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Book Review

Quaternary Geology : Indian Perspective by U. B. MathurMemoir No. 63, Geological Society of India, Bangalore, 344p. with numerous figures, tables and photographs. Price not stated.

Quaternary Geology is closely associated with palaeoclimatic studies, sea-level studies, neotectonism, archaeological studies and modern civilization. In India, Quaternary Geology studies have remained a neglected field of study for a very long time and have not been emphasized in the curriculum of the universities, even at the postgraduate level, barring a few where the subject experts are available. This was perhaps because the older rocks were harder, stratified and spread over more on inland than the Quaternary sediments. Quaternary Geology started gaining importance after the official participation of India in the IGCP and IGBP programmes connected with Sea-level and Climate changes, respectively, during the last two decades. Even then, there was not a single book within the reach of Indian students and the beginners of Quaternary studies that could have given them fundamental information on Quaternary geology with Indian examples. Under the circumstances, the book on *Quaternary Geology: Indian Perspective* by Dr. Mathur is most welcome. This book forms an important source of a wide variety of information in a single volume. It will be of great use to students, as well as teachers working in the field of Quaternary of India in general, and climatology, sea-level changes and archaeology in particular. For students, it is undoubtedly a Bible on Quaternary Geology.

Chapter One includes an introduction to Quaternary Period, and discussions on various criteria used for defining the Pliocene-Quaternary boundary. Indian findings have been discussed that give a fair picture of the target area for further research. In Chapter Two, Quaternary biostratigraphy, climatostratigraphy, magnetostratigraphy have been dealt with in detail in a most lucid style. The Chapter Three on Quaternary Palaeoclimatology provides us with the understanding of the fundamentals and various tools and methods that are used for reconstruction of palaeoclimate of different time-intervals. It includes details of the manner in which instrumentational and proxy records are used for palaeoclimatic reconstruction. Long term and short term climatic changes during Pleistocene and Holocene are nicely summarized. Apart from the gist of palaeoclimatic studies done in India, this chapter also contains interesting observations on greenhouse warming model and related aspects. The astronomical theory of Milankovitch and terms like *El Nino*, *La Nino*, etc. have been described so lucidly that any reader would like to read this book. Sea-level changes, at least during Quaternary, is a concern to all of us. The global sea-level changes, mechanism of sea-level changes, and sea-level indicators with the information from Indian coasts are the subject matter of Chapter Four. The information from the Indian coastal margins and observations on future vulnerability of coasts to accelerated sea-level rise is worth reading. Chapter Five has been dedicated to the dating methods particularly suitable for the Quaternary sediments, which should prove very useful for the field investigators. Chapter Six on Archaeology is extremely informative. Dr. Mathur has very comprehensively summarized prehistorical records with localities of hominid fossils in India, which a geology student could never find elsewhere. The part of the chapter dealing with evidences of the evolution of culture is unique. The remarks on Harappan Culture, now appropriately named as Sindhu-Saraswati Culture, is one of the most interesting materials, which even a non-specialist would love to read.

The understanding of structural features and neotectonics of the regions falling along the coastal areas is very significant in the context of interpretation for sea-level changes. Chapter of Seven of the book gives the tectonic framework of Gujarat. Similarly, Chapter Eight is devoted to geomorphology, which controls the climatic conditions, processes of sedimentation and biofacies. The easiest source for Quaternary stratigraphy is chapter Nine of this book. The interbeded sequence of marine and aeolian carbonates of Saurashtra and Kachchh peninsula of Gujarat, western India have no other parallels in India. The stratigraphic settings of Quaternary carbonates of these regions are reminiscent of Western Australia, Bahamas, Andros Island, Bermuda and the Persian Gulf Coast region. The information contained in these chapters should be of interest to those working in the tropical belt of the world.

The references mentioned at the end of each chapter give evidence of rigorous research done by the author in presenting this information volume on Quaternary Geology. The book is indeed a timeless memoir for both students and researchers with the wide range that it covers.

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