

ON THE AFFINITIES OF *COBBANOSCAPHITES* COLLIGNON, 1969
(CRETACEOUS AMMONOIDEA)

By

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(With 2 figures)

[MS accepted 25 May 1992]

ABSTRACT

The genus *Cobbanoscaphtes* Collignon, 1969, from the Lower Campanian of Madagascar, is not a heteromorph ammonite of the superfamily Scaphitaceae, as originally described, but a pachydiscid microconch and a synonym of *Menuites* Spath, 1922.

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INTRODUCTION

In the course of a revision of the South African representatives of the heteromorph ammonite superfamily Scaphitaceae Gill, 1871, the authors recently examined the Madagascan representatives of the group described by Collignon (1963–1971), and currently housed in the Département des Sciences de la Terre, Dijon. The most distinctive form referred to the scaphites by Collignon was the genus *Cobbanoscaphtes* Collignon, 1969, originally described and diagnosed as follows:

COBBANOSCAPHTES MENABENSIS nov. gen. nov. sp. G. T. (1) D: 0,080.–H: 0,043. (0,52).–E: 0,055. (0,69).–O: 0,023. (0,59) (?).

Ce *Scaphites* (unique exemplaire) paraît représenter un nouveau genre, défini par un ensemble de caractères empruntés à différents autres genres.

Ammonites massive, épaisse, subsphérique, à flancs plats fortement convexes et région externe un peu plus large que ceux-ci. Section largement semi-lunaire. Omphalic difficile à apprécier (probablement peu large) parce que, l'exemplaire étant creux, l'enlèvement de ce qui subsiste de la gangue ferait tomber les tours internes

