

Geology of Odisha. J. K. Nanda, M. Mohanty and S. N. Mahapatro. Geological Society of India, Bengaluru, India. 2022. viii + 410 pages. Paperback. Price: ₹ 750. ISBN: 978-93-80998-47-3.

The state of Odisha covers about 155,707 km² (~5% of the total area of India) on the eastern margin of Peninsular India. It is the leading mineral-producing state, accounting for ~34.3% of the country's mineral production. The state has received considerable attention from different exploration agencies for bulk minerals, as well as non-bulk strategic and energy technology minerals and materials, resulting in generating low-level aerial geophysical data for a major part of the state. The geology of the state has immense importance in providing a link (particularly with Western Australia and Antarctica) for reconstructing the formation of the Gondwanaland supercontinent during the Palaeozoic and its dispersal during the Mesozoic. The Precambrian rocks covering 72% of the state's surface area also provide an opportunity to examine the models of super cratons that existed before the formation of the Gondwanaland. The preservation of the oldest cratonic nuclei of India, the Singhbhum and Bastar cratons in the north-eastern and western parts of the state and the development of a Paleoproterozoic–Mesoproterozoic orogenic Belt (the Eastern Ghats Mobile Belt) with northeast-southwest alignment and preserving records of ultra-high temperature metamorphism, have received considerable attention of geoscientists from different parts of the world and generating vast amounts of data related to the evolution of Precambrian rocks of the state. A reasonable compilation of these data, providing a synthesis of first-hand information by persons involved in generating these data, was long-awaited. The *Geology of Odisha* by J. K. Nanda *et al.* fills this gap.

The book contains nine chapters. Chapter 1 on Geomorphology contains a brief introduction to the physiography and history of the state, followed by details of different geomorphological units. Chapter 2 provides an overview of the Geology of Odisha. Chapter 3 covers the Singhbhum Craton in 147 pages containing 43 maps, geological sections and field photographs, 36 tables of geochemical, geochronological and lithostratigraphic data. It also contains Proterozoic metamorphic belts bordering the craton and the economic potential of different lithostratigraphic units. Chapter 4 deals with the Bastar Craton and associated supracrustal belts and provides an overview of the geology of the craton in the adjacent state of Chhattisgarh. An overview of the kimberlite field and tin mineralization provides background materials for interested entrepreneurs. Chapter 5 is the second largest in the book covering the Eastern Ghats Mobile Belt – 108 pages. This chapter contains 52 figures and provides excellent first-hand information and critical analyses of different lithotectonic domains, geophysical studies, structure and tectonics of the region. The boundary relationships with the adjacent cratons and the importance of the Eastern Ghats in the Indo-Antarctic correlation are provided in this chapter. Chapter 6 provides details of the Rengali Province, separating the Singhbhum block from the Eastern Ghats. The compilation of this little-known province and its economic potential for PGE mineralization provides sufficient material for people in the exploration industry. Chapter 7 contains summarized versions on lithostratigraphy, depositional environment and correlations of five Proterozoic intracratonic basins. Chapter 8 on the Gondwana Supergroup contains descriptions of eight basins in terms of basin configuration, correlation and coal deposits. Chapter 9 deals with the Cenozoic sequence of Odisha. This chapter contains small sections on on-shore and off-shore geological units, basin development and hydrocarbon potential.

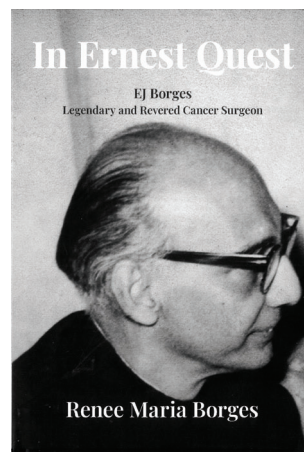
Each chapter contains original maps (both in colour and greyscale), as well as greyscale photographs and images and up-to-date references on the subject. Petrographic and geochemical data have been provided throughout the book. The authors have given their critical analysis and interpretations, along with the earlier ideas and statements regarding future directions for investigations in critical areas. A large-size coloured geological map provides an excellent synthesis of the geology of the

state. In accordance with the practice of the publishing society, mineral resources are not discussed in detail in this book but are left for publication in another series. However, small sections on the economic potential of different geologic units are sufficient for interested geoscientists and entrepreneurs.

The book is an outstanding contribution by the three authors having a track record of publications in similar series and international journals (mentioned in the last two pages about the authors). Two authors retired from service in the Geological Survey of India, and the third author is still serving the same organization. The book would be useful to geologists, entrepreneurs, as well as students of geology who are interested in intercontinental correlation and the exploration and development of resources. It provides first-hand information synthesized in one place.

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In Ernest Quest: E. J. Borges – Legendary and Revered Cancer Surgeon. Renee Maria Borges. CinnamonTeal Design and Publishing, Plot No. 16, Housing Board Colony, Gogol, Margao, Goa 403 601. 2022. 417 pages. Price: Rs 995.

It took much longer than I anticipated to read this book. I found myself reading a few pages each time and then putting the book down to reflect because this book

does call for reflection and is more than a biography of a legendary man. At a personal level, the book is, in a sense, the search of a daughter to better understand her father, who passed away when she was a child. Therefore, she did not have the luxury of knowing him as she would have wanted to, and her quest is slowly fulfilled as the pages of the book are turned. At a broader level, however, the book is about a pioneer surgeon who became a public figure working in an area of medicine that was poorly understood and had limited therapeutic options at that time. The high mortality and the prolonged suffering of patients ensured that those who opted to work could not be faint-hearted.

