1. Parthasarathy, N. and Ou, S. H., In: *The Rice Blast Disease*. John Hopkins Press, Baltimore, 1965, p. 507.
2. Padmanabhan, S. Y., Chakrabarthy, N. K., Mathur, S. C. and Veeraraghavan, J., *Proc. Indian Acad. Sci.*, 1967, 66 B, 63.
3. Sadasivan, T. S., *Ibid.*, 1971, 54 B, 113.
4. Kuwatsuka, S., *Kyushu Univ. Lab. Agr. Chem. Fac. Agrl. Science Rept.*, 1962, p. 137.
5. Koti Reddy, M., *Studies on Certain Biochemical Changes in Resistant and Susceptible Rice Varieties Following Infection by Three Races of* Pyricularia oryzae, 1972, Doctoral Thesis, Annamalai Univ.
6. Srinivasan, K. V. and Narasimhan, R., *Proc. Indian Acad. Sci.*, 1971, 54 B, 81.
7. Greathouse, G. A. and Rigler, N. E., *Am. J. Botany*, 1940, 27, 99.
8. Koti Reddy, M. and Prasad, N. N., *Annamalai Univ. Agric. Res. Annu.*, 1973, 4 & 5 (In press).
9. Farmer, V. C., Henderson, M. E. K. and Russel, J. D., *Biochem. Biophys. Acta*, 1959, 35, 202.
10. Nambudiri, A. M. D., Subba Rao, P. V. and Bhat, J. V., *Phytochemistry*, 1970, 9, 687.
11. Wakimoto, S., Ikari, H. and Yoshii, H., *Kyushu Univ. Fac. Agrl. Sci. Bull.*, 1960, 17, 383.

NEW EXPOSURES OF TALCHIR STRIATED PAVEMENTS IN MADHYA PRADESH

THE authors while studying the Permian deposits in Son Valley (Madhya Pradesh) came across two striated pavements not hitherto reported. One of the pavements (Fig. 1—I) is exposed from underneath the marine fossil beds 1, 2 near Manendragarh (82° 12′ : 23° 13′) and the other pavement (Fig. 1—II) is exposed on the right bank of Gejnala near Baikunthpur (82° 35′ : 23° 15′), about 50 km east of the first exposure.

North-east of the Hasdo railway bridge, underneath the Manendragarh marine fossil bed, the granite surface has glacial striations, flutings and crescentic gouge marks. The striea (Fig. 2) are best developed on the north-eastern face of the granite exposure, and are oriented south-east to north-west (315°) with pinheads in the south-east. Fluting, though often not very deep, follows the same general direction. Along a south-east vertical face of the granite which can only be seen from the river bed, several crescentic gouge marks were seen. Five of these marks are in a line and only few centimetres apart (Fig. 3), whereas the others are scattered on the same face. The convex deep cut of the gouges were obviously made by a glacier, moving from south-east. On the south-east side of the ridge, granite blocks were plucked and the edges rounded by the ascending ice. This granite block may have been a crag and tail structure in the path of the ice. It is, therefore, concluded that at this spot the direction of the glacier movement was from souht-east to north-west.

