

SOME NEW NANNOFOSSIL TAXA

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ABSTRACT

Three new genera Rectapontis, Palaeomicula and Praeprinsius are described and eight new combinations, Calculites anfractus, Rectapontis compactus, Rectapontis sisyphus, Palaeomicula maltica, Palaeomicula quadrisphena, Praeprinsius africanus, Praeprinsius dimorphosus and Praeprinsius tenuiculus are introduced.

INTRODUCTION

This study aims to clarify some selected taxonomic problems and provides a taxonomic background for our forthcoming publications. The newly introduced genera belong to three different families: Coccolithaceae (Praeprinsius), Polycyclolithaceae (Paleomicula) and Zygodiscaceae (Rectapontis). Terminology used in this study follows Varol (in press).

TAXONOMY

Calculites anfractus (JAKUBOWSKI) n. comb.

Basionym: 1986 Phanulithus anfractus JAKUBOWSKI, p. 41, pl. 1, figs. 20-23.

Remarks: It is recognised that Phanulithus WIND and WISE in WISE and WIND (1977) is a junior synonym of Calculites PRINS and SISSINGH in SISSINGH (1977) (see van HECK, 1979).

Rectapontis VAROL and JAKUBOWSKI, n. gen.

Type species: Zygodiscus compactus BUKRY, 1969.

Diagnosis: An elliptical coccolith consisting of a single wall of inclined elements and a bridge aligned with the short axis of the ellipse.

Derivation of name: Recta (Lat.): straight; Pontis (Lat.): bridge.

Description: Rectapontis has a single zeugoid (inclined elements) wall and a bridge along the short axis of the ellipse. There is no cover in the central area. The wall does not show any birefringence while the bridge occasionally shows birefringence under cross-polarised light.

Remarks: The species assigned to Rectapontis have been wrongly placed within Zygodiscus BRAMLETTE and SULLIVAN (1961), whose type species is a typical Palaeocene coccolith with a double wall. According to PERCH-NIELSEN (1985), Mesozoic forms with a single wall should not be assigned to Zygodiscus. Glaukolithus REINHARDT 1964 was proposed as an alternative. However, the type species Glaukolithus diplogrammus DEFLANDRE in DEFLANDRE and FERT, 1954 was described from Neogene sediments but is believed to be reworked. It is, therefore, difficult to establish the true nature of G. diplogrammus

and we suggest that this generic name be ignored. Zeugrhabdotus REINHARDT (1965) differs from Rectapontis in having a cover in the central area whereas Loxolithus NOEL (1965) is characterised by the absence of any central structure. Tranolithus STOVER (1966) is easily distinguished from Rectapontis in having massive blocks covering part or all of the central area.

Rectapontis compactus (BUKRY) n. comb.

Basionym: 1969 Zygodiscus compactus BUKRY, p. 59, pl. 34, figs. 1-2.

Rectapontis sisyphus (GARTNER) n. comb.

Basionym: 1968 Zygodiscus sisyphus GARTNER, p. 34, pl. 14, fig. 15; pl. 18, figs. 17-19; pl. 21, fig. 6; pl. 22, figs. 5-6; pl. 23, figs. 17-18; pl. 25; figs. 19-22; pl. 26, fig. 6.

Palaeomicula VAROL and JAKUBOWSKI, n. gen.

Type species: Tetralithus quadrisphenus WORSLEY, 1971.

Diagnosis: A nannolith composed of four triangular to subrectangular wedge-shaped elements whose peripheral edges form a square outline in plan view. The sutures between the elements diagonally bisect the square outline and are generally straight or occasionally, inclined.

Description: This square-outlined nannofossil has strongly birefringent elements and the sutures between them define a swastica under cross-polarised light. A notch may or may not be present at each corner of the square but this depends upon the shape of the elements.

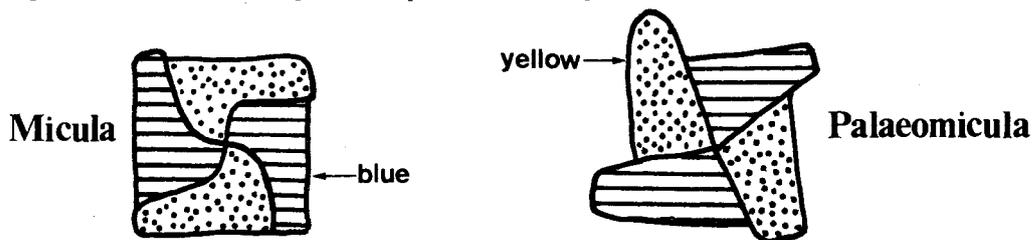


Fig. 1 Micula and Palaeomicula: Cross-polarised, Gypsum plate (1λ), Standard orientation.

