

OCCURRENCE OF SOME LEBENSSPUREN IN SON RIVER SEDIMENTS, MIRZAPUR DISTRICT, UTTAR PRADESH

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ABSTRACT

Five types of lebensspuren (biogenic structures) are described from Son River sediments, Mirzapur District, U. P. Two types of trails are produced by bivalves and one by a gastropod. One type of vertical burrow is produced by a bivalve and a raised burrow is constructed by an insect. All the five lebensspuren have a chance of preservation

INTRODUCTION

The study of lebensspuren in India is still in infancy. SINGH (1972) recorded a few trace fossils of molluscs from Gomti River sediments. Structures produced by molluscs, worms and insects in Ganga River sediments have recently been described by SINGH (1978). Such studies are quite significant as these help in the interpretation of similar looking trace fossils in the ancient sediments and are also quite useful in the reconstruction of environment of deposition.

In the present paper five lebensspuren structures are being recorded and described from the point bar deposits of Son River near Chopan, Mirzapur District, Uttar Pradesh. These biogenic structures are associated with megaripples, small ponds and small channels within the point bar deposits of Son River.

SON RIVER SEDIMENTS

Son River is one of the rivers of the Gangetic plain which contributes sediments from the Peninsular side of the Indian subcontinent. It flows through the Vindhyan topography before entering the Gangetic plains. Finally, it meets Ganga River near Patna in Bihar. It is a meander type river forming well developed natural levees, point bars and braid bars. It is flooded annually during the rainy season, i.e., between July-October after which much of the deposition takes place.

The graphic mean size of the Son River sediments near chopan varies from 0.8 to 2.4 ϕ . In other words the sediments can be termed as coarse sand to fine sand. However, the average graphic mean size is 1.1 ϕ . These sands are moderately well sorted and are coarsely skewed. The sands are very platykurtic to leptokurtic.

LEBENSSPUREN (BIOGENIC STRUCTURES) IN SON RIVER SEDIMENTS

Floods in Son River occurs annually in the rainy season. When the water recedes after the floods and the transporting capacity of the river diminishes, the deposition takes place. On the newly deposited sediments in the point bars and braid bars a number of molluscs and insects inhabitate. By their living activity these produce characteristic biogenic structures (lebensspuren) which usually have a fair chance of preservation during the next floods along with other sedimentary structures.

Trails and Burrows of Bivalve

Two genera of bivalve have been recorded from the wet parts of the point bars, small ponds and small channels. One is relatively larger in size and is identified as *Lamelliden marginalis* and the other is relatively smaller in size and is identified as *?Corbicula* sp. The overall population of these species is quite meagre in the area under consideration.

Trails

The locomotion in bivalve is performed by a fleshy foot. The movement of the foot produces a furrow in the soft sediments. In Son River sediments the two types of bivalve produce two different types of trails.

The trails produced by lamellidens are curvilinear (Plate 1, Figs. 1, 2 & 3). These often form loops and sometimes these are repeatedly crossed and recrossed. PRYOR (1967) discussed the phenomenon of crossing and recrossing by clams due to drying of the sediments. However, SINGH (1978) has suggested that this feature is perhaps due to abundance of food available in the wet muddy surface which leads to intensive browsing of the food rich surface by the clams. In the present case, the organic material rich clay fraction is almost absent in the sediments in question and thus the possibility of abundance of food for the lamellidens is ruled out. This lack of food may also account for their meagre population in Son River sediments. Hence, it appears that the drying of sediments might be the reason for crossing and recrossing of the trails.

The smaller bivalve *?Corbicula* sp. produces straight to slightly curvilinear trails near their burrows which are of very small length compared to the trails produced by lamellidens (Plate 1, Fig. 6).

Burrows

The bivalves construct burrows in the soft sediments. In the present area the *?Corbicula* sp. live in clusters in the wet sediments. This species produces vertical burrow which are larger in dimension than its shell. The burrows are in the form of vertical shaft whose maximum height is 4 cms. These are circular in outline with a maximum diameter of 5 mm (Plate 1, Figs. 4, 6).

