

Russia; Prof. P. Weidelt and Prof. U. Schmucker, Germany; Prof. J. Weaver, Canada; Prof. J. Booker, USA; Prof. R. Banks, UK and Prof. Honkura, Japan.

The workshop was represented by 12 countries. It was decided by the working group that the 17th workshop will be in India at Hyderabad during September 2004, under

the convenorship of Dr. B.R. Arora and the undersigned as the co-convenor.

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CORRESPONDENCE

CLIMATIC AND ENVIRONMENTAL SIGNIFICANCE OF CALCRETE-GYPSUM NODULES

The article entitled 'Calcretes and related Palaeosols in Phanerozoic Stratigraphic Records in India (*JGSI*, v.60, July 2002, pp.75-89) brings out with force the importance of studies on calcrete as a climatic indicator. In this context, the occurrence of calcrete and nodules partly of calcrete and partly of gypsum occurring in the Precambrian terrain falling in the rain-shadow area of the Western Ghat hill ranges in the Coimbatore district, Tamil Nadu, is interesting. The area receives an average annual rainfall of about 690 mm, precipitated in about 45 days in a year. The semi-arid climatic condition is obviously favourable for the formation of calcrete occurring as nodules on the surface and lining fractures and joints in gneisses traced widely.

According to Ramanujam (1968), during Mio-Pliocene times a tropical humid climate was prevalent in most parts of India. On the basis of studies on Landsat imageries, Subramanian and Muraleedharan (1985) identified the signature of a major palaeo-river channel and patches of black clay, considered to be palaeo-lacustrine sediments. Obviously, during Mio-Pliocene, streams transported and debouched sediments with calcrete nodules in lakes. Nodules partly of calcrete and partly of gypsum are confined to the black clay patches and are not traced in the area around.

The intimate association of calcrete and gypsum and the presence of kernels of calcrete in some nodules of gypsum

suggest that gypsum is a secondary mineral after calcrete. Obviously, the interaction of the calcium carbonate of calcrete with hydrogen sulphide released by bacterial action in marshy desiccating lakes in post-Mio-Pliocene times when the climate turned dry, gave rise to gypsum.

The above picture suggests that the chemical alteration of calcium carbonate to gypsum was the result of environmental changes ushered in by a change from a humid to a dry climate. Black clay patches are known on rocks of different lithologies and ages in Peninsular India. Possibly atleast some of them are not derived from the subjacent rocks as in the Coimbatore area. Studies over a wide area may be suggestive of their modes of origin and palaeoclimatic significance.

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References

- RAMANUJAM, C.G.K. (1968) Some observations on the flora of the Cuddalore Sandstone Series, Cretaceous-Tertiary formations of South India. *Mem. Geol. Soc. India*, no.2, pp.271-285.
SUBRAMANIAN, K.S. and MURALEEDHARAN, M.P. (1985) Origin of Palghat Gap in south India – A synthesis. *Jour. Geol. Soc. India*, v.22, pp.28-37.

ERRATA

Jour. Geol. Soc. India, v.60, no.3

- p.325, Legend of Fig.2: 'ramnants' should read as 'remnants'.
p.360, Second column, 12th line from top: 'for' should read as 'far';
last para, 3rd line: '106000' should read as '10600'.