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## Book review

Nick Mortimer and Hamish Campbell

# Zealandia, Our Continent Revealed

Reviewed by Mike Berridge

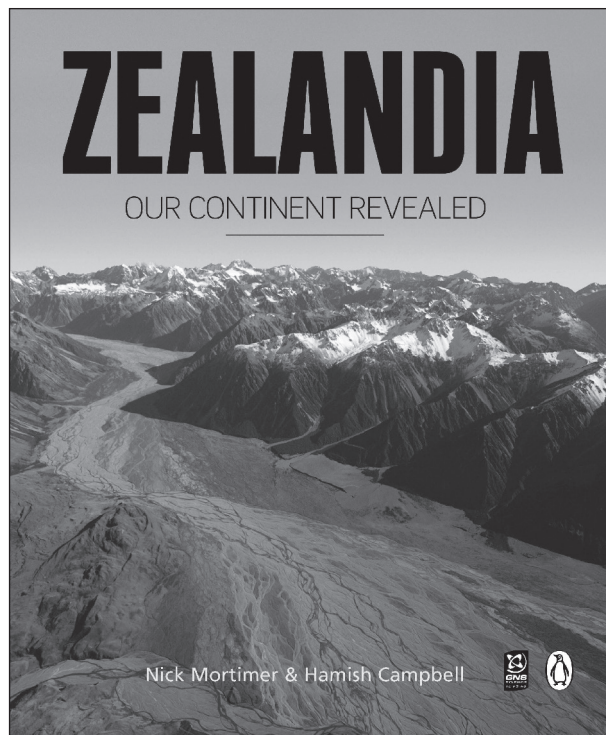
Zealandia is not yet a household name in New Zealand or worldwide, but if Nick Mortimer and Hamish Campbell had their way, the tattered and anachronistic New Zealand flag would metamorphose into a new emblem that boasts the reality of Zealandia and this flag would flap from our flagpoles. Additionally, Zealandia would become a defining component in our national anthem, also due for a refresh, to use current political vernacular. The last time I spoke with Hamish he was headed northwest on a mission to better define the far-reaching but poorly prospected underwater boundaries of Zealandia, claimed to be the world's 7<sup>th</sup> continent. Norfolk Island, Lord Howe Island, and New Caledonia notwithstanding, the flag may need a little remodelling to reflect political and colonial realities of distant territorial islands swallowed up by Zealandia, but these holes in the fabric and its raggy edges would have their own unique charm, and would not detract much from the expansive geological reality of Zealandia, 94% of it below water. The book is engaging and scientifically compelling and has been lovingly written and superbly illustrated for the intelligent layperson with an interest in things geological.

I was raised in the north on Raupo swampland that boasted some very unusual rock pimples and a few more substantial geological structures. Soon after we shifted to Dargaville in 1950, my dad established a quarrying business and our playground became piles of greywacke, the smell of burning fuses and gelignite, warning sirens, the delayed blast as rock faces sheared and stones showered the corrugated sheds that sheltered us. Our home was decorated with geodes and unusual rock specimens collected from the rubble. Turiwiri rock was good in concrete but was found to be wanting for roads as it weathered too quickly. From Zealandia, I learned that young greywacke is a poorly defined sedimentary rock that metamorphoses into slate and schist, and that greywacke is the stuff that Aoraki/Mt Cook and the Southern Alps are made of, as well as the Tararuas and the Wellington fault I live alongside. I was fascinated by the fact that the junction of greywacke with granite defines the boundary between continental Zealandia and oceanic crust and that my small fossil shell collection from the Seddon river is imprinted in greywacke from near Mt Tapuaenuku.

So Zealandia grabbed my interest from the first page, not only because I felt a close connection with the subject of the book, but also because of the great selection of photographs and the relatively simple diagrams used to illustrate and explain complex geological structures, continental processes underlying principles. Additionally, the writing style is direct and relatively uncluttered with scientific jargon. More dense scientific subjects are separated in coloured boxes from the main text, and this additional information can be read at will, although the small text and colour choice require good lighting and optical aid. The flow of the five chapters, from the concept of continents and continental drift, through discovery of Gondwanan ancestry and half a billion years of life's story written in the rocks, and ending in society today is a tale that needed telling and that will endure the test of time with the potential for updating as new knowledge emerges.

Mortimer and Campbell effectively communicate the power of science, and in particular the awesome forces of nature, to explain the terrain we often take for granted and the underwater geology we know we don't know much about. In doing so they bring geology to life. The boundaries between knowledge, theory and speculation are well defined and the weighty question of whether Zealandia was completely submerged after separating from Gondwana is rightly left unanswered and will be addressed in the future using geological, palaeontological and biological approaches to travel back in time.

A philosophical approach to New Zealand's changing biodiversity is evident. The truism that nature is no conservationist is balanced by recognising that humans have contributed to both increased biodiversity and species extinction. I learned that we have about 27,300 endemic species and 21,800 that occur naturally here and elsewhere, with another 7,100 having been introduced. About 60 species have become extinct since the arrival of humans, while a sobering 3,500 species are at risk or threatened.



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An unusual and unexpected aspect of the book is the engaging way in which social, cultural and economic consequences of the geology of Zealandia are explored in the final chapter, and colourful human stories are told throughout the book. I particularly liked the image of the symbolic chain sculpture by Russell Beck in Lee Bay, Stewart Island, anchoring the South Island canoe through a twin sculpture at Stirling Point near Bluff, and was introduced to the stark art of chronogeologist, Chris Adams, that depicted basalt columns in Ohira Bay, Chathams Islands, where we met during a visit to the Chathams almost a decade ago now. The symbolism behind the welcoming rocks at the entrance of Te Papa Tongarewa is explained, linking Papatuanuku the land, Tangata Whenua the indigenous Maori people, and Tangata Tiriti, those here through the Treaty of Waitangi.

In summary, the authors have masterfully woven the past, the present and the future into a very readable and engaging scientific story about the discovery of Zealandia, with all extant life being privileged passengers “on a giant northward-moving ark”. Middle Earth, as Tolstein, Kupe or Cook might have experienced it 85 million years ago following separation from Gondwana is mapped, and future predictions, given a couple of assumptions about plate tectonics, are that North Zealandia might eventually farewell South Zealandia, though not in my lifetime.

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