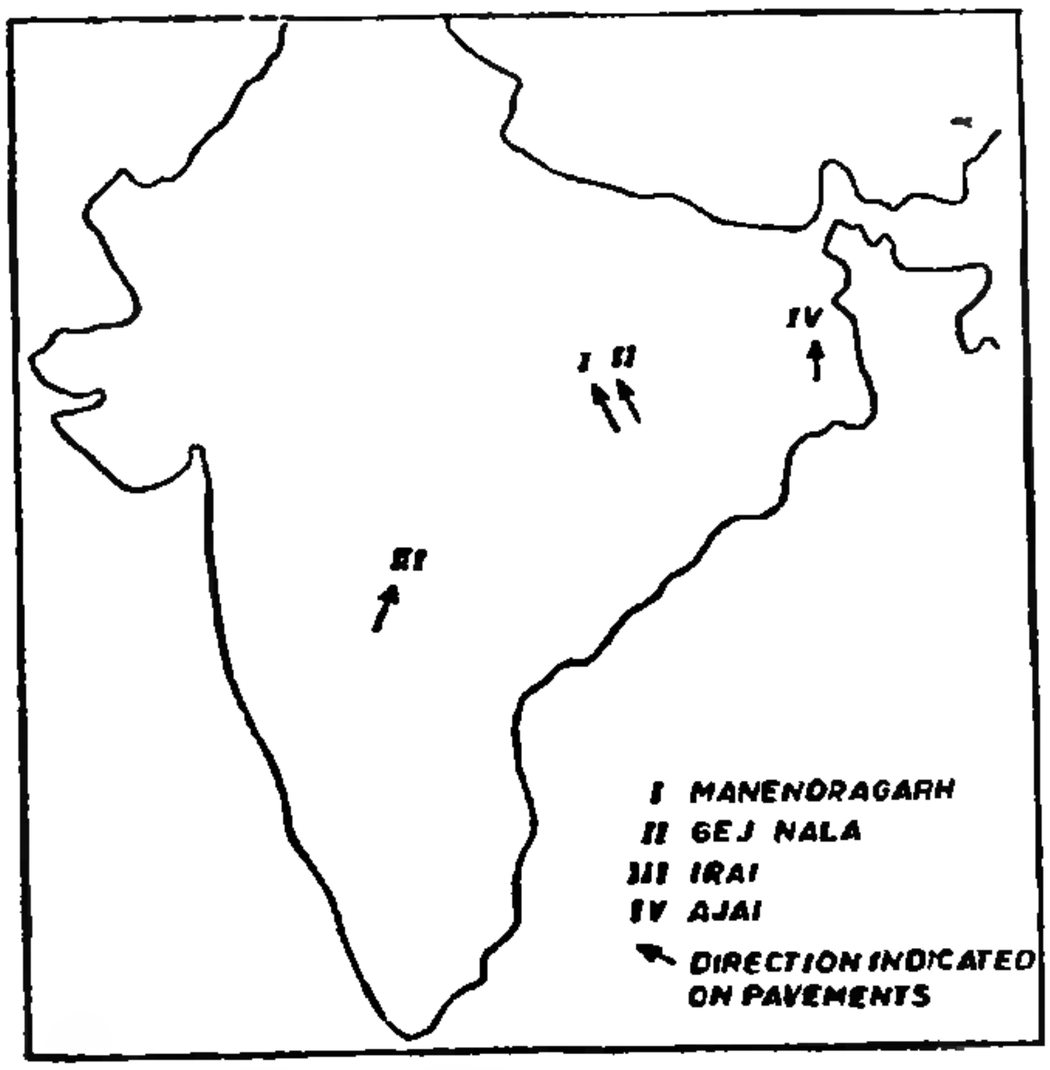
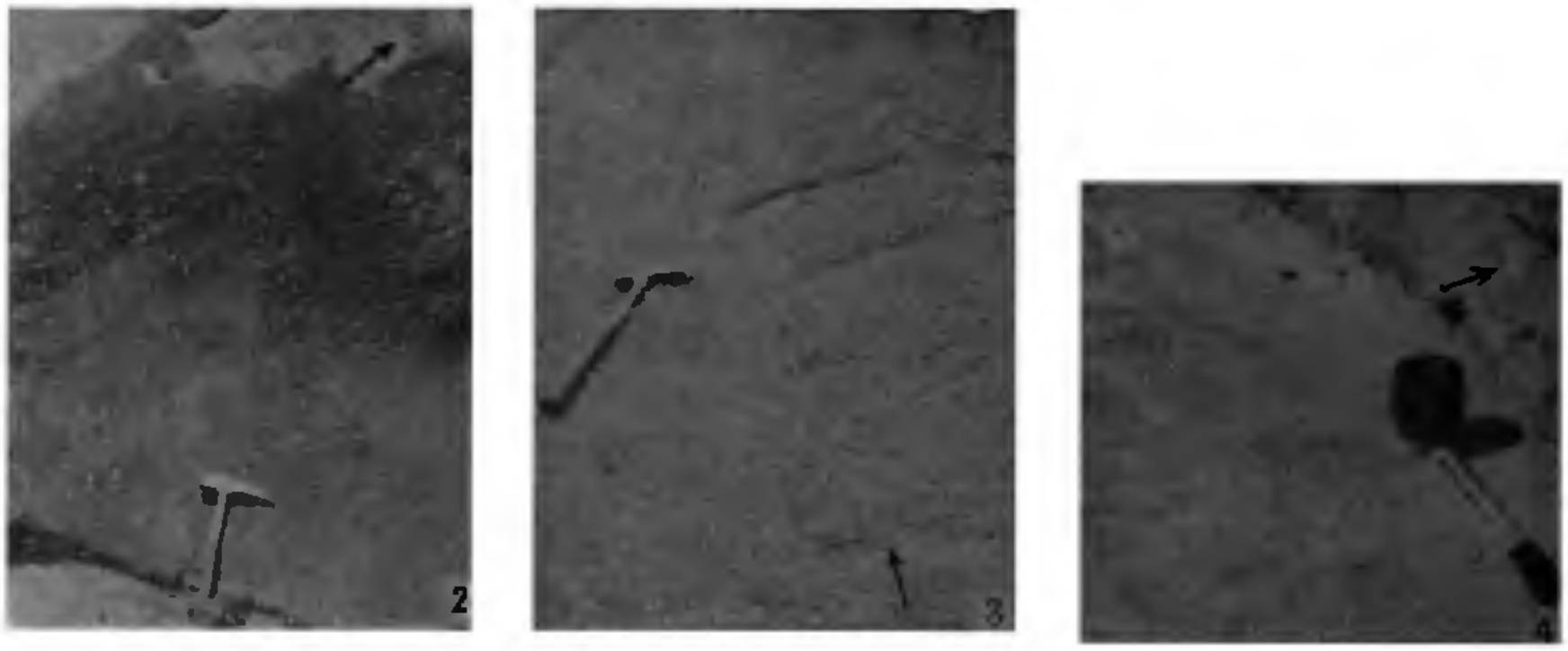


FIG. 1. Ice movement direction in India as shown by known striated pavements.



