

Himalaya: Emergence and Evolution.
K. S. Valdiya, Universities Press, 3-5-819
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During the last two to three decades several monographs have been written on the geology and geological history of Himalaya. Experts wrote them for other experts, scientists and research students. The book under review is a welcome deviation from this, since it is written by a leading Indian geologist primarily for non-geologists, who are unfamiliar and unacquainted with geological jargons and technical terms.

This little book is a follow-up of an earlier well-received book *Dynamic Himalaya*, written by the same author in 1998. The new book provides a shorter and more simplified but still an all-encompassing coverage of the multifaceted and complex evolutionary and tectonic history of the world's most youngest, dynamic, spectacular and enigmatic mountain system of the world.

Himalaya is an impressive, world-class mega-landform, which has attracted the attention of scientists from diverse fields, as well as naturalists and environmentalists alike. The need for an up-to-date, albeit uncomplicated and simplified account of the geology, geological processes and evolutionary history of the Himalaya mountains has been felt for a long time. Valdiya has filled this gap. In this book he has beautifully presented an excellent summary of the findings of innumerable international and national endeavours undertaken during the last few decades to unravel the mysteries surrounding the emergence and evolution of the world's highest mountain.

The author has given a systematic and step-by-step account of the major geological events spread over ten chapters. The introductory chapter describes the physiographic, climatic and bio-geographical characteristics of the Himalaya mountains and sets the right tone for the following chapters that deal with specific geological events, such as the northward movement of the Indian peninsula, India-Asia collision, associated volcanic activity, emergence of the various Himalayan domains and establishment of Himalayan

drainage. The impact of the emergence of Himalaya mountains on the regional climate and the establishment of the Indian monsoon system are discussed in the seventh chapter. The next two chapters trace the evolution of the Indo-Gangetic plains, yet another mega-geomorphic and young physiographic unit of the Indian subcontinent. The complex geological processes involved in the drifting and breakup of continents, deformation of rocks and mountain building activity are explained in an amazingly simple, articulate and lucid language. The contemporary plant and animal life and evidence of presence of early humans have also been discussed, with good diagrams and fossil photographs. This makes the book exceedingly interesting and factually informative for all. The last chapter discusses the present seismo-tectonic scenario of the region, and the distribution of earthquake hazard in this region. The book ends with a note of the regretful condition of the deteriorating environment of these most fascinating mountains on the Earth. A fact which calls for a special mention is the very palatable manner in which many scientific details and concepts of the complex evolutionary history have been presented for any layperson to understand.

All the chapters are supplemented with clear, informative and self-explanatory maps and diagrams. The block diagrams are particularly brilliant and substantiate the explanation given in the text. The satellite image and the copious colour photographs of fossils, pre-historic life and Himalayan landforms are of good quality and support the text. The example of overriding of young sediments by very old rocks, given in figure 10.4A, is particularly impressive.

Brief and informative explanation of the development and origin of some commonly known features such as duns, intermontane lakes (Karewa) and *tals*, and geological information about popular shrines and religious places such as Vaishnodevi, Amarnath Cave, Kailas-Mansarovar, Kedarnath, Badarinath, etc. and reference to the Vedic river, Saraswati has made the book more appealing for commoners, non-scientists and students.

At the end of this book, a glossary, a geological timescale and an index have

been added that have enhanced the usefulness and usability of the book. Non-experts would certainly find the glossary to be particularly useful to better understand some of the unavoidable geological terms used in the text.

Although the subject matter has been properly organized, I am of the opinion that in order to maintain the continuity and chronology of the events, the fifth chapter 'A flashback into the past' could have been placed after the introductory chapter. Further, inclusion of some more terms in the glossary, such as suture zone, stratigraphy, gravel, morphostructure, rifting, etc. could have enhanced the utility of the book. A few figures would have benefited from some more explanation. For example, the caption of figure 1.6 and the theme of the figure do not seem to exactly correspond. On page 64 the author states that the hornless giant *Baluchitherium* of the rhino family was the largest land mammal that ever lived on the Earth. It would have been interesting if some information about the size and dimension of this oversized pre-historic animal had been given in the text or the sketch (Figure 6.7). Further, going through the book one gets the feeling that while there is wealth of information about the western and central Himalayan sectors, there are relatively fewer examples from the eastern Himalayan sector.

Notwithstanding these minor omissions and lacunae, the book is a brilliant piece of work and is flawless in terms of narration, data, figures, photographs, details, text and explanation. All those who are eager to be acquainted with the birth and evolution of this fascinating mountain, but are not familiar with geological terms and concepts, will find this book most readable, extremely useful and factually informative. Considering the number of colour plates included in the monograph, the book is undoubtedly reasonably priced. Nevertheless, it is still prohibitive for school and undergraduate Indian students.

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