

references in these chapters to the distribution of some REs and RMs in different parts of our country. There are no district or State level maps to atleast show their locations. Much of the information come from text books on chemistry of metals and mineralogy. Chapter 11 is on *Transuranium Elements* which should not have found a place in this book. In Chapter 12 on *Exploration techniques in search of Rare metals and Minerals*, the heavy mineral technique is neatly described. Chapter 13 is on *Ore Reserve Estimation*: The categories of resources given in this chapter do not conform to the Field Guidelines for Implementation of United Nations Framework Classification (UNFC) for mineral resources in India approved by the Ministry of Mines, Government of India, May, 2001. The estimated resources of monazite and zircon in India according to the author is 4.5 and 12.4 million tonnes where as they are 8.0

and 21 million tonnes as per AMD's estimate (ERFAM, v.13, 2001). Chapter 14 entitled "*Development of Mineral based Projects for the Production of Ore and metal Concentrates*" is a highly generalized account. It does not deal with RERM. Chapter 15 on *Resource Conservation: Scope and Opportunities* and Chapter 16 on *Challenges and Prospects of Mineral Industry in the New Millennium* again gives a highly generalized account known to most geologists.

The title of the book promises a lot but does not live up to it. The book at best caters to the basic needs of the earth science students.

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PICTORIAL CATALOGUE OF SIWALIK VERTEBRATE FOSSILS FROM NORTHWEST HIMALAYA by B.C. Verma, V.P.Mishra and S.S. Gupta, Geological Survey of India, 2002 Catalogue Series no.5, Price: Rs.

The Geological Survey of India (GSI), is the premier agency for undertaking work in field mapping and stratigraphy in the country apart from its responsibilities in other core sectors. Field work entails meticulous observation, litho-logging and collection of fossils that may be either age or palaeoenvironment diagnostic, or both. The present catalogue represents the outcome of laborious field work, integration and documentation by some of GSI's senior most palaeontologists and geologists; supported and guided at the highest administrative and scientific levels within the GSI.

This catalogue is by far the best illustrated and comprehensive review of Siwalik vertebrates to come out in recent times. Based on material collected by the GSI during the last three decades from various localities, mainly in the Upper Siwaliks, it gives equal weightage to all vertebrate groups rather than concentrating only on the better studied mammalian faunas.

Unlike other Siwalik vertebrate catalogues that have been published in the past, this one clearly stands out: Firstly there is a great deal of data on the precise location of the fossils along with detailed maps, photo illustrations and other necessary data, such as repository, catalogue numbers and brief morphological descriptions. Secondly, an attempt has been made to document lower vertebrates, such as fish and

reptiles, which have been generally neglected in the past. The Catalogue therefore serves as a handy first step towards identification of fossil vertebrate material in a geologically mapped context.

The Catalogue is basically divided into five subdivisions: Introduction, Catalogue Checklist, Stratigraphic distribution of taxa, Faunal analysis and References. The introductory chapter acquaints the reader with Siwalik stratigraphy and the history of collections of Siwalik vertebrate fossils, an assemblage which is globally one of the best studied. The section on Siwalik stratigraphy has been very thoroughly covered and it will be found to be most useful as a starting base for any future research. It is worthy of note that terrace deposits have also been clearly defined, as for example the Markanda River Terraces (Fig.5). An attempt has also been made to give absolute ages wherever possible. The bulk of the Catalogue comprising of the checklist of Siwalik vertebrates recorded therein naturally deals with the morphological and photo documentation of Siwalik vertebrates starting with fish taxa, reptiles (turtles and crocodiles) including the nearly complete skeleton of a snake, a rare find indeed! Some bird bones are also illustrated.

The essence of the Catalogue of course deals with Siwalik mammals (Plate 10 to Plate 144). Some effort has

been made to report the smaller mammals such as Insectivora, Lagomorpha and Rodentia. The bulk of the mammals are those that are found commonly in the Tatrot and Pinjor Formations in northwestern Himalayas, namely Primates, Carnivores, Artiodactyls, Perissodactyls and Proboscideans. Several other miscellaneous specimens including those of coprolites have also been documented.

