

*NOTES ON A NEW RECORD OF AN ICHNOFOSSIL FROM
TRICHINOPOLY CRETACEOUS (SOUTH INDIA)*

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INTRODUCTION

In the district faunal survey programme, the authors have incidentally surveyed the Trichinopoly Cretaceous beds of Tiruchirapalli district in Tamil Nadu (Fig. 1) and made collections of fossils for the museum of the station. In the Ottokovil "Echinoid" beds (Ariyalur stage of Trichinopoly Cretaceous) (Fig. 2), the authors found few Ichnofossil remains on one rock. It was not possible for the party to break the substratal sedimentary rock, and therefore, it was felt desirable to photograph them at least for posterity and record, before they are lost.

The first author had surveyed these beds earlier as the Head of the Palaeozoology Division of the Zoological Survey of India and published a number of papers including the descriptions of some new species and a new genus. A comprehensive work on the fossil fauna of Trichinopoly Cretaceous is available in Pascoe (1959) and Anonymous (1968). Only one trace fossil (Chiplonkar & Tapaswi, 1975) is known from the Trichinopoly Cretaceous prior to the present find.

It may not be out of place to mention here that some of the areas from where collections were made earlier are now depleted of their fossil fauna, while some new areas have yielded species because of quarrying of hitherto, unexploited areas.

The Trichinopoly Cretaceous fossils are essentially marine, formed between the transgression and regression of the Bay of Bengal. We owe our knowledge on trace fossils of Indian Region to Casshyap *et al.*, (1983), Chakrabarti (1972), Chiplonkar *et al.*, (1970, 1972, 1975 a, b, 1980, 1981), Gupta *et al.*, (1966), Howell (1956), Jacob (1938), Kumar & Singh (1983), Kummel & Teichert (1970), Mathur & Verma (1983), Maithy *et al.*, (1986), Misra & Dube (1952), Sahni (1936), Sahni & Shrivastava (1954), Sambe Gowda & Nagaraj (1978), Teichert (1964), Verma & Prasad (1968) and West *et al.* (1983).

These reports are mostly from Vindhya, Punjab, Rajasthan, Pondicherry Cretaceous, Salt Ranges and Nepal. The Ichnofossils or trace fossils occurring in marine, lacustrine and continental sedimentary rocks from the Pre-cambrian to Recent and they are most abundant and best preserved in classic rocks with alternating sandy and shaly beds (Hantzschel, 1975). They serve as stratigraphic, palaeoclimatological

and ethnological indicators of the extinct and more recent animals. Seilacher (1970) considers them very useful for the age determination and stratigraphic correlation of the otherwise "unfossiliferous" beds.

