Table 1 *Distribution of vanadium (in ppm) in the samples of the soil profiles through a termite mound and its adjoining surface soil.*

Depth (cm)	Through the base of the termite mounds		Through ordinary soil	
	(a)	(b)	(a)	(b)
Surface	77	106	60	71
40	90	121	72	74
80	115	138	74	82
120	—	159	93	97

In biogeochemical prospecting, several samples (from more than 100 sampling points) of plants and/or soils are collected in a grid pattern, to determine the geochemical anomalies[22,23]. Harris[24] pointed out that the termite mounds, which contain a large proportion of the subsoil material, can be used in determining the geochemical anomalies. Watson[25] has shown, with the aid of the gold content in termite mounds, the geochemical anomaly in the mineralised area of gold in Kalhari sands in Rhodesia (presently Zimbabwe).

Thus, the termite mounds constitute an important tool for rapidly carrying out geochemical prospecting for concealed ore deposits even in a completely virgin territory.

Grateful thanks are due to Sri P. S. Murthy and S. M. Marathe of the Spectroscopy Division, Bhabha Atomic Research Centre, Bombay, for their kind help in carrying out the trace element analysis of soils.

8 November 1983; Revised 31 March 1984

1. Krishna, K. and Weesner, F. M., *Biology of termites*, Academic Press, 1969, 1.
2. Krishna, K. and Weesner, F. M., *Biology of termites*, Academic Press, 1970, **2**, 643.
3. Lee, K. E. and Wood, T. G., *Termites and soils*, Academic Press, New York and London, 1971, 251.
4. Prasad, E. A. V., *Ground water in Varahamihira's Brihat Samhita*, Sri Venkateswara University, 1980, 371.
5. Prasad, E. A. V. and Narayana, A. C., *Curr. Sci.*, 1981a, **50**, 397.
6. Prasad, E. A. V. and Narayana, A. C., *Curr. Sci.*, 1981b, **50**, 588.
7. Leelanandam, Ch., *The charnockites and associated rock types of the Kondapalli area*: Unpublished Ph.D. thesis, Osmania University, 1961.
8. Chakravarthy, S. and Mukharjee, S., *J. Geol. Soc. India.*, 1971, **12**, 368.
9. Krishna Rao, J. S. R., *Econ. Geol.*, 1964, **59**, 678.
10. Rao, A. T., *Min. Mag.*, 1978, **42**, 406.
11. Kameswara Rao, K., *Curr. Sci.*, 1961, **30**, 183.
12. Ramamohan Rao, K., *A study of the geology of vanadiferous magnetite deposit of Tiruvur, Krishna District, A.P.*, Unpublished Ph.D. thesis, Osmania University, 1979.
13. Kameswara Rao, K. and Mahadevan, C., *Proc. Indian Acad. Sci.*, 1960, **A51**, 49.
14. Ramana Rao, N. and Reddy, M. N., *Bull. Earth Sci.*, 1972, **1**, 37.
15. Sitaramayya, S. and Vidyasagarachari, D., *J. Indian Acad. GeoSci.*, 1979, **29**, 32.
16. Marathe, S. M., Murthy, P. S., Srinivasa Rao, M. and Subba Rao, K. V., *Report: Bhabha Atomic Research Centre*, Bombay, 1980, 7.
17. Boyer, P., *C. R. Hebd. Seanc. Acad. Sci.*, Paris, 1956, **242**, 801.
18. Wild, H., *Rhodesia Agric. J.*, 1952, **49**, 280.
19. Goodland, R. J. A., *Can. J. Zool.*, 1965, **43**, 641.
20. Kemp, P. B., *Bull. Ent. Res.*, 1955, **46**, 113.
21. Pathak, A. N. and Lehari, L. K., *J. Indian Soc. Soil Sci.*, 1959, **7**, 87.
22. Malyuga, D. P., *Biogeochemical methods of prospecting*, Consultents Bureau Enterprises., 1964, 205.
23. Brooks, R. R., *Geobotany and bio-geochemistry in mineral exploration*, Harper & Row Publishers, 1972, 290.
24. Harris, W. V., *Termites: their recognition and control.*, Longmans Green, London, 1961, 185.
25. Watson, J. P., *Soil Sci.*, 1972, **113**, 317.

CARBONATITE DIKES IN DHANOTA-DHANCHOLI HILLS, NARNAUL, HARYANA

M. N. SAXENA, L. N. GUPTA and
NAVEEN CHAUDHRI
Department of Geology and Centre of Advanced Study in Geology, Panjab University, Chandigarh 160 014, India.