A reading of the section on the stratigraphic distribution of taxa recorded shows a heavy bias towards the Upper Siwaliks, namely from the Tatrot and Pinjor equivalents. However, this is to be expected as the major thrust of the mapping has been in these formations where fossils are more readily available. Vertebrate assemblages from the Chinji beds at Ramnagar and (to a lesser extent) the Kamlial beds

at Dodenal have also been recorded.

The concluding section on Faunal Analysis provides a brief summary of the major significance of the finds and sums up their importance in a biostratigraphic context. References are comprehensive and cover most aspects of history, chronology and systematic descriptions. Photographic illustrations are generally well done and the colour plates are an added attraction.

All in all, the Catalogue is a worthy effort which will surely prove to be an important scientific base for all future studies.

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ASHOK SAHNI

ANNOUNCEMENTS

INDIA OIL AND GAS REVIEW SYMPOSIUM (IORS-2003) AND INTERNATIONAL EXHIBITION. This symposium is scheduled to be held at Mumbai during 8-9 September 2003 under the technical guidance and support of ONGC, IOC, GAIL, IBP and OIIB. The theme of the symposium will be "New technologies and new needs with global overview in the petroleum sector". For further details, please contact: Principal Technical Coordinator - OIL Asia Journal (Symposium Division), 1010, Classic Apts., 'B' Wing, Kherwadi CH Society, RTO Lane, Andheri (W), Mumbai - 53, India. **Phone:** (91-022) 26325787, 26327177, 26332324; **Fax:** (91-022) 26367676; **Email:** oilasia@vsnl.com; **Website:** www.oilasia.com

NATIONAL SEMINAR ON COASTAL DYNAMICS AND ROLE OF GEOINFORMATION: The Department of Marine Geology, Mangalore University is organizing a National Seminar on Coastal Dynamics and Role of Geoinformation with special reference to Indian Peninsula during 25-25 July 2003. The seminar will address the following themes: Coastal and nearshore geomorphology; Sea level changes, Coastal erosion and engineering structure; Coastal sedimentation and sediment dredging; Coastal dynamics; Neotectonics; Coastal water and land resources management; Remote sensing and GIS integration and its application and Integrated coastal zone management.

In this connection, a two-day pre-seminar training course on basic and applications of geoinformation is also being organized on 22-23 July 2003. The training programme is meant for teachers and research students of Geology, Marine Geology, Geography, Oceanography, Biological and Agriculture Sciences. For further details, please contact: Dr. K.S. Jayappa, Convenor or Dr. H. Gangadhara Bhat, Co-convenor, Department of Marine Geology, Mangalore University, Mangalagangothri - 574 199, Karnataka. **Phone:** 0824-2287389; **Fax:** 0824-2287754, 2287367; **Email:** ksjayappa@yahoo.com; gangadhara@yahoo.com

IGCP PROJECTS FOR INDIAN PARTICIPATION: International Geological Correlation Programme (IGCP) is regarded as the most successful scientific programme within continental geosciences and is carried out through individual projects. During the current year, the Indian National Committee (INC) for IGCP has identified the following three IGCP projects for Indian participation: (1) Project No.463 - Upper Cretaceous Oceanic Red Beds; (2) Project No.467 - Triassic Time; (3) Project No.470 - The 600 Ma Pan-African Belt of Central Asia.

More details on these projects are available in the IGCP homepage: www.unesco.org/science/earthsciences/igcp/. The National Working Groups for these projects are to be constituted by end of July 2003. Geoscientists interested to participate in these projects may apply through their institutions/departments to the Director, International Division and Member Secretary, INC for IGCP, Geological Survey of India, 27, Nehru Road, Kolkata - 700 016; **Fax:** 033-2249 6956; **Email:** indiv_gsi@yahoo.co.in or indiv_gsi@hotmail.com with their bio-data and contributions to related themes.