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## A note on the type material of the genus *Ranikothalia* (Foraminifera)

By C.M. BRAMINE CAUDRI<sup>1)</sup>

CAUDRI (1944, p. 18) proposed to separate the peculiar Paleocene “nummulites cordelées” described by DE CIZANCOURT (1948), with their exaggerated development of the marginal cord, from the general genus *Nummulites* under the name *Ranikothalia*. Since then, there has sprung up amongst various specialists a controversy as to the necessity for this new genus. Some authors, for purely morphological and statistical reasons, refused to separate it from *Nummulites*, *Operculinoides*, *Operculina* or even *Miscellanea*, as the case may be, while others accepted it as they recognized these specific forms as a close-knit group, limited in geological time.

The clearest discussion in favour of a separation has been presented by DROOGER (1960), and it has gradually found wide acceptance. HOTTINGER's doubt about the validity of the type material of *Ranikothalia*, which he characterized (1964) as “weathered and rolled specimens of dubious age” is, however, difficult to understand and needs some clarification.

The type species of the genus is *Nummulites nuttalli* DAVIES from the Upper Ranikot beds at Jherruck (Jhirak) in Sind, Pakistan, which are reliably established as late Paleocene in age. For the description of this species we refer to NUTTALL (1926, p. 114–115; Pl. X, Figs. 1–2; textfig. 1) and DAVIES (1927, p. 266, Pl. XVIII, Figs. 3–4; pl. XIX, Figs. 7–9). Through the courtesy of the Sedgwick Museum in Cambridge, England, where Nuttall's material is deposited, the present author received on loan in 1934 the type material of *N. nuttalli* for comparison with a superficially similar but different form from Indonesia; this enabled her to give some additional notes on the species.

*Material:* 9 well preserved specimens from Jherruck, Sind.

*External characters:* Diameter 6.6–15.5 mm (average 11.2 mm), somewhat inflated in the centre but running out flat towards the periphery and with a substantial marginal cord. A spirally arranged group of pillars in the centre; slightly curved sutural lines on the rest of the surface.

*Horizontal section:* Microspheric. Spiral of about 7–8 whorls, immediately after the initial chamber already very wide (at the end of the first coil about 220  $\mu$  high, and of the second coil nearly 400  $\mu$ ; last whorl sometimes up to 1.5 mm), but frequently very irregular, with many depressions. Chambers divided by almost straight double septa, with rounded tops and only the faintest tendency to form an oblique angle with the spiral. The spiral has a solid inner margin and, in combination with the septa, is comb-

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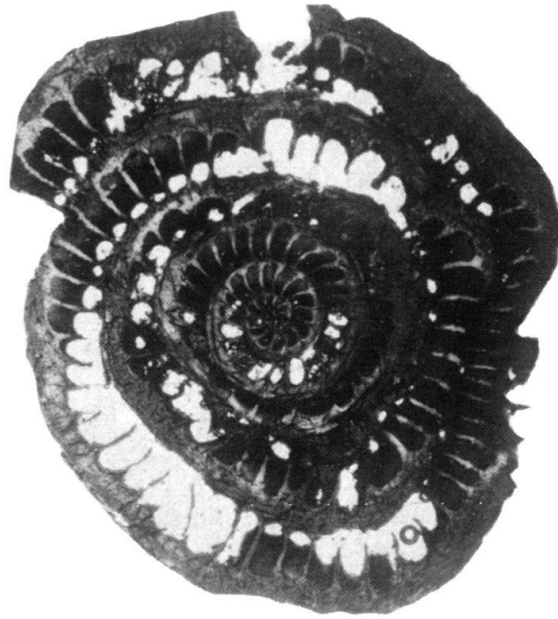


Fig. 1. *Ranikothalia nuttalli* (DAVIES), horizontal section,  $\times 6$ . Uppermost Ranikot beds at Jherruck, Sind. Reproduced from CAUDRI (1934, pl. 1, Fig. 9).

shaped. This peculiarity is a constant characteristic of the species. NUTTALL shows it in a camera lucida drawing of the central part of the spiral, and it is also recorded by DAVIES, who bases the connection between *N. nuttalli* and the megalospheric *N. thalicus* principally upon this feature.

*Vertical section:* see DAVIES (1927).

Neither NUTTALL nor DAVIES have given a photograph of the horizontal section of *N. nuttalli*. This omission has been corrected by CAUDRI in 1934 (Pl. 1, Fig. 9), in a paper with only a very limited distribution (Ph.D. Thesis, Leyden, Holland). It is herewith reproduced to convince a wider public. Additional horizontal sections of specimens from the type area have later been published by DAVIES & PINFOLD (1937) and HOTTINGER (1977).

My material from Venezuela (CAUDRI 1944) consists of hard limestones in which the specimens of *Ranikothalia* are well preserved and in situ; it proved clearly the presence of this form also in the Paleocene of the Caribbean region. These forms were afterwards observed in many places in the Western Hemisphere and described and figured under various local names (*N. bermudezi*, *soldadensis*, *antillea*, *tobleri*, etc.).

*Ranikothalia* is an important element in COLE's "*Operculina catenula* fauna" (1959), which, when in situ, indicates a Paleocene age, but it is often found in a reworked condition. Between certain latitudes the distribution of *Ranikothalia* is practically worldwide, but how many species the genus comprises is still an open question. The variability in both external shape and internal features is so great that one can easily split the population of any given locality into ten different species (for example in Barbados, DE CIZANCOURT 1948) or lump everything together by statistical methods (SACHS 1957, who in Cuba recognized only *R. bermudezi* PALMER). For morphological reasons, COLE (1959) has come to the same conclusion as SACHS, but called the species

"*Operculina*" *catenula* CUSHMAN & JARVIS, which has priority over *bermudezi*. The type material of *Operculina catenula* is a single intact specimen from the Lizard Springs area in Trinidad, but I do not doubt its identity with all the other *Ranikothalias* found afterwards in the same region, and I am in favour of calling the Caribbean species *Ranikothalia catenula* (CUSHMAN & JARVIS), still listing its three morphological varieties "*antillea*", "*tobleri*" and "*soldadensis*", as I have done in my paper on Soldado Rock (CAUDRI 1975).

ARNI (1965, 1966) described these forms as a new subgenus of *Nummulites*, *Chordoperculinoides*, but that is nothing but a synonym of *Ranikothalia*.

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