

BOOK REVIEWS

MAN AND ENVIRONMENT IN INDIA THROUGH AGES (1993). By D. P. Agrawal. Books and Books, New Delhi 110 058, 293 Pages, Rs. 1000/-

In recent years progress in isotopic studies of ocean floor sediments has revolutionised Quaternary stratigraphy and climatic changes. It is now realized that there were at least 25 glacial periods in the last 2 Ma years, and warmer climatic phases were of shorter duration. Ocean record is more or less continuous. On the other hand terrestrial record in majority of the cases is patchy, discontinuous and lacks adequate palaeontological and geochronological control. Terrestrial record in a few cases, like loess-palaeosol sequence of China and dry valleys of Antarctica, is long, more or less continuous and contains global information on Quaternary environment, particularly climate. In Indian context, intermontane basin of Kashmir has preserved 1.2 km thick fluvio-lacustrine and aeolian sediments covering a time span of about 4 Ma years.

Agrawal's book contains valuable information on palaeoclimatic and tectonic changes that have occurred in Kashmir valley in the last 4 Ma years. It is for the first time in India that a book related to Quaternary studies is based on a decade of multidisciplinary studies carried out by experts in geochronology, isotopic chemistry, sedimentology, palaeontology, palynology and archaeology. Agrawal and his co-workers in 'Kashmir Project Team' have analysed data from Kashmir against the information available on Quaternary environment of Thar desert, Nepal, China and Central Asia. The book contains interesting new data on man-land relationship in the last 20 Ka yrs in Kashmir and Rajasthan. Besides, highly technical subjects like dating methods, stable isotopic studies, ocean floor stratigraphy etc., have been explained in a lucid language and can be easily understood even by non-specialists in these disciplines.

The book contains 9 chapters devoted to geology, geochronology, palaeontology, palynology, stable isotopes, archaeology and summary of multi-disciplinary studies of Kashmir Project Team (KPT).

Kashmir valley was formed as a result of upthrusting of the Pir Panjal range and the Neogene drainage of the Himalayas which was flowing towards Punjab, got impounded and a large lake with an area of about 5000 sq km was formed around 4 Ma years B.P. This vast lake of Neogene-Early Pleistocene age became narrow and shifted towards north on the slopes of the Himalayas. These changes in the physical configuration of the lake were mainly due to tectonic movements resulting in a strong uplift of the southern range of the Pir Panjal, probably during the early part of the Middle Pleistocene. The exposed and uplifted floor of the dried lake was covered by loess of aeolian origin sometime around 200 Ka B.P. The lake on the southern side also dried as a result of the formation of a drainage system of the Jhelum probably around 85 Ka B.P. The dried lake surface on the northern side was also covered by loess. The loess (about 20 m thick) contains at least 10 palaeosols and covers a time span from about 200 Ka to around 18 Ka B.P. The palaeosol developed around 18 Ka represents early beginning of the melting of glaciers in the northwestern part of the Himalayas. Climatic deductions are based on traditional

techniques of geomorphology, palaeopedology, palynology, micro-vertebrate palaeontology, isotopic geochemistry, mineral magnetism etc.

The chronostratigraphic framework of the faunal collections built up by KPT is an important contribution to the Karewa Palaeontology. Discovery of rodents in the Karewas is significant for these are better indicators of precise climatic change and as dating markers. A microvertebrate community recently discovered from Mid-Late Pleistocene deposit of the Central Narmada Valley shows that this discipline has good potential even in other areas. However, some interpretations on individual mega fossils as given in the book can be regarded as only tentative at this stage.

Around 4 Ma years ago the climate of Kashmir was warm subtropical and changed to cool-temperate around 2 Ma years. Three long cold periods have been detected between 0.6 and 0.3 Ma years. At least three major warm periods are observed in the loess-palaeosol sequence of the Late Pleistocene. Further, climatic amelioration around 18 Ka, 6 Ka – 5 Ka, 1.8 Ka and 1 Ka, is correlated with increased human settlements in the Kashmir valley.

A review of Kashmir findings is made against new data in Rajasthan, Nepal, China and Central Asia. The book, though good for wide variety of readers, has some drawbacks which may be noted by the author at the time of bringing out a revised edition.

His views on the age of the Jhelum, genesis of loess, mode of shifting of lake towards north may not be acceptable to some of the scientists who have worked in the Kashmir valley. The chapter on geology of Kashmir valley is based on old, at times outdated information. Similarly data on 18 Ka old Upper Palaeolithic artefacts in the valley is not well presented. There are many repetitions, particularly on climatic changes. Referencing is not proper, at times misleading and sentences lack coherence. The price of the book is rather prohibitive for individuals.

On the whole the book is a valuable addition to the knowledge on Quaternary environment of NW India in general and Kashmir in particular and is recommended to students and scholars belonging to disciplines of earth sciences, archaeology, palaeobotany, palaeoclimatology and geochronology.

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GEMMOLOGICAL STUDIES IN SANSKRIT TEXTS, 1993, Vol. II.. By S. R. N. Murthy, Published by FAAST, 'Gokulam', Punnamm, Trichur 680 002. 97 pp. Rs. 30

The author's interpretation of the role of impurities in gemstones to compensate for the lack of the same (Chromophoric ions) in the human body is highly appreciable. According to the belief in Rasasastra, administration of the bhasmas (ash) of appropriate gemstone could compensate the deficiency of the element in the human system. For example the deficiency of iron in blood (less than 301 to 503 mg/lit.) could cause diseases like anaemia. Administration of the bhasma of blue sapphire whose main impurity is iron can cure this disease (p. 17). Similarly, shortage of chromium could cause dandruff and consequently baldness (p. 18). The author recommends the bhasma of ruby or wearing the gem. But how far