FIGS. 2–4. Fig. 2. Striated pavement—Manendragarh. Fig. 3. Crescentic gouge marks—Manendragarh. Fig. 4. Striated pavement—Gejnala.

The other pavement was seen along right bank of the Gejnala near Baikunthpur. This exposure is about 200 metres upstream from Gejnala and the Jhunka nala junction and it can be reached easily by following the Jhunka nala downstream from the road bridge.

About five metres above the Gejnala bed, a tillite bed is resting on the striated granite pavement (Fig. 4). The striations are very fine with pinheads towards south-east. No other markings were seen on this pavement. The markings indicate a south-east to north-west (322°) direction of the ice movement.

This granite exposure is elongated in the direction of the ice movement, it is sloping upstream and may have been a *rochemoutonnee.*

The present study, therefore, indicates that in the Son valley the glaciers were moving generally from south-east and not from north-west as deduced by Ghosh and Mitra[3].

Only two other striated pavements have so far been reported from India, one is at Irai[4] (Fig. 1—III) in Pranhita–Godavari Valley (re-examined by Smith[5]), showing south-west-north-east direction of the ice movement and the second is on the Ajai river bank[6] (Fig. 1—IV) showing south to north direction of ice movement. These two new exposures from Madhya Pradesh conform with the general direction of ice movement indicated by the two earlier known pavements in India during Talchir Period.

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Aligarh 202001, *March* 25, 1974.

1. Ghosh, S. K., *Sci. and Cult.*, 1954, **19** (12), 620.
2. Datta, A. K., *Ibid.*, 1957, p. 22.
3. Ghosh, P. K. and Mitra, N. D., *Recent Studies on the Talchir Glaciation in India*, IUGS Symposium, Buenos Aires, 1967, p. 537.
4. Fedden, F., *Rec. Geol. Surv. Ind.*, 1875, 8, 16.
5. Smith, A. J., *Jour. Sed. Pet.*, 1963, 33, 739.
6. —, *Nature*, 1963, 198 (4883), 880.

GOITROGENIC ACTIVITY OF DANAZOL—A SYNTHETIC STEROID DERIVATIVE

17 A-PREGN-4-EN-20-YNO-(2, 3-OL) isoxazol-17ol (Danazol), clinically the compound was found to be of interest in the management of endometriosis, precocious puberty and various brest disorders[1].

To investigate the effect of this compound on pituitary thyrotrophic function, the present studies were taken. The effect of the goitrogenic action of danazol was investigated in female desert rat (gerbil) and mice. The criteria used in this investigation were :

1. Thyroid follicular epithelial cell height and its microscopic structure.
2. Collection of radioactive iodine by the thyroid gland.
3. Protein-bound radioiodine (PbI^{131}) conversion rate.

A group of 10 female gerbils (*Meriones hurrianae* Jerdon) weighing 69 ± 5 g were injected with danazol subcutaneously, suspended in olive oil in daily doses of 3 mg/day for a period of 66 days. Control animals received daily injection of vehicle alone. The animals were given rat food and water *ad libitum.*

Mouse (*Swiss albino strain*).—A group of ten mice weighing 30 ± 1 g were injected with danazol 1 mg/day for a period of 70 days. The drug was injected in the pelvic region. The mice were given rat food, wet gram and water *ad libitum* in the loboratory at $23 \pm 1°$ C with 10 hr illumination. An equal number of controls received olive oil.

An injection of carrier free Na I^{131} was given i.p. (in a dose of 5 μCi per mice and 10 μCi per gerbil, contained in a volume of 0·5 ml). After 48 hrs the animals were sacrificed and 2–3 ml of blood were withdrawn into a heparinized syringe from the vena cava under ether anesthesia. Following withdrawal of blood, the thyroid with underlying trachea was removed, dissected free of fat, and connective tissue and weighed on a Mettler's balance. Counting of I^{131} was done in a G–M counter (Nuclear Schicago Model 180 B).

Protein bound radioiodine ($Pb\ I^{131}$) was determined according to the method of Ghosh *et al.*[2]. The conversion ratio was calculated as follows[3] :

$$CR = \frac{\text{serum Pb } I^{131} \text{ cpm}}{\text{serum Pb } I^{131} \text{ cpm} + \text{serum } I^{131} \text{ cpm}} \times 100.$$

It is seen in Table I that the total radioactivity in the thyroid gland is significantly higher in the danazol-treated mice and gerbil than in the controls. This denotes a decrease in the rate of discharge of thyroid hormone after danazol administration.