

Books

Cradle of life:

The story of the Magaliesberg and the Cradle of Humankind

By Vincent Carruthers. 256 pp. Struik Nature. R300.

This book is a truly impressive undertaking. Between its covers is an enormous amount of information, and it's all presented in a highly accessible form. The text is broken up into short sections and interesting boxes, which make it easy to dip in and out, and it's richly illustrated with photographs and colourful diagrams.

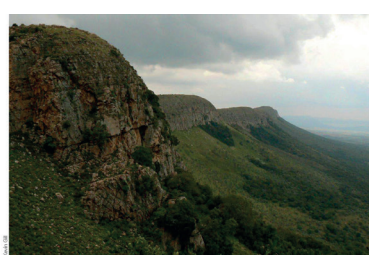
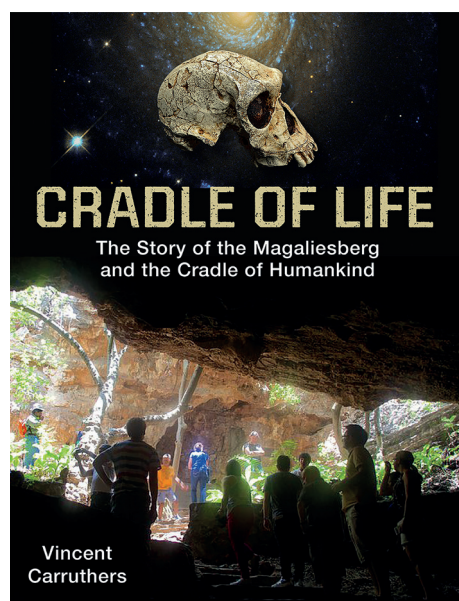
The author certainly knows his subject, as he was part of the teams that prepared plans for the declaration of the Cradle of Humankind World Heritage Site in 1999, and from 2006 led the campaign to have the Magaliesberg designated a UNESCO Biosphere Reserve, ultimately proclaimed in June 2015.

Here, he traces the history of the Magaliesberg landscape, following a timeline that begins with the origin of the universe in the Big Bang 13 800 million years ago

and the birth of our planet 4 600 million years ago, and ends with the anti-apartheid activity leading up to South Africa's first democratic election in 1994.

The book is divided into three parts – Life and Landscape, Human Evolution, and Archaeology and History – and it covers topics as diverse as astronomy and cosmology, geology and geomorphology, biology and ecology, palaeontology and anthropology, colonial history and the Boer War, as well as technological developments like the Hartbeespoort Dam, the Hartbeesthoek Radio Astronomy Observatory and the Pelindaba nuclear energy facility.

At the heart of the book, the Human Evolution chapters provide a good overview of the fossil discoveries – from Little Foot to *Homo naledi* – that have made the Cradle of Humankind world famous. Given that this topic forms part of the curriculum, the book would be a worthwhile addition to school libraries, but its attractive layout means it could also be displayed as a 'coffee-table book' in the home or office, or shelved as a keepsake from a visit to the area.



Abstraction from the rough till in the ice cap bevelled the edges of the Magaliesberg into rounded slopes.

The effect of the polar crossing left the Magaliesberg landscape a scarred remnant of its former self. The high quartzite crests had been greatly reduced and planed off to a constant altitude along the entire length of the range. The sharp tip of the truncated crest had been smoothed to a rounded

➤ 280–180 million years ago: The Cradle-Magaliesberg in Gondwana

As Gondwana began to emerge from under the ice about 280 million years ago, the climate became warmer, and terrestrial plants and animals began to develop and spread. However, on the Capricorn Highlands, the elevated land in southern Gondwana, ice remained, at least seasonally. Glaciers and rivers of melt water drained southwards from the Highlands across the Cradle-Magaliesberg area into what was then the Karoo Sea. Shallow deltas formed out at the river mouths and provided ideal conditions for fossilisation to occur. Over the next 100 million years, the Karoo Sea gradually filled



Glossopteris trees dominated the Gondwana landscape. They had tongue-shaped leaves to which seed pods were attached.

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Above: The Cradle-Magaliesberg was once buried under desert dunes before volcanic eruptions triggered the disintegration of Gondwana. Left: Species of mammal-like reptiles similar to *Diictodon*, a fossil found in Karoo sediments, may have once inhabited the Magaliesberg-Cradle area.

with sediments in a succession of deposits known as the Karoo Supergroup, and the sedimentary layers eventually covered the Cradle-Magaliesberg. These layers have subsequently been stripped away from the higher ground, leaving no trace of life in the region, but they still cover much of Free State Province and the Karoo, where fossils in the sediments offer us some insight into the biodiversity that might have inhabited the Cradle-Magaliesberg region during Gondwanan times.

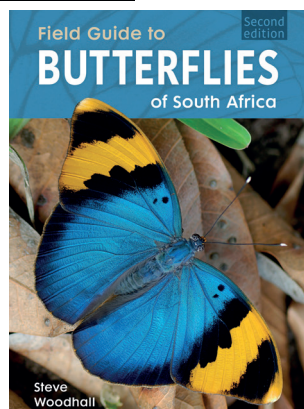
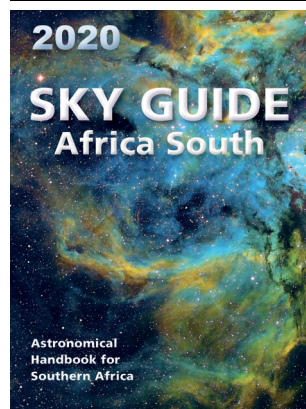
Flowering plants and grasses had not evolved at this time, and the floral landscape would have appeared very alien to modern eyes. Clubmosses and ferns were abundant, and Glossopteris was a particularly successful genus of seed fern, or Pteridosperms, throughout Gondwana. The dense forests of Glossopteris that flourished along the shores of the Karoo Sea were destined to become the coalfields of Mpumalanga.

About 280 million years ago primitive reptiles were prolific in this region. Later, the therapsids (mammal-like reptiles) dominated the megafauna in southern Africa until about 251 million years

ago, when they and almost all other species were eliminated in a mass extinction. The cause of that mass extinction is unknown, but it may have been the result of an event similar to the Vredefort Dome meteor impact.

The ecological niches that had been vacated by the therapsids were eventually filled by the dinosaurs about 210 million years ago. There were various species of dinosaurs that dominated the landscape and roamed the hills of the Cradle-Magaliesberg region. The plant kingdom was also radically affected by the mass extinction. Glossopteris disappeared across all of Gondwana, to be replaced by newly evolved cycads and conifers. By about 190 million years ago Gondwana had become more and as it drifted further northwards, and desert sand dunes swept over the landscape. The desert phase of the history of Gondwana ended roughly 10 million years later when the Earth's crust ruptured and sheets of lava flooded across most of what is now South Africa. Gondwana had begun the long process of fragmentation into the continents with which we are familiar today.

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Other recent releases by Struik Nature include the 2020 edition of the *Sky Guide*, published each year by the Astronomical Society of South Africa (R145), and a revised edition of *Field Guide to Butterflies of South Africa*, by Steve Woodhall (R390).

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Human evolution: importance of the Cradle of Humankind