

Bruce W. Hayward, Graeme Murdoch and Gordon Maitland

Volcanoes of Auckland: The Essential Guide

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Essential? A guide to a bunch of volcanoes in Auckland? I dashed home with this book safely stowed in my briefcase, feeling dubious. To be essential means affecting the essence of something – that which defines its very being, that which makes it and is perforce important. It can also mean absolutely necessary. I tentatively dipped into the book over my usual refreshing mid-afternoon cup of tea with the children safely stowed from another day at school. Such is my routine.

I was gripped from the start and could not put it down. I read it all in two sittings – one in daylight the other in bed – and thus I found my only serious criticism of the book's presentation. The pale grey font reserved for figure captions is best viewed in daylight and proved almost invisible in the soft light afforded by my bedside lamp. I imagine that publishing houses like Auckland University Press never sleep, so this failure probably remains to be market-tested.

The same (i.e. never sleeping...) may be true of the senior author, who is very well-known in both New Zealand and international earth science. His 'output' is prodigious and always first class. He has carved a niche with his expertise in paleontology and micropaleontology in particular, specialising in the study of foraminifera, single-celled animals that live in water and are an incredibly important lower link in the food chain. He uses quantitative analysis of mainly fossil foraminifera but also modern species in solving geological and environmental problems. In so doing, he has become a natural science megastar who has championed the worlds of conservation and environmental change.

This book, no doubt largely researched and executed in his spare time, is what we have all come to expect from Bruce Hayward: well-organised, focused, balanced, thorough, scholarly. Furthermore, it is very easy to read and comprehend. It represents substantial commitment and attention to detail over many years, building on the work of two earlier generations of geologist, namely Ernie Searle and Les Kermode, to whom the book is dedicated. It has that feel of being mature, up-to-date, authoritative, complete, and it leaves the reader well-satisfied and very pleased to own a copy. To be both content and smug... what more could you want? To be informed and also stimulated, perhaps. Yes, these attributes as well!

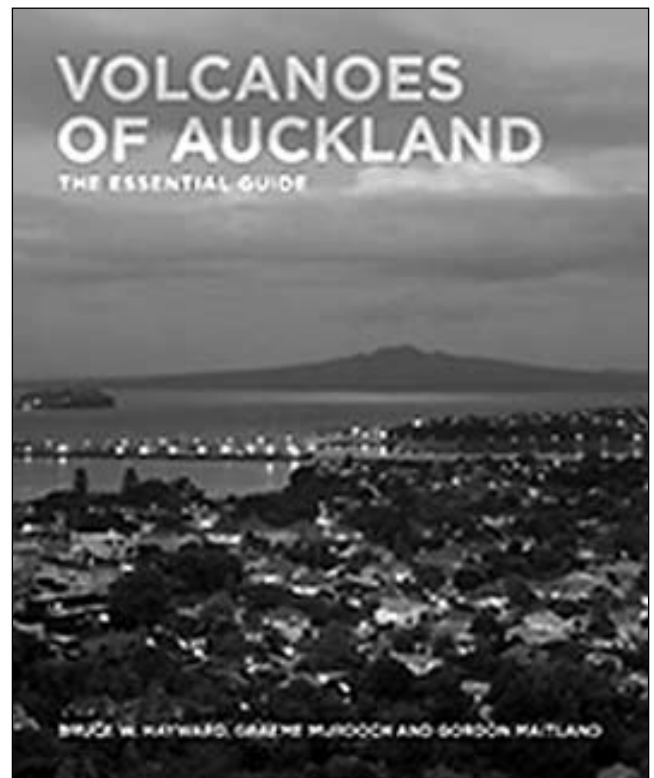
The book is in three parts. The first is a comprehensive geological account of what is known about the Auckland Volcanic Field and in particular the nature of the volcanism; the what, when,

how, why, who, and the future. The second is all about 'Human Interactions with Auckland's Volcanoes' and it is in this part that we have Graeme Murdoch's substantive and fascinating account of pre-European Māori connections with the Auckland Volcanic Field. The third is a 'Guide to Auckland's Volcanoes', an illustrated account of all 50 volcanoes that collectively comprise the Auckland Volcanic Field. This third part is 122 pages long and is neatly organised geographically into volcanoes of the 'Waitemata Harbour and North Shore', 'Central Auckland', 'Eastern Auckland' and 'Southern Auckland'.

The main text finishes with consideration of 'Incorrectly Identified Volcanoes' and 'Waitakere – Auckland's Oldest Volcano'. And as with any book worth its salt, it comes with a Contents page, Introduction, Glossary, Selected Bibliography, Acknowledgements, and an Index.