I first heard of Ernest Borges when I was travelling by train with my father for my admission interview to medical school. He spoke at length, and I listened, undistracted by the electronic devices that clutter our present-day lives. Ernest Borges was a pioneer cancer surgeon who, together with a select small group of committed doctors, helped to establish the surgical services of the Tata Memorial Hospital in Mumbai, India's premier cancer hospital. Many years later, I travelled on the road that bears his name to deliver a talk at the same hospital. I had come through a full circle or so, I thought. But, how little I knew of Ernest Borges. This book took me to the beginning of that circle!

A book that could so easily have become hagiographic is not, through various methods that the author employs. An entire section of the book is devoted to Ernest Borges, as revealed through oral histories collected from people who worked with him and knew him as the man he truly was. Then, there is a collection of his talks and papers. These sections reveal a man with contrasting traits—a kind and compassionate man committed to his patients and a man whose mercurial temper could be aroused at shoddiness or barriers to patient care; a man of science and a man of God. There is enough in the book that allows readers to develop their own ideas and opinions of the man, which I believe is the hallmark of a good biography.

It was hard not to become immersed in this book—as a trained medical doctor (albeit having left clinical practice over three decades ago), I spoke to me personally. Because, in telling the story of Ernest Borges, the author transports us through the dilemmas, challenges and frustrations associated with the practice of medicine. There is much that those who have been patients

or involved in healthcare will be able to relate to at an individual level.

I believe that one of the remarkable facets of this book in telling the story of a man who became, for many, a revered household name is the revelation of his human character. The many anecdotes that pepper the book are as varied as they can get; some are light-hearted and witty, some are poignant, and many are truly inspirational—they cry out to the reader and force them to examine their own lives.

We live at a time when the practice of medicine has become highly commercialized. Technological advances in medicine have opened new possibilities for treatment and have led to novel and complex ethical dilemmas. But, the core of the human aspect of medicine remains the doctor–patient relationship. This book wonderfully outlines some of the fundamental lessons of this relationship. But, because Ernest Borges was a surgeon, there are some special lessons for surgeons. Some surgeons perform surgery like artists—their fingers moving nimbly and effortlessly as they work—Ernest Borges appears to have been such a surgeon. The magic of his hands seems, however, to have transcended the physical, as this message from a relative of a patient shows—‘In your utter sincerity, enthusiasm and a passionate sympathy with [the] suffering of a patient, it is no exaggeration to say that you become the channel of higher forces and therein lies the magic of your hand.’ The restraint that Ernest Borges showed in performing surgeries is another important lesson—‘this philosophy that any operation to eradicate cancer is justified, I think is wrong because it focuses attention only on the disease and completely forgets the patient. There is more in life than just being alive.’ Helping patients and their relatives deal with the ‘futility’ of medical or surgical interventions in terminal illness while ensuring continuity in care remains an important role of a doctor.

As a student of the history of medicine, I found myself repeatedly drawn to the footnotes. These footnotes and the commentaries that precede the faithfully reproduced texts of the talks of Ernest Borges reflect the author's training and experience as a researcher and provide context and value to the book. Some of the commentaries are detailed. For example, I was fascinated by the succinct and gripping historical and philosophical account of the ‘Problem of Birth Control’ that leads into a talk on the same theme. The patient, painstaking and enormous task of retrieving the

vast amount of material that forms the body of this book would only be truly valued by an archivist—the task can be challenging and frustrating for an author when gaps emerge in the narrative. I can only imagine what Renee Maria Borges experienced as she went about her quest of researching and writing this book, but the end result reveals a truly outstanding job.

The book culminates in a collection of tributes and eulogies following the death of Ernest Borges. These need to be read in their entirety to be appreciated and, in many ways, highlight the nature of the ‘ideal’ physician that Ernest Borges embodied: justice, honesty, a lack of prejudice, compassion, and a sense of duty, among many others. Eulogies can sometimes appear clichéd and trite, and appear to have been a challenge that some were aware of, as one eulogy ends in the following way—‘There are some phrases which, fine in themselves, suffer grave devaluation from overuse. Whenever a man who has been conspicuous in public life dies, it is said that his loss has created a vacuum that is difficult to fill. This is written of even men who have long faded from public view. But it is literally true of Ernest Borges. We shall not see the like of him again.’

About fifteen years ago, I was involved in setting up a department of ‘Health and Humanities’ in the medical college where I studied and then worked for over three decades. The aim of this department was to recapture the ‘humane’ in medicine and challenge students to see their training as more than acquiring technical skills. In many of the book readings we held, I felt the acute need to search for inspiring material specific to India. This book fulfils such a need admirably, and while I think it has an appeal and lessons for a much wider readership, I believe it must find a very special place in every medical college library. Among many other things, even as the art and science of medicine advances, the book powerfully speaks to the limitations and the continuing struggle of medicine to address ailments that are sometimes beyond cure—‘To cure sometimes, to relieve often, to comfort always.’ Ernest Borges faced this in his time, and we continue to face this now.

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