CORRESPONDENCE

GROUNDWATER RESOURCES OF OUR COUNTRY

[Extracts from the letter of Sujit Kumar Mazumdar, formerly of the Geological Survey of India addressed to B.P. Radhakrishna should prove to be of interest to our readers. – Ed.]

The recent Memoir (no.67) by the Geological Society of India on Groundwater Resources of our country is a major document. The synthesis prepared by its editor is particularly valuable; one can only wish that it might play its rightful role in formulation of national policy.

Years of distance from active geology have sharpened my feeling that perhaps in the immediacy of the moment some of the more basic questions to which we should have contributed have been bypassed. I wish to bring a few points for the consideration of those who may be in a position to think further about these.

Quaternary Black Soils of South India: Your book on the Precambrian of South India commented on the black soil there and even had a sketch map. A huge belt of such soil extends all the way from Anantapur in A.P. to near Bellary in Karnataka. Google Earth shows it up further, including its finger like extensions. To the experienced person it will be clear that near Anantapur the veneer of black soil overlies the red; in the small field museum of the GSI of Anantapur one could make out that at its base the black soil unit has a pebble bed. It seemed that recovery of larger crystals of diamond in the past was associated with farming on this soil, but one could not pursue the question further. A somewhat similar profile is seen and some quarries not too far from the campus of the Dharwar University, but I have forgotten the locality.

Our preoccupation with the major element chemistry of the greenstone belts and the Deccan Traps have made us overlook the fact that there is no way such black soils could have developed in situ, after kaolinitic and lateritic red soils have formed so extensively. The large extent of black soil near Coimbatore reinforces the puzzle.

Lake Chad in Saharan Africa is now accepted as a remnant of a pluvial lake. It is roughly in the same latitude as Bangalore. Could the large patches of black soil in South India be palimpsests of such events? One may recall that Darwin in his *Origin of Species* had discussed the likelihood of the Western Ghats flora containing elements of Alpine affinity, another possible suggestion about older palaeoclimates. These will be very easy investigations within

logistic reach of colleges and universities with spin-offs on past habitats of man.

Search for Precambrian Life: We seem to have missed the bus, at least in South India. Not Kashmir and Spiti, but at the base of the Purana Sequences in the Peninsula, there should be Proterozoic strata comparable to those in Siberian biotherms. With suitable laboratory back-up, the black cherts from the Kistna sequence may yield microfossils. The late Parimal Kumar Basu was convinced that the Andhra Pradesh barites are of biogenic origin; such interpretations are now accepted elsewhere; his idea that the different alterations in the beautifully saucer shaped outcrops of the lowermost Cuddapah sequences are the result of a topographic impress might have been amiss, but there has been no speculation why and how such a beautiful crescent could develop.

Pascoe had mentioned the occurrence of pseudo-Echinoid like pieces floating on the ground; their significance has not been re-examined.

It is a pity that even if all these studies prove fruitful, Indian evidences will be reduced to footnotes.

Basement for the Schist Belts? In the overwhelming prolixity of publications on the Chitradurga schist belt from southern Karnataka, the observations that in the north also, from near Hutti schist belt, higher metamorphic grades are recorded, do not ring a bell. The gross map pattern of the small schist belt to the north of the Hutti belt is definitely out of rhythm. Is it possible that the entire Chitradurga schist belt was inset into an earlier millenia, subsequently deformed and metamorphosed together in the greenschist facies? The so-called rise of metamorphic grade to the south is then a red herring. In any analysis, absence of evidence is not evidence of absence.

Because I have written from memory, place particulars have escaped me. Reference to publications and map will ameliorate the difficulties.

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