*Annales Societatis Geologorum Poloniae* (2020), vol. 90: 95–98 doi: https://doi.org/10.14241/asgp.2020.02

# PUTATIVE ICHNOGENUS *PARALANICICHNITES* GHARE AND BADVE, 1981 FROM THE PALAEOGENE OF THE KACHCHH BASIN (INDIA) IS A CORAL

**Kantimati G. KULKARNI[1]* & Namra SIKILKAR[1, 2]**

[1]*Biodiversity & Palaeobiology Group, Agharkar Research Institute, Savitribai Phule Pune University, G. G. Agarkar Road, Pune 411004, India*
[2]*Current address: Department of Paleoenvironment, Friedrich-Alexander University, Loewenichstrasse 28, Erlangen, Germany 91054*
*e-mails: kgkulkarni@aripune.org, sikilkarnamraa@gmail.com*
** Corresponding author*

Kulkarni, K. G. & Sikilkar, N., 2020. Putative ichnogenus *Paralanicichnites* Ghare and Badve, 1981 from the Palaeogene of the Kachchh Basin (India) is a coral. *Annales Societatis Geologorum Poloniae*, 90: 95–98.

**Abstract**: Structures, reported as the trace fossil, *Paralanicichnites conflueris,* were described from the Palaeogene rocks of the Kachchh (Kutch) District, Gujarat State, India, by Ghare and Badve as a new ichnogenus and ichnospecies. Restudy of the type specimens revealed that the form described as a burrow in fact is a scleractinian coral, as evidenced by its phaceloid morphology, septate calcareous exoskeleton, and twelve primary septa. It appears that there is also confusion regarding the exact geological formation, from which the specimens under consideration were taken by the original authors, as well as the age assigned by them.

**Key words**: Trace fossil, scleractinian coral, Palaeogene, fossiliferous limestone.

*Manuscript received 15 March 2020, accepted 6 May 2020*

## INTRODUCTION

An ichnogenus called '*Paralanicichnites*' was discovered by Ghare and Badve (1981) on the Babia Hill (N23º42´, E68º46´), Kachchh District, Gujarat State, India. The ichnogenus was erected by them after studying four specimens, which they named *Paralanicichnites conflueris* ichnogenus et ichnospecies nov. The authors claimed that the specimens came from an unfossiliferous, cream-coloured limestone, extensively burrowed. They gave the following as their diagnosis:

"Burrows in clusters, vertical or slightly inclined; occasionally branching; twisting and curving common; diameter 4 mm to 10 mm; wall lining thin; burrows fairly deep exceeding 50 cm; tendency to converge towards sediment surface" (Ghare and Badve, 1981, p. 55).

Ghare and Badve (1981) observed that the general plan of this burrow system was strikingly similar to that created by the polychaete worm *Lanice*, as described and illustrated by Schäfer (1972).

Given this marked resemblance, Ghare and Badve (1981) named the ichnogenus *Paralanicichnites*. As the burrows were crowded together, they suggested the term *conflueris* for the specific epithet.

Examination of the type specimens, stored in the Fossil Repository of the Agharkar Research Institute, Pune, India, revealed that the specimens are not trace fossils. Moreover, there is some misperception regarding the Oligocene age of these so-called burrows, since the Babian Stage is of Middle Eocene (Lutetian and Bartonian) age (Biswas, 1965, 1992).

The results of scrutiny of the specimens from the Babia Hill under consideration are enunciated in the present paper.