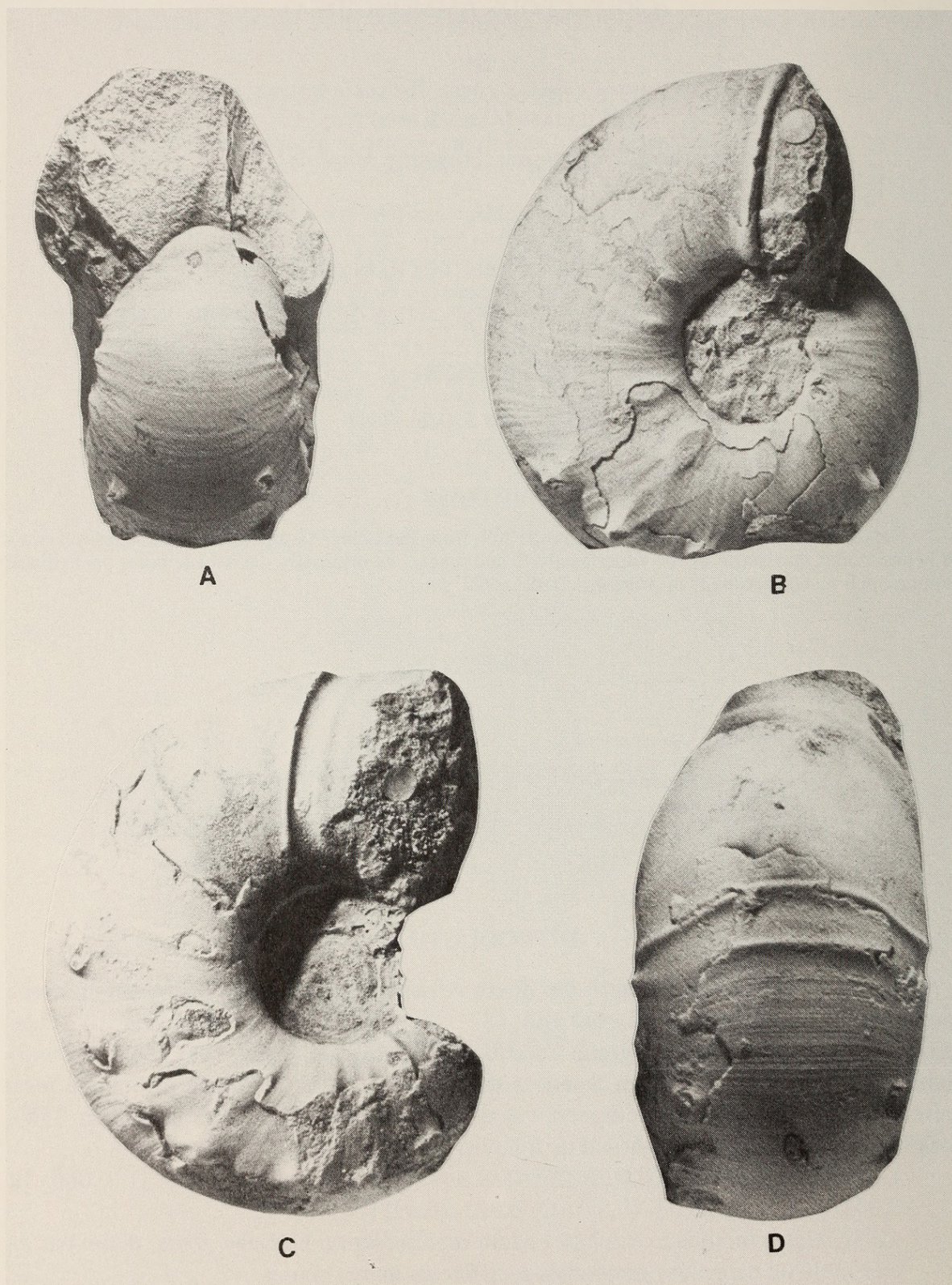


Fig. 1. *Menuites menu* (Forbes, 1846). A-B. Paralectotype, BMNH C47599. C-D. Lectotype, BMNH C51048, from Pondicherry, South India. All figures are $\times 1$.

retenus par celle-ci; mais il est éminemment infundibuliforme (voir la Fig. de face). Ornementation de côtes basses, espacées, prenant librement naissance au sommet de la fosse ombilicale, et aboutissant, sur la chambre d'habitation seulement, à six très gros tubercules externes (qui n'existent pas sur la partie cloisonnée). Cloisons à premier lobe latéral trifide; deuxième lobe étroit; selles hautes et étalées.

Rapports et Différences.—L'ornementation de côtes est celle de *Desmoscaphites* (cf. Reeside, Eagle Sandstone. Pl. 22, Fig. 8), tandis que les très gros tubercules externes sont exactement ceux de *Acanthoscaphites* (cf. Nowak, Reeside, Cobban); mais ils n'existent que sur la chambre d'habitation. La cloison à le premier lobe de *Desmo-scaphites*, tandis que l'ensemble rappelle celle de *Clioscapites* (cf. Cobban. Scaphitoid Cephalopods of the Colorado Group. Pl. 20–21).

Zone à *Karapadites karapadensis*. Sous-Zone à *Maorites Aemilii*. Gisement 191 de la Coupe de Berere II (Belo sur Tsiribihina). Coll. M. Collignon, 1954.

(1) Le Genre est dédié à Mr. W. A. Cobban, Paléontologiste Américain, auteur de nombreux Travaux sur le Genre *Scaphites*. (Collignon 1969: 51, pl. 533 (fig. 2097)).

Examination of the holotype, and only known specimen, showed that, rather than being a distinctive scaphite, it is an adult microconch pachydiscid, referable to the genus *Menuites* Spath, 1922, as is discussed below.

CONVENTIONS

All dimensions given below are in millimetres; D = diameter, Wb = whorl breadth, Wh = whorl height, U = umbilical diameter.

Figures in parentheses are dimensions as a percentage of the total diameter.

The suture terminology is that of Wedekind (1916), as reviewed by Kullmann & Wiedmann (1970), E = external lobe, L = lateral lobe, U = umbilical lobe, I = internal lobe.

SYSTEMATIC PALAEONTOLOGY

Class CEPHALOPODA

Order AMMONOIDEA Zittel, 1884

Suborder AMMONITINA Hyatt, 1889

Superfamily DESMOCERATAEAE Zittel, 1884

Family **Pachydiscidae** Spath, 1922

Genus *Menuites* Spath, 1922

[= *Neopachydiscus* Yabe & Shimizu, 1926; *Anapachydiscus* Yabe & Shimizu, 1926; *Besairieites* Collignon, 1931; *Cobbanoscaphites* Collignon, 1969]

Type species. *Ammonites menu* Forbes, 1846 (p. 111, pl. 10 (fig. 1)), by original designation of Spath (1922: 123).