Trails of Gastropod

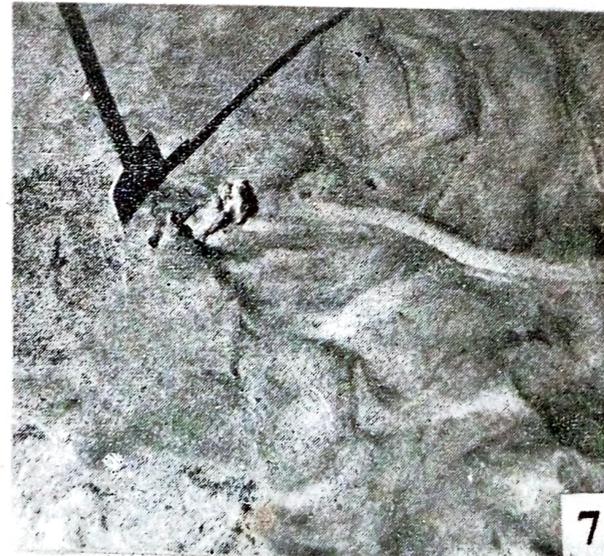
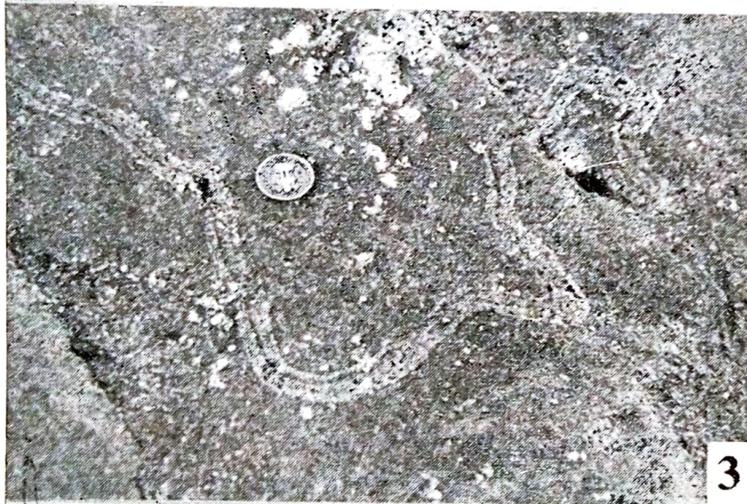
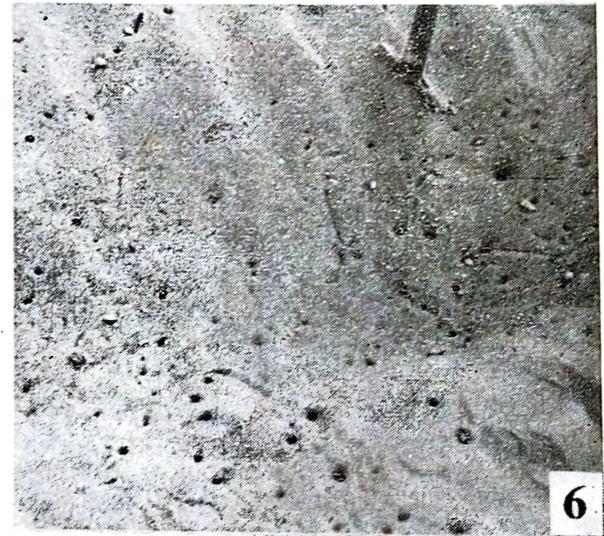
Relative to bivalves the population of gastropods is much less in Son River sediments. In the present study, the trails of only one species of gastropod is recorded which has been identified as *Melanoides* sp. It inhabits the wet sediments and moves with its foot. The movement over the loose sediments produces a curvilinear trail with a well marked central depression (Plate 1, Fig. 3). Nowhere the crossing of the trails is recorded.

Burrows of Insect

In almost dry sediments, burrows produced by an insect is seen. Only one pattern produced by the insect is being recorded from this area. Burrow is in the form of superficial tunnel slightly raised above the sediments (Plate 1, Fig. 5). It has a constant diameter of about 1 cms and can be traced up to several meters. It is curvilinear and also shows a zigzag pattern.

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EXPLANATION OF PLATE

PLATE 1

- 1,2, & 7—Trails of bivalve on the point bar deposits of Son River, Chopan area, Uttar Pradesh.
3. Trail produced by a gastropod. Same locality as above.
4. Vertical burrows produced by? *Corbicula* sp. Same locality as above.
5. Raised burrow produced by an insect. Same locality as above.
6. Vertical burrows and trails produced by ?*Corbicula* sp. Same locality as above.