## GEOLOGICAL SETTING

In the Indian peninsula, marine Cenozoic rock formations occur in the coastal tracts. That found in the Kachchh (Kutch) Basin is the best developed. The succession occurring here, comprises eight formations, ranging in age from Paleocene to Pliocene (Fig. 1). One of these formations is the Fulra Limestone. It is assigned an upper Lutetian to lower Bartonian age and is best exposed in the Abdassa and Lakhpat Subdivisions of Kachchh. It is essentially a foraminiferal limestone that was deposited in a middle shelf environment under conditions of low energy and clear water (Biswas, 1992). This limestone is characterised by

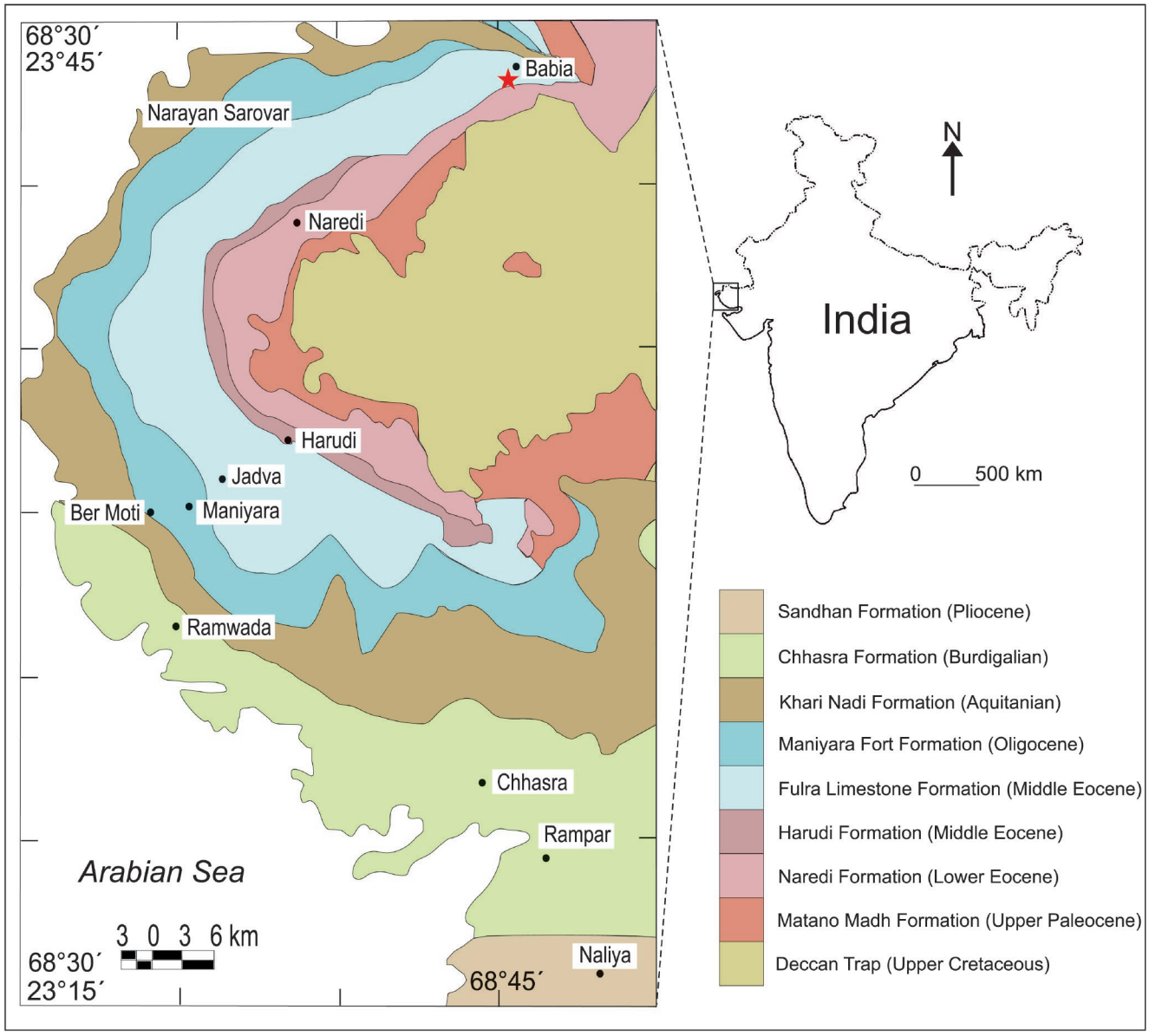


**Fig. 1.** Geological map of western Kachchh. Asterisk denotes the approximate location of samples collected by Ghare and Badve.

a remarkable assemblage of large, benthic foraminifera. Along with a variety of foraminifers, this formation yields oysters, both regular and irregular echinoids, pectinid bivalves, crabs and corals.