Remarks: Palaeomicula is distinguished from the ill-defined Tetralithus GARDET, (1955) by having all its elements strongly birefringent under cross-polarised light, whereas Tetralithus has two birefringent and two non-birefringent elements. This new genus differs from Quadrum PRINS and PERCH-NIELSEN in MANIVIT et al. (1977) by having sutures which diagonally bisect the square outline, in Quadrum the sutures are perpendicular to the peripheral edges. Palaeomicula is distinguished from Micula VEKSHINA (1959) by having wedge shaped elements. The colour distribution of Palaeomicula under cross-polarised light, with a gypsum plate inserted in the light-beam,

in the standard orientation (at an angle of 45° to the polarization direction), is opposite to that of Micula (see Fig. 1). Together with this structured distinction, the new genus has a distinctly different stratigraphic range: Micula (upper Coniacian to Maastrichtian), Quadrum (Turonian to lower Maastrichtian), Palaeomicula (Kimmeridgian to Hauterivian).

Palaeomicula maltica (WORSLEY) n. comb.

Basionym: 1971 Tetralithus malticus WORSLEY, p. 1313, pl. 2, figs. 9-11.

Remarks: P. maltica differs from P. quadrisphena by having triangular to subtriangular wedge-shaped elements and in possessing notches in the corners of the square outline.

Occurrence: WORSLEY (1971) reported P. maltica from Kimmeridgian to Hauterivian but we have so far only recorded it from lower Berriasian sediments in low latitude areas.

Palaeomicula quadrisphena (WORSLEY) n. comb.

Basionym: 1971 Tetralithus quadrisphenus WORSLEY, p. 1313, pl. 2, figs. 12-14.

Remarks: P. quadrisphena is distinguished from P. maltica by having subrectangular wedge-shaped elements, each being joined at right angles to the side of each succeeding element in a spiral fashion.

Occurrence: WORSLEY (1971) reported P. quadrisphena from the Berriasian to the Valanginian but we have so far only observed it in the lower Berriasian of low latitude areas.

Praeprinsius VAROL and JAKUBOWSKI n. gen.

Type species: Biscutum? tenuiculum OKADA and THIERSTEIN, 1979.

Diagnosis: Elliptical to circular placolith consisting of a monocyclic distal shield and a double-cycled proximal shield. The single tube cycle is strongly birefringent, whereas the shields show no birefringence under cross-polarised light. The central area may or may not be closed.

Description: This small placolith is constructed of a monocyclic distal shield which generally possesses zig-zag sutures between its elements. In earlier forms the zig-zag sutures are very strong, but, later forms show weaker zig-zag sutures. The distal shield usually consists of approximately 8 to 20 non to slightly, sinistrally imbricated elements and is larger than the double-cycled proximal shield, which is formed by the same number of non-imbricated elements. The tube cycle is strongly birefringent whilst the shields are non-birefringent under cross-polarised light.

Remarks: Praeprinsius is distinguished from Prinsius HAY and MOHLER (1967) and Toweius HAY and MOHLER (1967) by possessing a single tube cycle and non-birefringent shields (under cross-polarised light) whereas Prinsius and Toweius have double tube cycles and birefringent proximal shields (under cross-polarised light). Praeprinsius differs from Markalius BRAMLETTE and MARTINI (1964) and Geminilithella BACKMAN (1980) by having a double-cycled proximal shield whereas Markalius and Geminilithella have only single cycle proximal shields. Praeprinsius is distinguished from Biscutum BLACK in BLACK and BARNES (1959) and Neobiscutum VAROL (1989) by its double-cycled proximal shield. Futyania VAROL (1989) has a single cycled proximal shield and a distally extended tube cycle whereas in Praeprinsius the tube cycle does not extend distally and it has double cycled proximal shield. Finally Coccolithus SCHWARZ (1894) and Calcidiscus KAMPTNER (1950) differ from Praeprinsius by possessing birefringent proximal shields. Coccolithus also differs in the greater number of elements on the shields, and the sutures between the elements are straight. Calcidiscus further differs from Praeprinsius in possessing a single cycle proximal shield and in lacking a tube cycle.

Praeprinsius africanus (PERCH-NIELSEN) n. comb.

Basionym: 1981 Prinsius africanus PERCH-NIELSEN, p. 842-843, pl. 3, figs. 3,5,6,8,9.

Praeprinsius dimorphosus (PERCH-NIELSEN) n. comb.

Basionym: 1969 Biscutum? dimorphosum PERCH-NIELSEN, p. 318, pl. 32, figs. 1-3a, 4; text-fig. 1.

Praeprinsius tenuiculus (OKADA and THIERSTEIN) n. comb.

Basionym: 1979 Biscutum? tenuiculum OKADA and THIERSTEIN, p. 521-522, pl. 1, figs. 1-2; pl. 9, figs. 1-8.

Rotelapillus crenulatus (STOVER, 1966) PERCH-NIELSEN, 1984

Remarks: Specimens of R. crenulatus are generally misplaced within the Jurassic species Stephanolithion laffittei NOEL (1957) which has two radial bars in the central area. R. crenulatus has a round to broadly elliptical outline and eight radial bars in the central area. These forms are restricted to Cretaceous sediments and do not resemble the original description or illustrations of S. laffittei. The use of the name S. laffittei for forms with eight radial bars in the central area must be abandoned in favour of R. crenulatus.

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