

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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NOTE I

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.



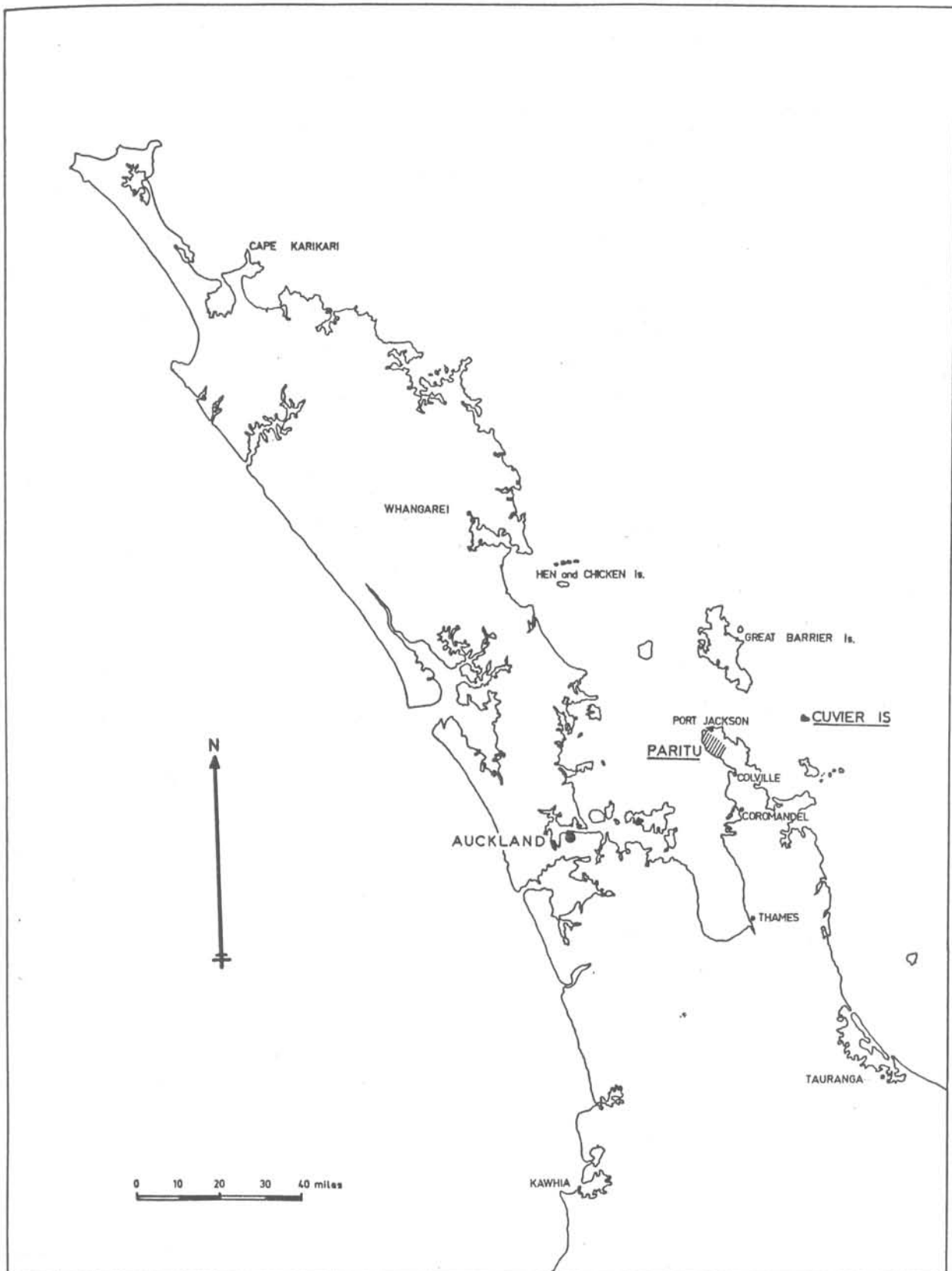


FIGURE 1

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  
 $\xi$  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.

Stereographic plots of petrofabric analyses and structural data are all lower hemisphere projections.

PART I

CUVIER ISLAND

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

