SHORT SCIENTIFIC NOTES

Discovery of Phosphorite in the Palaeocene Eocene Rocks of Northwestern Himalayas

During the course of investigations of the project "Prospecting of Phosphorite in Northwestern Himalayas", the authors discovered a number of phosphate bearing horizons in the Palaeocene-Eocene sediments exposed in the vicinity of Nahan (Sirmur District, Himachal Pradesh). Concentration of phosphatic material is observed in olive green shales, brownish green siltstones and pale brown limestones. Dark grey coloured phosphatic nodules having diameter up to 10 cm occur in crushed carbonaceous matter. The phosphatic nodules assay as high as 26·16% P_2O_5. The phosphatic material occurs in the form of pellets ranging in size from minute microscopic to over 10 mm, void filling, intimately intermixed with matrix and as nodules. The phosphate bearing beds extend in the strike direction for a considerable length and warrant serious attention.

The only known occurrence of phosphatic material in the Palaeocene-Eocene rocks of Himachal Pradesh is from Mahasu District (Aggarwal[1,2]; Chaudhri[3]). Detailed work is in progress.

Centre of Advanced Study in Geology, Punjab University, Chandigarh, *August* 31, 1974.

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1. Aggarwal, L. N., *Proceedings 57th Ind. Sci. Congr.*, 1970. Pt. 3, 215.
2. —, *Proceedings 58th Ind. Sci. Congr.*, 1971, Pt. 3, 296.
3. Chaudhri, R. S., *Everyday Science*, 1972, 17, 19.

Neanotis montholoni (Hook. f.) W. H. Lewis: A New Record for Andhra Pradesh

Neanotis montholoni (Hook. f.) W. H. Lewis, (Rubiaceae) was first collected in September, 1968 from Kamareddy, Andhra Pradesh. It was identified by the Royal Botanic Gardens, Kew and deposited there. Duplicates are deposited with (CAL.) and (BLATT.) under voucher No. Bahadur 105.

The species hitherto known to occur, only in the South-West Indian hills is an addition to the flora of Andhra Pradesh. This collection from a place far from its original place of collection, *i.e.*, Concan and Southwards (HK. f., *Fl. Brit. India*, 3 : 73, 1880), Mysore and Canara to Malabar (Gamble, *Fl. Madras*, 2 : 427, Rep. 1967), Concan, Poona, *Belgaum* (Cooke, *Fl. Bombay*, 2 : 22, Rep. 1967), The present collection suggests the possibility of a very wide range of its distribution. Further, the species which is characteristic of higher elevations (2,600 m above sea level) is now being found at sea level. The following herbarium specimens have been examined which suggest wider distribution of this species in the plains of Maharashtra and the adjoining border districts of Andhra Pradesh where from Kamareddy is very close.

Ellichpur, Central Provinces and Berar, 15–12–1894, G. Watt, 15392 (CAL.), Bhaisa, Narsinpur District, Plateau of Deccan, 13–8–1903, Kalka Pershad, 15393 (CAL.) Khandwa, Nimar District, 23–9–1908, I.H. Burkill, 31005 (CAL.), Nasik Road, Nazik District, 11–9–1910, D. Hooker, 3446 (CAL.).

The species flowers and fruits from August to November. The mode of dispersal and distribution is not known but could be due to wind or water as the seeds are light.

My grateful thanks to Sir George Taylor for providing the identification and to Dr. D. B. Deb for the loan of *Anotis* material and Prof. U. B. S. Swami for encouragement.

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Studies on the Association between Azotobacter Population and Asymbiotic Nitrogen Fixation in Calcareous Soils of Pusa, Bihar

The present investigation was undertaken to study the association between azotobacter population and asymbiotic nitrogen fixation in calcarious soils.

The population of azotobacter was estimated by plate dilution method in Jenson's medium (Allen, 1957). With a view to establishing the gain in the amount of nitrogen, one gram of the soil was incubated in 100 ml of Ashby's mannite broth medium for 21 days and the amount of nitrogen fixed asymbiotically by azotobacter was estimated by Kjeldahl's method. A control with one gram of soil under similar condition was also run to calculate the gain in amount of nitrogen. The results have been shown in Table I.

The highest population of azotobacter was found in silty loam followed by sandy loam, silty clay loam and clay loam soils. The lowest count was noted in clayey soils. It will be further seen that