techniques of geomorphology, palaeopedology, palynology, micro-vertebrate palaeontology, isotopic geochemistry, mineral magnetics 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 The chapter on geology of Kashmir valley is based on old, at times outdated information.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, 'Gokulum', Punkunnam, 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

just wearing the gem would cure the disease is questionable. The author recommends high quality gem (e.g., Burma ruby of high quality costing up to a lakh rupees per carat: p. 19), that is absolutely fit for use in medicine. He also interprets the cause of the 20th century disease, the AIDS, as the weakness caused by Venus (p. 8). The author strongly believes that the planetary position is responsible for diseases and wearing a gem or consuming its bhasma would cure the disease. Those who believe in astrology would find the book very interesting.

The author's interpretations of the mineralogical equivalent of the Sanskrit terms are rather not quite convincing. For example marakata (pachha/panna), according to him (p. 24-31) might not be emerald but it could be lizardite, a green variety of serpentine.

A few technical errors are obvious in the text. For blue colour in sapphire not only iron, but also titanium is equally responsible. The author considers emerald as a hardstone (H = 8). However, a lapidary considers only diamond and corundum variety as hardstones *(Khadak)* and the other stones (H = 8 and below) as softer stones *(naram)*. The lapidary calls the red spinel (H = 8) *soft ruby (naram manik)*. The author considers the Mars as having lesser specific gravity (p. 47). Though Jupiter is the heaviest planet in the solar system (318 times the mass of that of the Earth), its density is only 1.34 whereas the mass of the Mars is very less (0.11 that of the Earth) but its density is 4.16 (density of the Earth is 5.52). It is not synthetic diamonds (p. 4) that are studded in the market, but they are the simulants like cubic zirconia and YAG. There is a difference between the term synthetic and simulant.

After perusing through the book a doubt naturally arises in the mind of the reader. If it is deficiency of iron or chromium that is responsible for a particular disease, is it not possible to administer the same in some other form or medium instead of sacrificing a beautiful, rare and expensive gem stone?

The author is successful in bringing an awareness among geologists regarding the ancient Indian views on gemstones. Those who read the book would certainly agree that there is a need for the geo ogists to work hand in hand with scholars in Indian medicine to identify and standardise the gemstones used in rasasastra mentioned in the Sanskrit texts.

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