

LATE JURASSIC NANNOPLANKTON FROM THE JURASSIC SEQUENCE IN THE SUBSURFACE OF THE BANNI RANN KUTCH

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ABSTRACT

Seven species of nannoplankton represented by six genera are being recorded here for the first time from the subsurface samples of the Banni deep well located in the Banni Rann, Kutch, and out of which four species are described. On the basis of the present assemblage of nannoplankton, these subsurface rocks may be referred to Oxfordian and were deposited in the inner naritic environment.

INTRODUCTION

A common assemblage of nannoplankton has been obtained from the subsurface Late Jurassic beds of the Banni deep well—2, drilled by the Oil and Natural Gas Commission in the Banni Rann at 20.9 km/13 miles SW of the Godpur village (Fig. 1), Kutch.

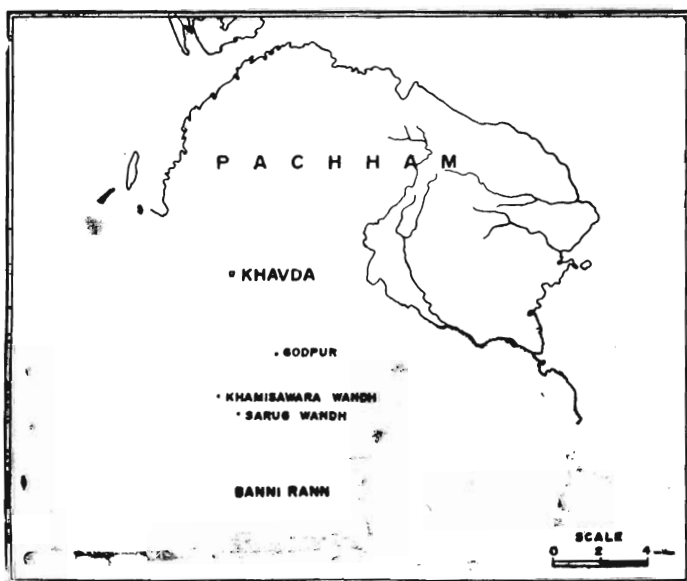


Figure-1. Location of the area.

Only few important nannoplankton are being described in the present paper from the subsurface rocks between the depths of 827 m and 839 m of this well and rest of them will be described later on. The associated foraminifera and ostracoda are as follows: *Epistomina stelicostata* Bielecka and Pozaryski, *E. alveolata* Myatliuk, *E. minutireticulata* Espitalié and Sigal, *Lenticulina dilecta* Loeblich and Tappan, *I. staufensis* Paalzw, *Galliaecytheridea* sp.,

and *Procytheridea exempla* Peterson. The present assemblage of foraminifera also suggests an Oxfordian age to the subsurface rocks between the depths of 827 m and 839 m of the Banni deep well-2.

Pant and Mangain (1969) recorded nannoplankton from the Eocene and Oligocene beds of Kutch. Mathur (1972) recorded few nannoplankton from the Kuar Bet Beds and suggested a Palaeocene—Eocene age to these beds, earlier considered as Bathonian—early Callovian on account of their megafossil contents. He also recorded plant megafossil from the Kuar Bet Beds and considered the lower beds of the Kuar Bet Beds not older than Early Cretaceous. All the nannoplankton illustrated in this paper are photographed from the temporary slides prepared in dilute solution of glycerine.

SYSTEMATIC DESCRIPTION

- Family Zygothaceae Noel
Genus *Zygothus* (Kamptner) emend. Noel
Zygothus erectus Deflandre

(Pl. 1—1)

1954. *Zygothus erectus* Deflandre, p. 150, figs. 14-17, t. fig. 60-62.

1965. *Zygothus erectus* Deflandre, Noel, pp. 62-64, fig. 2, pl. 1, figs. 3-4.

Remarks: The type species has been described by Deflandre (1954) from the Oxfordian strata of Spain. Bouche (1962) recorded the present form from the Lutetian beds of Paris. Martini (1960) reported it from the Eocene beds of Mayence and Noel (1965) recorded this species from the Oxfordian beds of Niort and Weymouth (Grande-Bretagne). The presence of this species in the Tertiary may be attributed to reworking.

Locality: Banni deep well—2, Kutch.

Horizon: Beds between the depths of 836 m and 839 m.

Age: Oxfordian.

