DISCUSSION


K.R. Raghu Nandan, 787, 7th Cross, M.C. Layout, Viyayanagar, Bangalore - 560 040, comments:

It is interesting to note the continuity of gold mineralisation is traced further northwest of the Bhukia gold prospect.

I visited this area several years ago. As in several other mineralized belts in Rajasthan, this belt has also witnessed ancient mining and smelting activity. A detailed study is required to know what metals they extracted. The ancient miners might have recovered copper as the main metal. Probably, they won native gold from the rocks in the oxidized zone. The authors have not included analytical results of silver, although, they have mentioned the presence of electrum and stated broadly that silver content is high.

The gold mineralisation in Baratalav-Dugocha zone appears to have some broad similarities with gold mineralisation of the Carlin Trend deposit, Nevada, USA; although they belong to different geological milieu and age. The latter deposit is considered to be North America's greatest strike in microscopic gold (Voynick, 2002). The Carlin Trend ores vary widely in grade and chemistry and are classified as oxide, sulphide or carbonaceous. Gold mostly occurs as disseminated, microscopic particles. But, high-grade ore was struck at deeper levels, grade approaching 1 troy ounce per tonne, rich enough to sustain underground mining. Carlin Trend gold contains silver in about a 1:1 ratio. Silver is a major byproduct recovered from this mine.

The authors have used the term 'Talaeoproterozoic' not only in the title but also throughout in their paper. They describe that the area of study forms a part of the Precambrian terrain with the lithounits belonging to the Jagpura Formation of the Debari Group in the Aravalli Supergroup. These rocks constituting the Aravalli Fold Belt are appropriately described as belonging to Early Proterozoic (Sinha-Roy et al. 1998). I wish the authors had defined their objective in using the term - Palaeoproterozoic in their paper.

Suresh Chander1 and C.P. Sisodia, 'AMSE Wing, Geological Survey of India, WZ, Jaipur - 302 004 reply:

Authors express their sincere thanks to Shri K.R. Raghu Nandan for his interest in our paper. Our clarifications are as follows:

1. In Manpur-Sanjela-Dugocha metallogenic belt, we are working for more than five years. We have recorded number of ancient workings in Sanjela, Manpur and Dugocha and Umarvaniyan area in dolomite particularly. Number of samples of dolomite analyzed >0.5 ppm gold and 0.1% copper from Baratalav-Dugocha and Manpur-Lohagarh zones. One slag sample from Manpur South (24°00'30":74°16'00") has analyzed 0.17% copper, 500 ppm zinc and 0.35 ppm gold, while two grab samples from dolomite analyzed 460 and 0.10% copper, 0.17 and 1.12 ppm gold. In Manpur North (24°02'00":74°14'30") number of slag heaps, retorts, and furnaces are present. A deep underground ancient working is present in Umarvaniyan (24°01'25":74°16'25") area in ferruginous dolomite with "Agucha" type of gossan. We have established 250 m strike length of zinc and nickel anomaly with 500 to >2000 ppm and 200 to 500 ppm, respectively. One slag sample from this area analysed 105 ppm Zn and 30 ppm Ni. Presence of extensive slag heaps, retorts and furnaces in the area indicate ancient smelting process. This indicate that ancient miners recovered base metals from rich ore by smelting and left the lean ore.

In the international mining history, gold mining was started in the nineteenth century. Technique of gold extraction was the cyaniding process, discovered in 1899. Prior to this, the primitive methods such as panning was used. (Temple John, 1972).

They won the native gold from gossans by crushing and panning. Panning sites with pestle and mortars present in Bhukia area support this idea. We feel that the ancient workings present in Sanjela-

JOUR.GEOL.SOC INDIA, VOL 62, JULY 2003
Manpur-Dugocha area, in particular are for base-
metals.

2 The presence of electrum has been recorded in ore
microscopic examination of samples defined by
high reflectivity and pale yellow colour. We have
analyzed <5 ppm Ag (with lower detection limit 5 ppm)
in all the samples, in Chemical Lab, AMSE Wing,
Bangalore.

3 We welcome your idea of correlation with "Carhn type"
of mineralization and we are working on these lines
We are getting high grade of Au in deeper level
borehole intersections.

4 Palaeo-, Meso- and Neoproterozoic are synonymous
with Early, Middle and Late Proterozoic. In recent
literature these terms are being increasingly employed
(Shekhawat et al 2001).

(Comment received on 9-4-2003 and the reply on 5-5-2003)

References

into the status of granitoids and conglomerates in Salumber
Jaisamand Area Southern Rajasthan Implications for the
stratigraphy of the Palaeoproterozoic Aravalh Fold Belt Jour
Geol Soc India, v58, pp 53-63

of Rajasthan Geological Society of India, Bangalore, Textbook
Series, pp 85-126

TEMPLE, JOHN (1972) Mining An International History Ernest
Benn Limited, London

Rock and GEM, January, 2002, pp 32-36

BOOK REVIEW

APPLIED GEOCHEMISTRY IN THE COMING DECADES. Editors. K Surya
Geochemistry, published in honour of Dr Kuldeep Chandra by the Indian Society of
Applied Geochemists, Hyderabad, pp 427-592.

The Indian Society of Applied Geochemists (ISAG) has brought out a special issue of its journal 'The Journal of
Applied Geochemistry' in honour of Dr Kuldeep Chandra, a scientist of very high repute and an icon in the
field of hydrocarbons, on his superannuation. This is a sequel to an earlier issue (vol 4, No. 2A) through which the Society
has honoured Dr S M Naqvi for his outstanding contributions in the field of geochemistry. Both these issues contain papers that were presented during the International Symposium on "Applied Geochemistry in the Coming
Decades".

The profile of Dr Kuldeep Chandra that adorns first few pages of this special issue lists his meritorious achievements over a period of 40 years both as scientists and as an administrator at ONGC and K D Malviya Institute of Petroleum Exploration. His associations during initial years with doyens like Dr S N Bhattacharya and Dr Hannarain, research work with Prof M Loyis, and technical
collaboration with host of French and German scientists helped him in developing a state-of-the-art scientific facility at one of the most prestigious petroleum exploration centres of the world. He earned the status of distinguished faculty as he freely shared his immense experience with the people both at home and abroad and developed a school of younger scientists who can cater to the ever-growing demands of petroleum geology. As the head of Afro-Asian Association of Petroleum Geochemists and a member of several academic bodies including Geological Society of India, he continues to guide younger colleagues in the field of his specialty.

There are nineteen papers in this volume. The first four papers are on hydrocarbons. In an opening article on