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## EVIDENCE PREDICTING EXISTENCE OF TRIONYCHID TURTLES IN THE INTERTRAPPEAN ROCKS OF SAURASHTRA (GUJARAT STATE)

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INTER-TRAPPEAN beds of sedimentary origin are known to occur at short intervals between the successive phases of Deccan Trap lava eruption. These beds

are usually of fluvial or lacustrine origin and are significant from the view point that when fossiliferous, they provide clues to the history of eruptive quiescence that intervened between the successive outbursts and of the animals and plants that time and again migrated to these centres<sup>1</sup>.

The occurrence of such inter-trappean beds in Saurashtra is known since the geological report of Kathiawar was published, a century ago<sup>2</sup>. These rocks, fluvial and lacustrine in origin, contain vertebrate fossils including those of the fish *Horachupae intertrappean*, *Palaeopristolepis feddeni* and *Palaeopristolepis Chiplonkari*<sup>3-5</sup>.

Good exposures of such inter-trappean beds in Saurashtra can be located between Bamanbor (22° 24' 55" N, 71° 2' 27" E); and Chotila (22° 25' 12" N, 71° 11' 36" E) along the main road leading towards Rajkot, (Location Map - figure 1). These beds, Upper Cretaceous to Lower Palaeocene in age<sup>6</sup>, and some fifteen to twenty feet in vertical thickness, are highly crumpled, grey, brownish, yellowish earthy shales interstratified within the trap flows. Recent acquisition of the fossil fragments belonging to the family Trionychidae

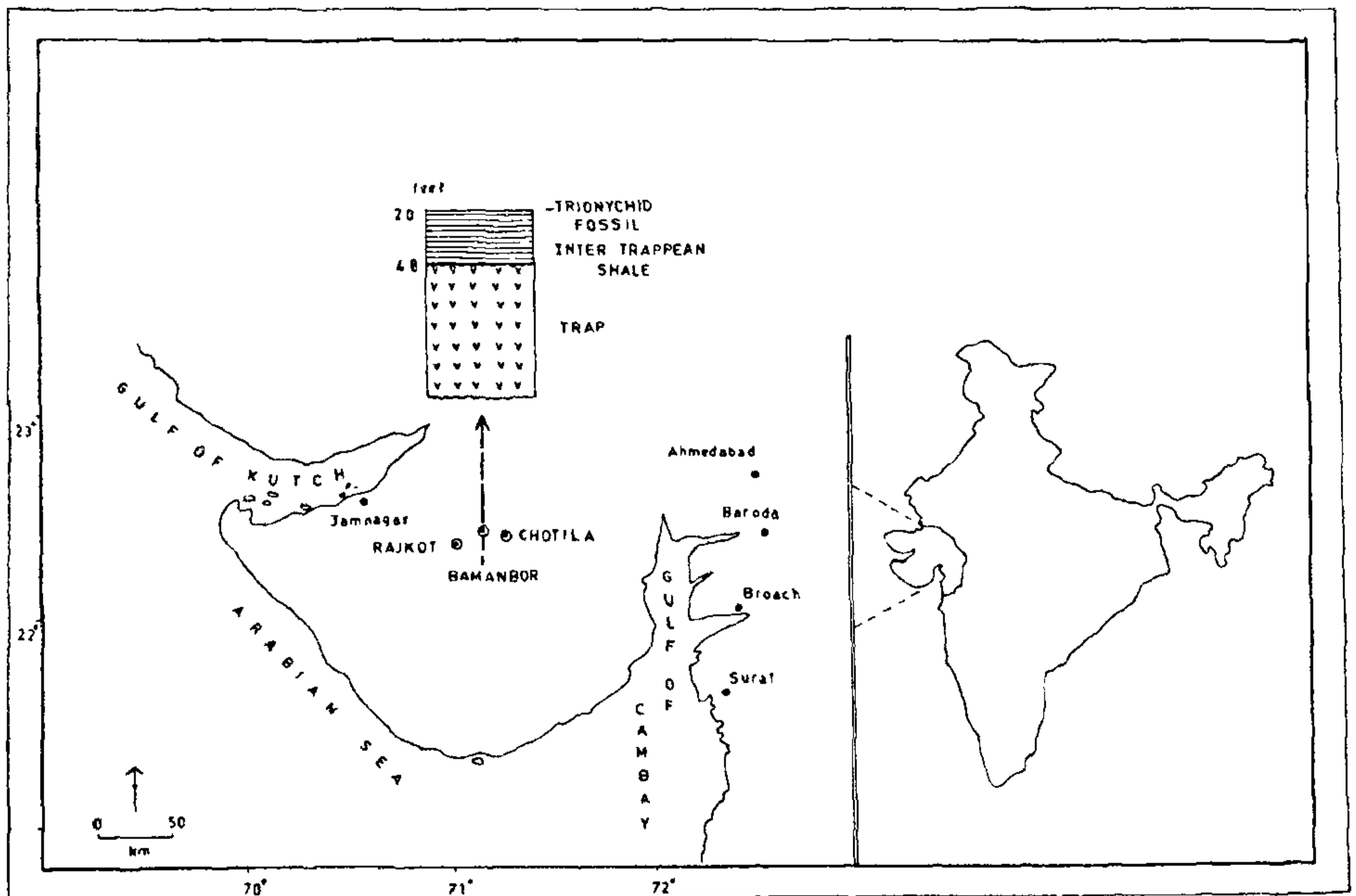


Figure 1. Location and index map with lithocolumn and fossil locality.

reported herein are collected from the top layers of these shales.