## DESCRIPTION OF THE FOSSIL

**Material:** Holotype, along with the paratypes, in the Repository of the M. A. C. S. Research Institute, now known as the Agharkar Research Institute, under serial Nos MACS G 1383-1386

**Description:** All four slabs are colonies of corals, exhibiting phaceloid morphology. The upper surfaces of the specimens are full of concave, rounded calices of the corallites (Fig. 2A). There has been differential leaching and recalcification of corallite tubes. Therefore, certain corallites, presumably the leached ones, appear as open tubes; while some, evidently permineralized ones, appear as calcified tubes. The number of permineralized corallites is, however, much less than the leached, open tubes. There are moulds of septa in the open corallites (Fig. 2B, C).

Nevertheless, the original septa are preserved in permineralized corallites, and their asterisk-like arrangement (Fig. 2D, E) on the upper surfaces of the slabs affirms that these slabs are pieces of fossilized hermatypic coral. The primary septa are twelve in number. At least three generations of septa could be detected. Details of the coenosteum have been destroyed as a result of recrystallization. The number of septa is in multiples of six and therefore the coral that built this colony belonged to Scleractinia.

**Remarks:** Phaceloid morphology, twelve primary septa, and a strongly septate calcareous exoskeleton are the significant characteristics indicating that it is a colony of some scleractinian (Subclass Zoantharia) coral (Wells, 1963), probably a faviid.

