

## **Precambrian Geotectonics in the Himalaya – Sans Cenozoic Hangover** by B.K. Chakrabarti, Elsevier, 2023, 373p.

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Himalaya, the youngest and the highest mountain chain, is an example of continent-continent plate collision during the Cenozoic times. Thus, there is a palpable bias in favour of the Cenozoic tectonics, while the earlier tectonic events are ignored. Save for stray papers no consolidated account dealing with Pre-Cenozoic tectonics in the Himalaya was available. It is for the first time that one full book devoted to a rather unpopular topic of Precambrian Geotectonics in the Himalaya is made available.

Not only the topic of the book but also the style of writing is unconventional. The narration is in first person for most part of the book. It begins with a generalised background of the Precambrian sequences of the Himalaya, followed by an exhaustive account of the Precambrian terrain stretching from Pakistan to Arunachal.

Another chapter deals with the structure, metamorphism, thrusts, Precambrian gneisses, etc. fortified with isotopic and geochemical statistics. It concludes with the evolution of terrain from the Paleoproterozoic to the Cambrian.

An attempt has been made to correlate tectonic events in the peninsula with the Himalaya. The Mesoproterozoic gap in sedimentation in the Himalaya has been correlated with a similar event in the frontal peninsula.

Magmatic events are documented with an aerial view of the Lesser Himalayan and Higher Himalayan sequences. The author strives to revise well-entrenched views on the Cenozoic evolution of the Himalaya and pleads for Precambrian tectonics. It provides new insight into geology in general and Himalayan geology in particular. The commonly held view that the Lesser Himalayan nappe and klippe are related to the Himalayan orogeny is relooked to retain a Paleoproterozoic tectonic impress, associated with regional metamorphism displaying a classic reversal picture. This aspect deserves a detailed probe into

the intensity of the subduction—the back-thrusting movement of the Himalayan orogeny.

The author considers the Shimla sector as a type area of the Lesser Himalaya, where based on his personal observations he copiously cites a-lineation, bi-generation garnet, etc. as prominent stamps of the Paleoproterozoic tectonics. Zr-Nd data are used to recognise the MCT, which separated the Neoproterozoic Central Crystallines (HHC) from the Paleoproterozoic Lesser Himalayan Crystallines. The author identifies the MCT (upper/new) as a decollement zone and/or unconformity.

Limiting the tectonostratigraphy of the Himalaya across the Cenozoic trend (NW-SE) is discounted. The regional NE-SW trending mega-folds bear testimony to the Precambrian fabric in the root of the Himalaya. The granitoid rocks in the Lesser Himalaya have been reviewed. The porphyritic variety with altered cordierite and leucocratic two-mica components of these bodies are interpreted to represent two-phased growth.

The book deals with several controversial aspects, and analyses and gives pragmatic solutions.

Despite scarce and scattered data on the Precambrian tectonics, an attempt has been made to stitch these together to draw a cohesive picture.

Due to general dearth of data, the Cenozoic tectonics experts may find several loose ends in Precambrian concepts, but even they will appreciate the wealth of information on Precambrian successions from Pakistan to Arunachal, so far scattered in several disconnected publications, has been consolidated in one place. The book will help unlearning of old bias and look for paths untrodden. Must for young enthusiastic workers whose ideas have still not frozen.