Figure 2. Profile across unconformity in Jawal. Legend: UC—unconformity, solid ellipse—deformed Jahazpur conglomerate, stippled—Jahazpur quartzite, ruled—Hindoli chlorite phyllite, dot-dash—Hindoli grey phyllite, dash—Hindoli purple phyllite, (For explanation see text).

Figure 3. Structural relations across the unconformity, data plotted on equal area net (lower hemisphere). X—mean stretching lineation (long axes of deformed pebbles). (For explanation see text).

 axial ratio being 7:2.5:1, which indicates a strong stretching (ca 270%) in the X direction under plain strain condition.

In many places of this belt where the conglomerate pinches out and where a strong post-Jahazpur deforma-

mation caused transposition of pre(F1)- and post(F3)-

Jahazpur structural elements the unconformity is likely to be missed or misinterpreted.

If the Hindoli and probably also the Jahazpur rocks are pre-Aravalli and if these are pre-Berach Granite, then taking the age of the Berach Granite as 2580 Ma, the deformed unconformity reported here is one of the oldest in India.

Shri A. L. Mathur and Dr R. N. Singh helped in the field.

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1. Heron, A. M., Mem. Geol. Surv. India, 1936, 68.

LATE NEOGENE FOSSIL WOOD FROM BIKANER GRAVEL BED

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QUATERNARY deposits in the Thar desert are of fluvial, fluvo-lacustral and aeolian origin and they rest unconformably over Pre-Cambrian to the Early Tertiary rocks. These surficial formations are almost devoid of megafossils and lack distinct lithological characters suitable for building geochronological framework. Recent geo-archaeological investigations in the eastern margins of the “Thar” and a few C-14 dates on continental carbonates1 and on organic material from playa sediments2 indicate that the major portion of the exposed surficial sediments are of Late Pleistocene age, approximately covering a time span of last 100,000 years. Pre-Late Pleistocene continental deposits, have not been properly dated due to paucity of suitable palaeontological, archaeological materials. Detailed geomorphological, archaeological and preliminary geo-chronological (U/Th series, Tl. C-14) studies of fossil dunes, calcareous pan deposits and conglomerate beds in Nagaur district have revealed
that the Pre-Late Pleistocene deposits have suffered drastic environmental changes since the Late Tertiary. Sub-surface geological data (collected from various bore-holes) and the inliers of hardrock exposures to the west and southwest of Bikaner, clearly indicate that the area was under sea till Early Tertiary and later the depositional history was dominated by fluvial sedimentation with a recorded thickness of about 150–200 m below surface.

Deposits of semi-consolidated cobbly-pebbly gravel beds, to a depth of 20 m, are exposed 2 km sse of Bikaner (figure 1) on the Bikaner-Nagaur road. The cobbles, pebbles and gravels are well rounded, clast supported, partially imbricated and are cross-bedded. The cement is mainly ferruginous. Discontinuous ferric bands are common in the lower part of the exposed section (figure 1). The upper part of the gravel bed is calcareous and is unconformably overlain by stabilized dune sand, the surface of which has yielded microliths of Mesolithic age and a few charred bones. Fragments of fossil monocot wood (figure 2) (Mrs. Saptarishi, personal communication) were collected from the contact between the ferruginous conglomerate and the overlying calcareous conglomerate which are now being reported.

Figure 2. Fossil monocot wood.

In order to understand the palaeoenvironment of early man in the Thar desert geo-archaeological investigations carried out in Nagaur district, revealed that the gravel beds of Jayal (75°11' E, 27°13' N) were ferruginised during Late Neogene when the climate of the Indian sub-continent, in general, and Thar in particular, was sub-humid to humid*.

The Bikaner gravel beds could be contemporary with those of Jayal on the basis of their lithological similarities and also in their ferruginous matrix content, and therefore could be of Late Neogene. Devoid of fragments of marine shells and other marine organic remains eliminates the possibility of the redeposition of these gravel beds after the recession of the Eocene sea in the Thar desert.

Although occurrences of fossil wood and plant remains of Early Tertiary have been reported earlier in geological literature*, this is the first record of the Late Neogene fossil wood from the Bikaner gravel bed.

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