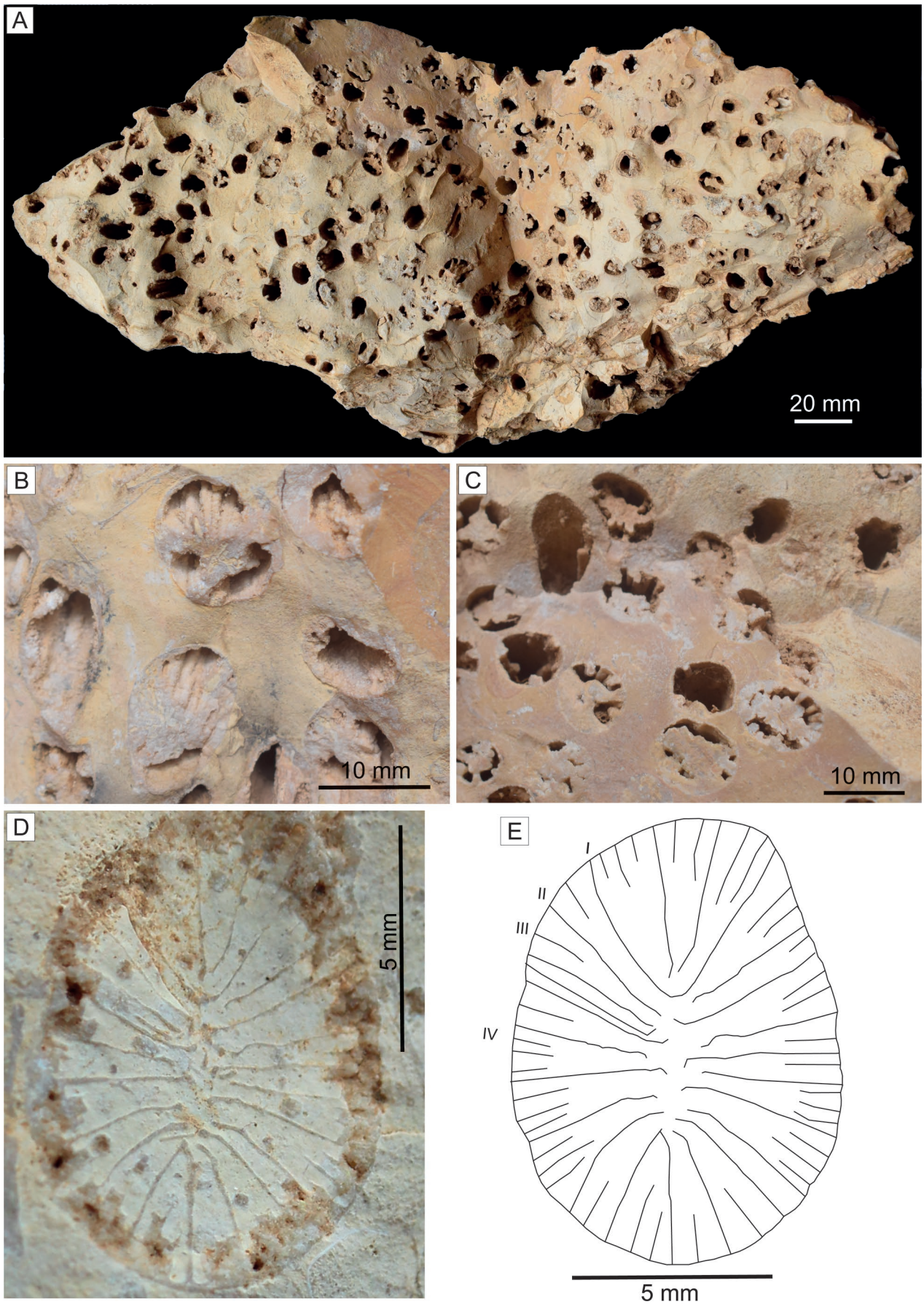


**Fig. 2.** Specimen of a coral, previously assigned to the ichnospecies *Paralanicichnites confluens* Ghare and Badve, 1981. **A**. Top view of entire specimen exhibiting leached as well as recrystallized corallites (MACS G 1383). **B, C**. Moulds of the septa, as seen on the lower and upper surfaces. **D**. Septa seen in cross section of a corallite. **E**. Line drawing of Figure 2D, showing arrangement of the septa.

## DISCUSSION

It is evident that Ghare and Badve (1981) were influenced by the superficial characteristics of structures in the limestones studied. They interpreted the vertical tubes as crowded burrows and described the specimens with that in mind. Obviously, other details indicating that these slabs are coral colonies escaped their attention. They observed that there was a horizontal component, but instead of recognizing it as a part of the coenosteum, they considered it to be a horizontal part of the burrow maze and found a similarity with the burrow system of the polychaete worm *Lanice*.

From the original research article by Ghare and Badve (1981), the exact horizon yielding the specimens under consideration cannot be ascertained, since the age assigned is Oligocene. If the specimens really were collected from near the Babia Hill (Fig. 1) as claimed by Ghare and Badve, the age should be upper Lutetian and not Oligocene. Big blocks of colonial corals are characteristic of the Coral Limestone Member of the Maniyara Fort Formation, implying a probable Oligocene age. Nowhere in the immediate vicinity of Babia Hill, are rocks of the Maniyara Fort Formation of Oligocene age present.

Fossil corals identified to date from the Paleogene rocks of Kachchh belong to the genera *Astrocoenia/Actinastrea, Stylophora, Hydnophora, Leptoria, Acanthastrea, Pavona* and other faviids (Mohanti and Srivastava, 1994; Sinha and Halder, 2018). The present material cannot be assigned to any scleractinian genus, as the morphological details of the septa are not preserved, owing to recrystallization. Furthermore, as far as the present authors are aware, neither the ichnogeneric name *Paralanicichnites* nor the ichnospecific term *P. conflueris* has been cited anywhere in the literature. Therefore, it is proposed here that the ichnotaxon *Paralanicichnites conflueris* should be considered as *nomen oblitum.*

## ACKNOWLEDGEMENTS

Authors thank the reviewers for their useful suggestions. Constructive discussions with Alfred Uchman, Jagiellonian University, Kraków, Poland, and V. D. Borkar, Fergusson College, Pune, India, are gratefully acknowledged.

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