The Geological Evolution of Borneo Island
THE GEOLOGICAL EVOLUTION OF BORNEO ISLAND

by

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A thesis submitted to the University of Malaya in fulfilment of the requirements for the degree of Master of Science in the Faculty of Science.

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MALAYSIA
Frontispiece: Pamali Breccia, Meratus Mountains, SE Borneo

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SYNOPSIS

The research described in this thesis has been addressed by reviewing existing geological maps, reports, professional papers and other published material pertaining to Borneo island and the surrounding seas and presently available to the author. Re-interpretations of some of the published data are given where, in the light of new information, new method or reasoned argument, it is appropriate to do so. Reports are included of independent field work funded partly by the University and conducted during his candidature.

The thesis commences with a brief description of the geology of the seas surrounding Borneo Island. The stratigraphy of the onshore geology is then described commencing with the nature and possible origin of the oldest Basement rocks followed by elucidation of the stratigraphy and origins of Mesozoic sediments and associated igneous and metamorphic rocks. Cretaceous volcano-plutonic arc rocks, oceanic crustal rocks and associated overlying deepwater sediments and melange zones are discussed in relation to postulated subduction zones and their implications for vertical tectonics and accretion of a late Mesozoic landmass. The rifting of the Mesozoic landmass and subsequent development of hydrocarbon-rich Cenozoic basins is described in terms of paleo-environment, sedimentology and structure. The characteristics and origins of a variety of Cenozoic igneous rocks is portrayed in relation to rifting processes as well as melting due to crustal thickening. The development of a Cenozoic tectonic framework and its effect on the present drainage and topography as well as its influence on Recent tectonics and seismicity is explained. The thesis concludes with a concise exposition of the geological evolution of Borneo and its relationship within the regional tectonic framework of SE Asia.
SINOPSIS

Penyelidekan yang dibincangkan dalam tesis ini telah dibuat dengan mengkaji semula peta-peta geologi, lapuran lapuran, kertas kertas profesiinal dan bahan bahan yang diterbitkan mengenai kepulauan Borneo dan lautan lautan sekeliling yang didapati oleh penulis. Penafsiran semula data-data yang diterbitkan ini dibuat apabila terdapat penerangan baru, kaedah baru atau perbincangan, dimana ianya harus dilakukan. Hasil dari kerja lapangan sendiri semasa pencialonan M.Sc ini juga dilapurkan.

terhadap saliran dan topografi dan kaitannya dengan tektonik Resen dan aktiviti aktiviti seismik diterangkan. Tesis ini disudahi dengan kupasan ringkas evolusi Borneo dan hubungannya dengan rangka tektonik rantau Asia Tenggara.
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