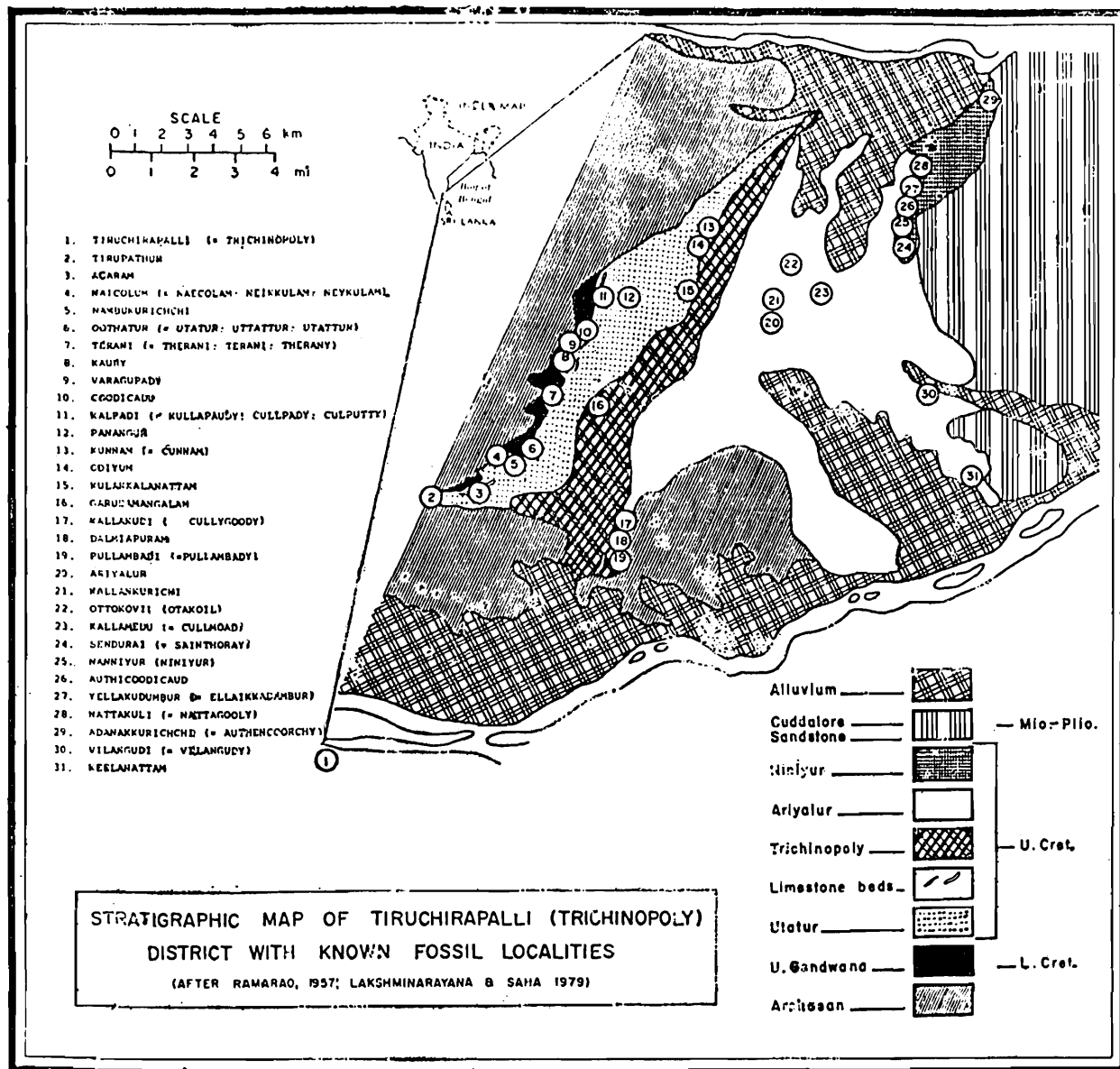


Fig-1

Fig. 1. Stratigraphic map of Tiruchirapalli (Trichinopoly) District showing the fossil Cretaceous beds. (After Lakshminarayana & Saha, 1979).

The International Code of Zoological Nomenclature 1964, included under trace fossils or *Lebensspur*, the works of animal(s) viz., fossil and recent tracks, trails, burrows, borings, coprolites, etc. Abel (1912), while defining his *Lebensspur*, in addition included the death agony, pathological phenomena, symbiotic and parasitic associations, gastroliths, etc. (*vide* Hantzschel, *op cit.*). Osgood (1970) considered the

trace fossils as evidences of the activity of an organism in, or on the sediment produced by some voluntary action of that organism. Simpson (1957), restricted the term to the



Fig - 2

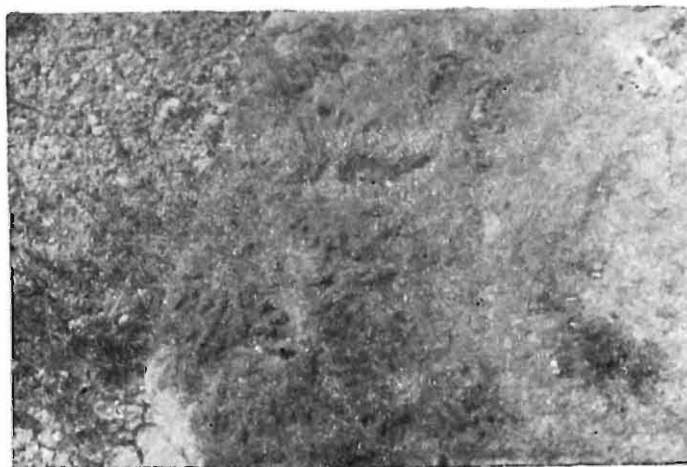


Fig - 3a



Fig - 3b

Fig. 2. "Echinoid" beds near Ottokovil.

Fig. 3. *Haentzschelinia* sp., a new record of Ichnofossil in the "Echinoid" beds :
(a) general view ; (b) enlarged.

activity of an animal moving on, or in the sediment at the time of its accumulation which excludes borings in the shells or in consolidated sediment.

More recent traces or trails formed by extant animals are found on the surface of sediments and the same may be true of the extinct species also as exogene epireliefs. The surficial trails formed in marine environment especially in shallow water with tidal environments according to Hantzschel (1975), have very little chance of preservation, since they are often destroyed by tidal wave action. However, certain conditions, such as, rapid drying up of the shore bottom, mucus cementation of the sediment, filling up of the trails by wind blown sand, or rapidly accumulated sediment can fossilise, the surficial trails. They are also most common in quite, current free deep waters. Ethologically, the surficial trails are movement traces, like running or crawling and more seldom swimming trails, resting traces or sediment ingesting trails (Hantzschel, 1975).

MATERIAL

Series of argillaceous impressions found on a rock in the "Echinoid" beds near Ottokovil (Ariyalur stage of Trichinopoly Upper Cretaceous), (fig. 3), Tamil Nadu (S. India).

DESCRIPTION

Hantzschel (1962, 1975) listed all known Ichnofossils providing brief descriptions. The work is well illustrated. Basing on the work, the *Ichnofossil* observed by us can be easily relegated to the *Ichnogenus Haentzschelinia* Vyalov, 1964. The genus belongs to the stellar type of Ichnofossils. Hantzschel (1975) redescribed the Ichnofossil as star like trail with elevated centre, about 5 cm in diameter, generally with 6-10 radiating grooves rather irregularly and often unilaterally developed.

The genus is so far known from Triassic of Asia in N.E. Siberia of former U.S.S.R. and Upper Cretaceous of Germany. Therefore, the present find forms the first record of the genus from India. Our specimens may belong to yet another Ichnospecies, since the tentacular grooves range from 10-16. However, we are not naming it, since we have not collected the specimens for establishing a holotype.

REMARKS

We named the beds, where the Ichnofossil was located as "Echinoid" beds (fig. 2) as *Hemicidaris* (Echinodermata) is the predominant form of fossil found here.

Though *Haentzschelinia* Vyalov with type species *H. otto* (Geinitz) was originally described as a sponge, Hantzschel (*op. cit.*) considers it as a feeding burrow made by crustaceans or worms. But the present authors opine that this Ichnofossil genus may be the marks of an apodous group of Holothurians (Echinodermata) whose tentacles

range from 10 to 20 in numbers. Fossils apodous Holothurians have also been reported during Cretaceous elsewhere.

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SUMMARY

In a recent survey, an Ichnofossil belonging to the genus *Haentzschelinia* Vyalov was discovered in the Ariyalur stage of Trichnopoly Cretaceous. It is the first record of the genus from India.

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