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## Book Review

Matthew Wright

# Living on Shaky Ground: The science and story behind New Zealand's earthquakes

Reviewed by Hamish Campbell\*

This is much more than just another very handsome and beautifully illustrated book. It is well-researched, thorough, substantive, accurate, carefully crafted, well-organised and superbly presented. It is the perfect book-owner's almanac featuring all the major historic earthquakes that New Zealand has experienced within living memory....and obviously prior to 2014.

I must admit that I approached the book with some trepidation, some jaundice even, simply because there are a number of books available on the market that address New Zealand's earthquake record and/or the geological explanation for them. However, this book is significantly more comprehensive and is laced with many well-chosen photographs that I have not seen before. Furthermore, they are well-proportioned, not too small, and all have adequate and easy to read captions. Photographs are so important, especially to people like me who grew up on a diet of Tintin. They make or break your mind when it comes to making that purchasing decision. This book is right over there on the 'yes, must have' side.

What impresses me most about this book is the analysis of New Zealand's history in terms of its earthquake experience. It is as if the author has taken on the role of a war-correspondent who is reporting on the systematic blow-by-blow torture of some poor unfortunate. And you can't do this without lashings of observation and interpretive insight into the state of mind of that body. In this context, the author reveals the way in which New Zealand has responded and changed with each blow. The result is surprisingly novel. It is a fascinating and intellectually meaningful account that embraces both the physical experience, as understood through geology and seismology, and the psychological experience, as understood through social science. In a way it comes strangely close to John Mulgan's much vaunted *Report on experience*.... and there is particular resolution or finality; there will be more of the same to come.

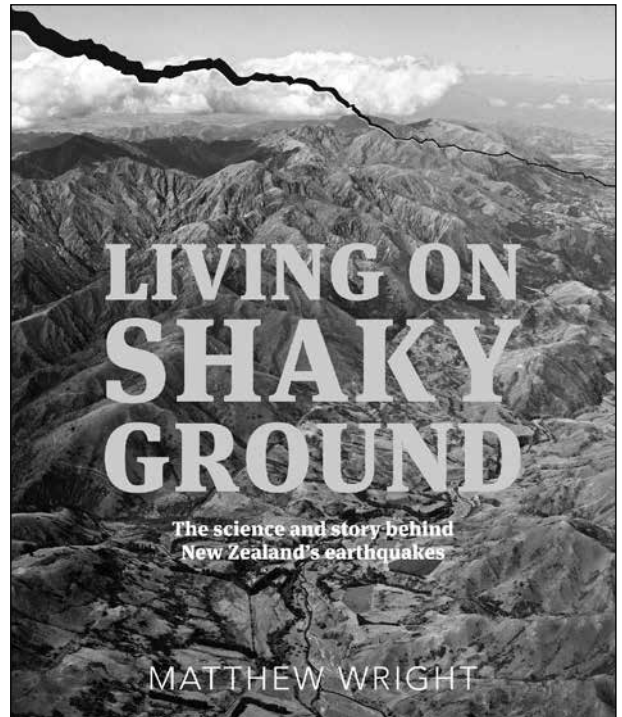
*Living on shaky ground* is a satisfying yet nevertheless disturbing status report on something (earthquake) that affects us all and is beyond our control. Disturbing because we know that there will be future damaging earthquakes that we (New Zealand) will have to endure, but just how damaging and just where and when is largely unknown in the spatial and temporal context of our daily lives as individuals, families and communities.

We could learn from the rodeo industry perhaps... where is the best place to be on a writhing taniwha or monster? Answer: on the side-lines of course, out of harm's way. And increasingly this is happening. There is evidence of 'seismic flight' going on within New Zealand. People and businesses are moving in a steady sustained osmotic trickle from high pressure to low pressure, from places deemed seismic to places that are more aseismic. Inevitably the move is generally northwards to Auckland which is our safest large city in terms of exposure to potential seismic hazard and hence relatively aseismic compared to more seismic Wellington and Christchurch. The Chatham Islands would be even safer from seismic hazard.

The message is getting through, and highly readable and authoritative books like this are contributing to the decision-making: the further away from the seismically active plate boundary in New Zealand, the safer it is. People are making educated choices. How sensible! Of course this is also contributing to inevitable distortions in the location of population growth and inevitable pressure on availability of land for housing, construction and infrastructure.

So who would and/or should read this book? I came to the conclusion that the answer is just about everybody who thinks about New Zealand and the uncharted waters that it faces. Those of us who are trying to comprehend the rapid growth of Auckland would be much wiser from reading this book too. It explains all. And accordingly, policy analysts, town planners, engineers, earth scientists, social scientists, and all those involved in developing and maintaining the infrastructure of New Zealand's society and economy should read this book. This includes politicians, especially at local and regional authority level.

New Zealand sports a government department that is concerned with the management of normality at times of abnormality: it's the Ministry of Civil Defence and Emergency Management. It employs some of the finest minds in the country, trying to determine how best to spin and react when damaging earthquakes strike. Anybody involved in official communications and decision-making at a time of crisis would benefit from this book.



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Following an Introduction, the book is organised into nine chapters as follows: (1) Science, (2) Prehistory – lessons for tomorrow, (3) Adventures in the nineteenth century, (4) The deeper story: Wellington's 'big one', (5) Twentieth-century upsurges and downswings, (6) The deeper story: Hawke's Bay 1931, (7) Twenty-first century, (8) The deeper story: Christchurch 2010-2011, and (9) Living with earthquakes. There are a Glossary, Notes, Bibliography and an Index. Note that there are three chapters entitled 'The deeper story': they focus in on the three most significant earthquakes that New Zealand has experienced: the 1855 Wairarapa Earthquake, the 1931 Hawkes Bay Earthquake and the 2010-2011 Christchurch Earthquakes.

The book is not completely wart-free. In Chapter 1 there is reference to the 'Ahuriri Lagoon' (p. 13) but the reader is not informed of where this is until much later in the book. There is reference to the 'Eocene period' (p. 23) but to a scientific pedant like me Eocene time is an 'epoch', a lesser entity than a 'period'. And it rankles somewhat to learn that Zealandia is only Zealandia 'sometimes' (p. 23). I think the Paleocene-Eocene Thermal Maximum is over-blown in terms of its temporal significance and also its relevance; it was very short-lived... a matter of tens of thousands of years, not millions, and the Eocene was almost 25 million years in duration. The map of the Zealandia continent (p. 23) and also the map of New Zealand (p. 24) both show the Alpine Fault but they fail to show the plate boundary as a through-going entity.

But the author is not an earth scientist; he is a professional writer and historian, and these are trivial points in the scheme of things. To his credit, he has consulted widely with the professional earth science community and in particular with scientists at GNS Science, New Zealand's main earth science provider.

The back cover of this book challenges the potential reader with the questions that we New Zealanders all need answers to: 'What makes our isles so shaky? Why was Christchurch not the first of our big earthquakes? And why won't it be the last?' This book addresses these questions extremely well. I rate this book as a significant and authoritative accomplishment in effective science communication. Every home should have one and everybody should read it and know it.

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