

of foraminifera and other fossils, it is seen, that it is not possible to ascertain the exact hiatus between the last Jurassic bed and the first Neocomian due to the absence of characteristic microfauna. The available foraminifera are, however, systematically studied and their ranges recorded.

There are a few lacunae in the publication which may be pointed out. Part I needs a separate title as is given for part II—'Jurassic/Cretaceous Boundary'. Figure Nos. 1 to 18 of part I and Figs. 1 to 3 could have been numbered continuously as Fig. Nos. 1 to 21. Similarly, the same applies to plates too. Apart from the errata given at the end, there are a number of mistakes in the text. The unsatisfactory binding of the volume needs special mention as the pages come out.

The work portrays well presented latest picture of the Mesozoic stratigraphy of Kutch based on benthic foraminifera. The students of Kutch Mesozoic stratigraphy will be very much benefitted.

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ANCIENT INDIAN THEORIES OF THE EARTH. By S. R. N. Murthy, Centre for Advanced Study in Sanskrit, University of Poona, Pune, 1992. 118 p.

Ancient sages of India had speculated on the origin of the Earth and evolution of elements. In the history of development of science, these early speculations, no doubt, have a place. The author of the book is a geologist with knowledge in Sanskrit, and is eminently qualified to undertake the task of interpreting the poetic expressions of the ancient philosophers in the light of modern knowledge. He has attempted at such an interpretation in this booklet of 100 and odd pages. He has sought to show that Indian thought had evolved on a geo-astronomical basis correlating terrestrial events with celestial happenings, with observations extending over thousands of years.

Brief references are made to the geography of Rigvedic India and it is argued that Aryans were indigenous to *Saptha Sindhu*, and not migrated from Central Asia, as is generally believed, and that the *Saptha Sindhya* was the cradle of the Aryan race. The inhabitants of this territory were acquainted with the metallurgy of most of the essential metals like gold, silver, lead, tin, iron and steel. They were experts in making alloys.

Author refers to the personification of geological agents with individual gods. Heaven and Earth (*Dyava - Prithvi*) are the most frequently named pair of deities. The addressing of Earth as *Savitri* denotes that it originated from the Sun. The term, '*Hiranyagarbha*' for the Earth points to the conception of the deep-seated origin of gold, a material of high specific gravity forming the core of the Earth. The author points out the various names by which Earth is addressed in the ancient texts which are pregnant with meaning.

Although located in an actively seismic zone, the ancient Hindus do not seem to have had a clear concept of the origin of earthquakes. The author repeatedly refers to '*the theory of Earth*' mentioning it in most chapter headings, but there is little of any such theory outlined in these pages. A mention is made of *Drona* and *Adhika* systems of calculating time, but no details are furnished. We stand amazed

at the stupendous time scale conceived by the Hindu philosophers. It is too much to claim that the ancients had anticipated all the developments in modern science and had developed a theory of the Earth. Their knowledge of uniformitarianism, the law of superposition, and the true nature of fossils, for example, was of a primitive kind.

Obviously, this is a first attempt to gain glimpse of the Hindu view of the Earth. Far more scholarly analysis of the ancient texts should be attempted to get an idea of how their mind worked and the extent of their understanding of natural phenomena.

B. P. RADHAKRISHNA

PLANT FOSSILS—a link with the Past, 1992. By B. S. Venkatachala, Manoj Shukla and Mukund Sharma. Birbal Sahni Institute of Palaeobotany, Lucknow-226 001. 63 pp.

Very few children are aware of the fact that an understanding of the evolution of ancient biota is possible by a careful study of the fossils preserved in rocks from the earliest geological periods. This book, mainly written to kindle interest in school children (and laymen alike) is mainly devoted to the description of some of the very important fossil plants of India and also trace their evolution briefly. The earliest ones go back to 3.5 billion years. Direct and indirect (stromatolites) evidences for the existence of bacteria, algae and other microorganisms are presented, besides those of pollen, spores, fruits, leaves, stems and roots of some varieties of plant life, mainly from India. Welcome additions are a few scenarios indicating the environments of plant life that flourished in the different geological periods, and a brief note on how the major energy sources of the modern world, coal and oil, have been derived.

This well illustrated handy book, with many photographs in colour written in simple language, must find a place in all school libraries.

R. V.

PHYSICAL GEOLOGY OF INDIA, 1991 By S. N. Mathur. National Book Trust, A-5, Green Park, New Delhi-110016. 180p. Rs. 36.00.

This book which is a reprint of an earlier edition of 1986, deals with the description of mountains, rivers, glaciers, plains and the coasts of India and is a good addition to a few already written by others. Written by a professional geologist, it bears the stamp of his wide experience and personal knowledge of different terrains. Some of the topics, not always normally dealt with in such detail in books of this kind, for example, chapters IX, X and XI, on Earthquakes, Isostasy and Global Tectonics are perhaps indicative of the desire of the author to bring to the notice of the students of India the latest information on these subjects.

This book will be found useful for instruction to graduate students in the fields of geology and geography in India. There are a few photographs and maps. If there is anything wanting, it is the lack of sketches depicting varieties of landforms in different parts of the country. If the book is to be reprinted again, this lacunae may be attended to. It is reasonably priced.

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