THIS report deals with the occurrence of two carbonatite dikes in the paragneisses of Dhanota-Dhancholi hills located 13 km SW of Narnaul (28°03′ : 76°06′). These hills are known for metasomatic magnetite ore bodies[1]. The gneisses trend NNE-SSW which also happens to be the regional strike of Delhis.

The carbonatite dikes strike NNW-SSE *i.e.* oblique to the trend of the regional strike. Association of carbonatite with ultrabasic rocks is well known, and in the present case one of the carbonatite bodies contains a plug of ultrabasics besides numerous brecciated fragments of the same. Regional traverses indicate that this is not the only isolated occurrence. Instead, the carbonatite breccias which have been recorded from the Khalra hills, about 6 km west of Narnaul are suggestive of more occurrences.

Carbonatite dikes show a complex mineralogy. Besides dominant calcite with well-defined flow structures, pyroxene, olivine, amphibole, apatite, phlogopite and scapolite have been recognised in the brecciated fragments. Phlogopite shows a linear alignment in the main carbonatite body. The whole body shows small patches of malachite stains.

Ramiengar and Viswanatha[2] have reported carbonatite in the form of lenses conformable to the regional strike. The present report notes the occurrence of these bodies in the form of dikes.

9 December 1983; Revised 1 February 84

1. Sexena, M. N., *Res. Bull. Panjab. Univ.*, 1962, Vol. 13.
2. Ramiengar, A. S. and Viswanath, M. N., *G.S.I. News*, 1978, Vol. 9.

ON SOME JURASSIC MYTILID BIVALVES FROM KUTCH (GUJRAT), INDIA

S. KANJILAL
Department of Geology, Banaras Hindu University, Varanasi 221 005, India.

THE purpose of this note is to point out the confusion regarding the stratigraphic range of the bivalve genus *Mytilus* Linné and also to record some additional features of importance regarding a few of the mytilids from the Jurassic rocks of Kutch (Gujarat) which are already described[1]. The genera reviewed here are *Mytilus*, *Brachidontes* Swainson and *Inoperna* Conrad which were reported for the first time from the Jurassic rocks of India.

Soot-Ryen[2] considers that *Mytilus* s.s. did not appear before Pliocene and that its subgenus *Perumytilus* Rollier should embrace all the Jurassic (Upper Jurassic) taxa. But the Jurassic species agree so closely with the type species *M. edulis* Linné (Recent) that their separation under a different subgenus does not seem necessary. Soot-Ryen (personal communication) has, however, admitted that he, being a neontologist, has not himself assigned the various taxa of the superfamily Mytilacea to their corresponding 'geological layers'. On the other hand palaeontologists, like Newell (personal communication), maintain that *Mytilus* s s. should also cover the Jurassi forms, and the present author agrees with Newell. However, certain forms with a somewhat larger buccal region may be confused with *Modiolus* and in such cases the 'dysodont' teeth in *Mytilus* or the edentulus hinge in *Modiolus* only can solve the issue.

The slightly broken specimen of *Mytilus* sp. indet[1] at first sight looks like *M. ungulatus* Young & Bird[3] which, however, is readily distinguished by its taller out-line, greater inflation, short hinge-line and bigger antero-ventral lobe. Individuals of *Modiolus imbricatus* J. Sowerby possessing a small antero-ventral lobe[4], like that of the form under discussion, differ in having a strong median concavity in the ventral margin, although the pattern of ornamentation of the two is similar.

The rounded ventral margin and the presence of only one ridge justifies the reference of the fragmentary individual to *Brachidontes* s s. by Singh & Kanjilal[1] and distinguishes it from *Arcomytilus* Agassiz which is characterised by a flat, truncated posterior margin between two obtuse ridges.

The splitting of the primary concentric ribs into two or more was considered as the basis of distinction between *Inoperna perplicata* Étallon[5] from Kimmeridgian and *I. sowerbiana*[6] from Oxfordian and older. But this trivial difference does not seem enough to distinguish, because the two forms are very similar to each other in the rest of the morphological features. It is interesting to note that Cox[7] has recorded one specimen (Geological Survey of India, Type No. 17349) of *plicatus* (= *sowerbiana*) from the Bajocian of Iran[7] in which the coarse concentric ribs exhibit bifurcation only. On the other hand, specimens with both the types of ornamentation are found together in the Nakanosowa Formation of Soma Group (Oxfordian or Kimmeridgian) in Japan by Tamura[8]. Hence, *perplicata* should be considered only a junior synonym of *sowerbiana*.

Thanks are due to Professor Dr S. K. Agrawal of the University for reviewing this note.

15 December 1983; Revised 17 February 1984