The Trionychids or soft shelled turtles are cyptodires that occur today in Asia, Africa and North America. Earlier existence of such vertebrate animals is reported from the Miocene rocks of South America<sup>4</sup>, and the Palaeocene rocks of Australia<sup>5</sup>. The present study may be the first to report the possibility of such an organism living in the parts of Saurashtra during the time the inter-trappean beds were being deposited.

The objective identification of our fossil form as Trionychide may appear to be some-what dubious on account of non availability of a complete specimen. However, the material although fragmentary and badly preserved appears to bear close resemblance to the above group of turtles on the following points:

1. Our material in the form of external cast resembles the cast of the turtle carpace and its plastron (figure 2a, b).
2. The surface textural pattern of this fossil form agrees well, and is restricted to Trionychids, viz the development and presence of parasagittal ridges on the dorsal surface are very conspicuous.

Further identification of the specimen beyond Trionychide to its generic or specific level is not possible because of the fragmentary nature of our specimen and non-preservation of its coastal plates. Furthermore, in the absence of stratigraphically useful

fossils the exact age of this specimen is also very uncertain.

It may, however be concluded that the above mentioned record, although very scanty, is rather suggestive to infer the presence of turtles in the inter-trappean beds of Saurashtra. It is expected that future collection of such fossils from this area may reveal better specimens to allow resurrection of the fossil form reported here.

The occurrence of the turtle fossils along with the fish indicate warm, temperate and tropical conditions with fluviatile and lacustrine environments that prevailed between the successive outbursts of lava flows. It was perhaps a long non-eruption phase during which the inter-trappean beds were deposited and their fluviatile, lacustrine environments allowed the turtles to flourish.

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## POLYMORPHIC FLOWERS IN CYPERACEAE—A NEW REPORT

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WHILE investigating a large number of spikelets of *Scirpus grossus* L., it was observed that glumes,

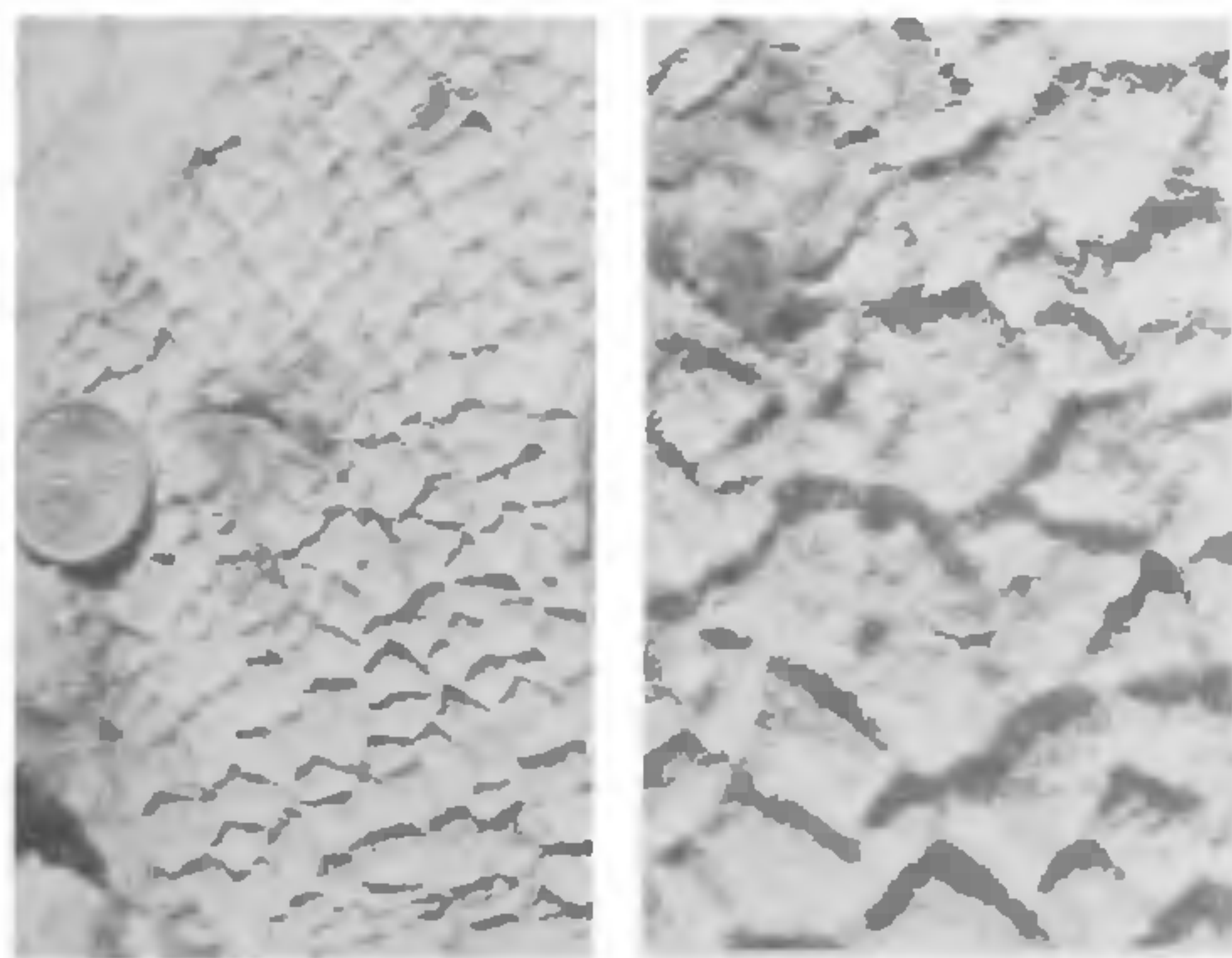


Figure 2. (a) Photograph of external cast that resembles parasagittal ridges in Trionychid turtles. (b) Enlargement of its part.