The book is superbly illustrated with coloured maps supplied by Geographx, aerial photographs taken by Alastair Jamieson in 2009, and supported by other photographs and diagrams from various named sources and not least Bruce Hayward himself. I counted at least 364 photographs all up, of which about 68 are new aeriels. Many are intriguing historic photographs that have been carefully selected by Gordon Maitland from the Pictorial Collection at the Auckland War Memorial Museum. There are 44 maps and 20 diagrams. All illustrations are pertinent, all relevant, all revealing. I found little wanting, although the professional geologist in me wishes there were a more formal and closer photo of Les Kermode. By the way, I was struck

Hayward, Bruce W.; Murdoch, Graeme; Maitland, Gordon 2011. *Volcanoes of Auckland: The Essential Guide*. Aerial photography by Alastair Jamieson. Auckland University Press, Auckland. ISBN 978 86940 479 6 About 27 x 22.5 cm, 234 pages, 364 photographs, 44 maps, 20 diagrams \$NZ 59.99



by the uncanny similarity in the faces of Sir George Grey and George Fowlds on p.85.

As with much of arable New Zealand, Alastair Jamieson's fine aerial photographs reveal fine sculpturing of many if not all of Auckland's soil-clad grass-clothed volcanic cones by the fancy footwork of that other mammal, sheep. So commonplace to us kiwis but not so to those people from sheep-less countries. Some explanation for non-kiwis would be helpful in a second edition.

The editor in me struggled hard to find any mistakes of any sort, and failed. This handsome book is damned near faultless and I have to conclude that it is indeed essential: it is absolutely necessary. To know New Zealand, it is necessary to embrace and know Auckland. Every New Zealand home should have this book.

Volcanoes of Auckland: the Essential Guide does fine justice to Auckland and its 'unique' identity as a major city built on an active volcanic field. It expertly explains and sets the scene for a broad non-geological public audience.

In so doing it also describes, perhaps unintentionally, an aspect of the industrial history of a typical modern city. It just happens to be the city of Auckland, founded in the mid-1800s.

I suspect that this book will be snapped up for higher education purposes to be used by students not so much in earth sciences but of physical geography, environmental law, conservation studies, urban design and planning, landscape architecture and Māori studies. Why? Because it is all about construction and development of a city in a highly desirable bit of real estate through quarrying (mining) of its immediate landscape: the 'essential' exploitation of relatively easily-won rock materials from many of its iconic and not-so-iconic volcanic cones.

The authors have acted with restraint in being as non-judgemental as they possibly can be with respect to 'town planning' decisions over the years, but nevertheless a constant conservation message is discernible and well-expressed. To this end I especially like the section on p.89 on 'Restoring Damaged Volcanoes'. Why not? And on p.90 it is suggested that this book may serve as a substantive document in the seeking of World Heritage Status for the Auckland Volcanic Field.

On a philosophical note, wisdom suggests that we humans are only really involved in two principal activities: one is growing and the other is mining. A third major activity might be conservation: keeping things as they are for posterity.

I think that this book is a valuable account, text-book even – and perhaps unintentional – of the tension between exploitation through mining and conservation that pervades modern sophisticated civilised societies everywhere. In this regard this book provides substantive insight.

It has to be said that we Kiwis are rather schizophrenic when it comes to mining: we are happy to purchase and use modern technology (cars, computers, phones, machines, etc.) that are made from materials, particularly metals, that are largely won from mining activities in foreign countries, but we are loath to mine in our own country, unless it is absolutely essential. I am thinking of materials necessary for 'economic and social infrastructure' such as roads, buildings, etc. This is what Auckland has done. What else could it do?

This question is not addressed in the book, and perhaps it should be in a second edition. Where is Auckland getting its rock resources now? I imagine that Auckland is now sucking in 'essential' rock resources for construction purposes from many other quarries (mines) throughout the North Island, and some of them at considerable distance away. How much? What is Auckland's annual consumption? I wonder, and at what environmental cost? This book helps us understand that quarrying (mining) is an essential attribute for growing cities. Perhaps Bruce might tackle Wellington next.

To end on a geological note, it is evident from the book that there is still much to learn about the Auckland Volcanic Field. For instance, precise timing of eruption has only been established for a few volcanoes; 32 of the 50 have some age control, but for the majority the age remains imprecise. Consequently, as yet we earth scientists cannot present a really accurate eruption sequence. Secondly, we still have an uncertain understanding of why the volcanic field is where it is, and what factors control the distribution of volcanoes: it appears to be rather random but may reflect an underlying 'structural control' (see p. 31). Thirdly, we have little understanding of the extent of volcanic rock at depth; what this book is all about are the visible features at the surface. Fair enough, but in time geophysical research may enable us to visualise lavas at depth that became 'frozen' on the way up and hence never made the surface.

In a second edition, a diagram showing how sea-level has changed through the past 250 000 years would be useful. This is the assumed age of the Auckland Volcanic Field, and it spans the past two to three glaciations. In many of the descriptions sea-level is referred to at the time of eruption and it is especially relevant to the lower-lying explosion craters.

This book is inspirational in many ways and I now wish that something similar might be produced for the volcanic cones in the Dunedin and Waipiata Volcanic Fields in Otago, or the volcanic field preserved in the Chatham Islands.

The authors should be proud of this book, as should the Auckland Council, who helped sponsor its production. It is a magnificent contribution. Above all it highlights the relevance of earth science to modern New Zealand society, to our economy, and to environmental conservation.