rock specimens of three Cuvier Plutonics and the results of two boron analyses of Cuvier hornfelses.

Work on Cuvier Island would not have been possible without the permission and co-operation of the Marine Department and in particular to Mr. Squires who arranged transport on the Lighthouse Relief Vessel.

The hospitality and interest of the lighthouse keepers, Messrs. Harris, Norris and Lloyd and their families of Cuvier Island, and of the Ward family of the Peritu district is sincerely appreciated.
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NOTE 1

This thesis is intended as a petrological study of the plutons and contact metamorphosed rocks exposed on Cuvier Island and in the Paritu district (Fig. 1, p.2). The sulphide and base metal mineralisation of the Paritu district has formed part of a concurrent thesis by Mr. D.N.B. Skinner, so the present writer has carried out little work on ore minerals apart from that considered sufficient for comparison of the plutons and their aureoles.

In order to avoid unnecessary repetition, this study has been divided into three parts. Parts I and II are descriptions, with the minimum of discussion, of the Cuvier and Paritu plutons and their country rocks. In Part III mineralogical, petrological and petrochemical aspects of the two plutons and their metamorphic aureoles are compared and contrasted and their petrogenetic significance discussed.
FIGURE 1
LOCALITY MAP SHOWING POSITION OF PARITU AND CUVIER ISLAND
NOTE II

The following symbols and abbreviations have been used in this manuscript:

- a  cell edge in the x direction
- c  cell edge in the z direction
- x, y, z  crystal axes
- \( \alpha, \beta, \gamma \)  least, intermediate and greatest refractive indices; also vibration directions of the fast, intermediate and slow rays
- \( \varepsilon \)  extraordinary ray, refractive index
- \( \omega \)  ordinary ray, refractive index
- \( n \)  refractive index for an isotropic mineral
- 2V  optic axial angle
- \( r < v \) (or \( r > v \)) the optic axial angle in red light is less than (or greater than) that in violet light.

All refractive indices have been determined in white light and unless otherwise stated the standard error is believed to be no more than \( \pm 0.002 \).

Thin-sections and hand-specimens have the same number and are housed in the petrology collection of the Geology Department, Auckland University; specimen numbers prefixed by \( M \) refer to samples held in the mineral collection of the Geology Department, Auckland University.

Modal analyses of rocks were estimated by counting 1000 points with an electric point counter; normative analyses were calculated using the classical C.I.P.W. methods.

Staurographic plots of petrofabric analyses and structural data are all lower hemisphere projections.
Figure 3

Cuvier Island from the north-east. The lighthouse and the lighthouse settlement in the left foreground and Radar Point to the centre-right. In the distance is the Moehau Range of Cape Colville Peninsula.

Photo: Whites Aviation