

arising the information gathered so far and illustrated with specific examples and hydrogeological maps is felt necessary. The author with his first hand knowledge of groundwater conditions in different parts of India is specially qualified to undertake such a study. The publishers, we trust, will take steps to bring out such a book specifically devoted to groundwater in India so that the subject of hydrogeology can be taught in our schools and colleges in a more understanding way.

B.P. RADHAKRISHNA

SYSTEMATIC STUDY OF PLANT FOSSILS FROM DAGSHAI, KASALI AND DHARAMSALA FORMATIONS OF HIMACHAL PRADESH (1996), by A.K. Mathur, V.P. Mishra and S. Mehra. Geological Survey of India, Calcutta. 121 p., Rs.151 or \$54.36 or £17.61.

The Geological Survey of India have been publishing monographic reports on major plant/animal fossil discoveries by officers of the survey in *Palaeontologica indica* (Memoirs of the Geological Survey of India) for over 125 years. The volume under review (volume 50 of the new series) contains descriptions of angiosperm megafossils, mostly leaves, and a few algae collected during 1988-1991 (794) from 21 sections, covering 810.15 m, of Early Tertiary strata in Himachal Pradesh.

In the area, two major belts expose Lower Tertiary sediments, *i.e.* Shimla Hills and Kangra Valley. In both the areas, the Lower Tertiary sedimentation commenced with a marine phase that laid the Subathu Formation. In the Shimla Hills, the Subathu Formation is unconformably overlain by the Dagshai and the Kasauli Formations. The Kasauli Formation is in thrust/faulted contact with the Late Tertiary Siwalik Group. In the Kangra Valley, the Subathu Formation is unconformably overlain by the Dharamsala Formation which in turn is in faulted/thrusted contact with the Siwalik Group of sedimentaries. Detailed field studies conducted by the Group have brought out the fact that a major abiotic event, *viz.* volcanicity, separated the Kasauli from the Dagshai and the Lower Dharamsala from the Upper Dharamsala Formations, which otherwise show a gradational contact.

The authors report, for the first time, megaplant remains from the Dagshai Formation. The presence of four taxa, supposedly of moist tropical habitat, indicate that the climate during deposition of Dagshai sediments was akin to that of present day Ganga plains. The Kasauli megafloora is comparatively more diversified, and is dominated by elements of leguminoid affinities. A few charophyte casts have also been found. The overall composition of the flora indicates altitudes higher than the Ganga plains. From the Dharamsala Formation, only charophyte fossils have been reported.

The present study has thus generated important data on the Early Tertiary vegetation of Himachal Pradesh. It is gratifying that lithologies and sample locations (both temporal and spatial) have been provided.

A major controversial point in this monographic study is the identification of 15 "species" of extant genera of plants based only on leaves. The authors have of course followed the trend set by certain Tertiary palaeobotanists who, overlooking the established norms for establishing taxa of modern plants, both at the genus and species level (that is, totality of morphological characters in general and reproductive biology in particular), institute new species in modern genera only on the basis of fragmentary fossil materials. The features of the leaves or the wood are hardly ever considered in isolation for taxonomic differentiation. There are no valid grounds either to establish new species epithets when

the fossil leaf does have a modern representative. Otherwise, one falls in the trap of calling fossil leaves resembling *Persea lanceolata* Nees as *Persea lakhanpalii* in Dagshai and as *Persea sibdasii* in Kasauli (p.61).

Consistent misspelling of Ottokar Feistmantel's name as Fiestmantel in a publication from the Geological Survey of India was rather unexpected. The species named after a person whose name ends with an 'a' should have an ending 'ae' and not 'aii' e.g. *misrae* and not *misraii*. Similarly, use of "GSI Type No." give the impression as if it relates to a Nomenclatural Type recognised by the International Code of Botanical Nomenclature. This practice so common in the publications from the Geological Survey of India needs to be discontinued. One can instead use "GSI Specimen No."

On the whole the authors have made a very comprehensive study and have added important data on the Early Tertiary plant fossils from the Himalayan Region. what one now needs is a complementary study on plant microfossils from the investigated sections.

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ANNOUNCEMENT

TRAINING COURSE IN 'GEOLOGICAL MAPPING IN VOLCANIC TERRAINS' : Geological Survey of India (GSI) Training Institute will be organising a Training Course in "Geological Mapping in volcanic Terrains (Deccan Traps)" at Nagpur, sponsored by the Department of Science & Technology (DST), Government of India, under the SERC Winter School Programme. The course is for a duration of about three weeks from 10th September, 1997. The course will consist essentially of field training with due complement of theoretical lectures. The Resource persons chosen for the course are experienced and eminent scientists from the Universities and GSI. The course is open to Research Scholars/Lecturers from Universities/Colleges and Professional geologists from Central and State Government Organisations and Institutions, who have interest in geological mapping of such terranes. Candidates should be below 35 years of age. There is no course fee and, TA/DA will be paid by DST as per rules for the chosen participants. Application forms may be obtained from the Deputy Director General, GSI Training Institute, Bandlaguda, Hyderabad-500 068 (Phone No:4022681; Fax:4022680). **The application forms must reach the DDG on or before the 30th June, 1997.**

We deeply regret to record the death of Dr.Dipak Kumar Ray, former Director General of the Geological Survey of India in the early hours of 18th January 1997.

- Ed.