Zygodolithus sp. indet., Noel

(Pl. 1—7)

1965. *Zygodolithus* sp., indet., Noel, pl. 1, fig. 1.

Description: Body rim elliptical in shape, elevated and thick. Inner opening broad and divided into smaller openings by a thick transverse bar. Length 5.2 μ , width 4 μ .

Remarks: The present form is identical to *Zygodolithus* sp. illustrated but not described by Noel (1965) who recorded it from the Oxfordian beds of Niort. It occurs frequently in the material.

Locality: Banni deep well—2, Kutch.

Horizon: Beds between the depths of 833 m and 836 m.

Age: Oxfordian.

Family Discolithaceae Noel

Genus *Discolithus* (Kamptner) sens. emend. Noel

Discolithus sp. indet.

(Pl. 1—2-5)

Description: Body rim elliptical, thickest at the middle and thinning out at both the extremities. Central opening prominent, divided into two semicircular openings by a thick median bar. Surface sculpture not distinct. Length varies from 7.2 μ to 8 μ , width varies from 6 μ to 4 μ .

Remarks: The present form resembles closely *Discolithus salillum* Noel reported from the Oxfordian beds of Niort but due to lack of surface sculpture, visible only in a higher magnification, it could not be identified up to specific level. It occurs in abundance.

Locality: Banni deep well—2, Kutch.

Horizon: Beds between the depths of 827 m and 839 m.

Age: Oxfordian.

Family Ellipsagelosphaeraceae Noel

Subfamily Ellipsagelosphaeroideae Noel

Genus *Ellipsagelosphaera* Noel

Ellipsagelosphaera ? *lucasi* Noel

(Pl. 1—7-8)

1965. *Ellipsagelosphaera lucasi* Noel, pp. 126-129, figs. 41-42, pl. 11, figs. 2-6

Remarks: The described form is very close to *Ellipsagelosphaera lucasi* Noel described from the Oxfordian beds of Niort. It occurs frequently in the material.

Locality: Banni deep well—2, Kutch.

Horizon: Beds between the depths of 827 m and 833 m.

Age: Oxfordian.

CONCLUSION

The present assemblage of nannoplankton has a close affinity with nannoplankton described from the Oxfordian beds of Niort by Noel (1965)? *Stephanolithion* sp. and? *Loxolithus* sp. have been illustrated only. The subsurface rocks between the depths of 827 m and 839 m of the Banni deep well—2, therefore, may be dated as Oxfordian on the basis of these nannofossils. The presence of ostracoda and foraminifera suggests that these sediments were deposited in the inner neritic environment.

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REFERENCES

- BOUCHE, P. M. 1962. Nannofossiles calcaires du Lutetian du bassin de Paris. *Rev. Micropaleontology*. **5**(2): 75-103.
- DEFLANDRE, G. et FERT, C. 1954. Observations sur les coccolithophorides actuels et fossils en microscopie ordinaire et electronique. *Ann. Paleontology*. **40**: 117-176.
- MARTINI, E. 1960. Braarudosphaeriden, Discoasteriden und verwandte Formen aus dem Rupelton des Mainzer Beckens. *Notizbl. hess. 1-Amt. Bodenforsch.* **88**: 65-87.
- MATHUR, Y. K. 1972. Plant fossils from the Kuar Bet, Pachham Island, Kutch. *Curr. Sci.* **41**(13): 488-489.
- NOEL, D., 1965. Sur les coccolithes, du Jurassique Europeen et D'Afrique du Nord. *Ed. Cent. Nat. Rech. Scient. Paris*: 1-209.
- PANT, S. C. and MAMGAIN, V. D. 1969. Fossil nannoplankton from the Indian sub-continent. *Rec. Geol. Surv. India*. **97**(2): 108-128.

EXPLANATION OF PLATE

PLATE I

1. *Zygodolithus erectus* Deflandre, proximal side, $\times 2500$.
- 2-5. *Discolithus* sp. indet, distal side, $\times 2500$.
6. *Zygodolithus* sp. indet., distal side, $\times 2500$.
- 7-8. *Ellipsagelosphaera* ? *lucasi* Noel, Fig. 7, proximal side ; $\times 2500$.
9. ?*Stephanolithion* sp. indet ; distal side, $\times 2500$.
- 10-11. ?*Loxolithus* spp., $\times 2500$.