Discussion

The type species of *Menuites*, *M. menu*, is based on a lectotype and six paralectotypes from the Upper Maastrichtian Valudavur Formation of Pondicherry, South India,

and has been revised by Kennedy & Henderson (1992: 430, pl. 14 (figs 1–15), text-fig. 12c; see Fig. 1A–D herein). It is a small form reaching a maximum known diameter of 70 mm (Kennedy & Henderson 1992, pl. 14 (figs 10–15)). The phragmocone has a depressed reniform whorl section, and an ornament of umbilical bullae from a diameter of 15mm onwards, that give rise to groups of fine, crowded irregular ribs and growth lines, while additional ribs intercalate between. Strong ventrolateral tubercles that alternate on either side of the venter appear on the last part of the phragmocone at a diameter of 40 mm, and persist on to the adapical part of the body chamber. Ribbing weakens on the body chamber, which is densely lirate, whereas ventrolateral tubercles are absent on the last 90°–120° sector. There are two constrictions on the lectotype, one 45° before, and one immediately preceding the aperture (Fig. 1C–D). A single constriction precedes the aperture in a paratype (Fig. 1A–B).

Similar tuberculate pachydiscids referred to *Menuites* are known from the Lower Campanian to Upper Maastrichtian and, in a number of cases, occur with much larger pachydiscids referred to the genus *Anapachydiscus* Yabe & Shimizu, 1926. These co-occurring pairs have identical early developmental stages, and constitute dimorphic pairs, as demonstrated by Cobban & Kennedy (in press) for Campanian species from the U.S. Western Interior. In northern Hokkaido in Japan, a distinctive *Menuites*, described by Matsumoto (1984: 17, pl. 5 (fig. 1), text-fig. 5) as *M. sanadai*, occurs in Upper Campanian rocks associated with typical large specimens of the type species of *Anapachydiscus*, *A. fascicostatus* (Yabe 1921) (in Yabe & Shimizu 1921: 57, pl. 8 (fig. 5), pl. 9 (figs 2–5); see Matsumoto 1984: 14, pl. 4 (figs 1–2), pl. 5 (fig. 2), pl. 8 (fig. 7), text-fig. 4). These co-occurring *Menuites* and *Anapachydiscus* have similar early developmental stages and are clearly dimorphs, so that *Anapachydiscus* is a junior synonym of *Menuites*. That small, tuberculate pachydiscids are microconchs of larger non-tuberculate forms was demonstrated by Kennedy & Summesberger (1984) and discussed by Kennedy (1986); current work on South African pachydiscids shows it to be present in *Pachydiscus* (*Neodesmoceras*) Matsumoto, 1938.

Menuites menabensis (Collignon, 1969)

FIG. 2A–D

Cobbanoscaphites menabensis Collignon, 1969: 51, pl. 533 (fig. 2097).

Type

Holotype, by monotypy, is the original of Collignon, 1969: 51, pl. 533 (fig. 2097), from the Upper Campanian *Maorites aemilii* [sic] Subzone of the *Karapadites karapadensis* Zone, Gisement 191 de la Coupe de Berere II (Belo sur Tsiribihina), Madagascar.

Dimensions

	<i>D</i>	<i>Wb</i>	<i>Wh</i>	<i>Wb : W</i>	<i>U</i>
Holotype	80,0 (100)	51,5 (64,3)	35,0 (43,8)	1,47	24,5 (30,6)



Fig. 2. *Menuites menabensis* (Collignon, 1969). The holotype, the original of Collignon (1969, pl. 533 (fig. 2097)), from the Lower Campanian of Belo sur Tsiribihina, Madagascar. All figures are $\times 1$.

Description

The holotype is a slightly distorted internal mould, two-thirds of the last whorl is body chamber, and a short section of the adapertural phragmocone is also preserved. Coiling is moderate involute, the umbilicus comprising an estimated 30 per cent of the diameter, with a broadly rounded wall and shoulder. On the phragmocone, the whorl section is very depressed, reniform, with a whorl breadth to height ratio greater than two (the specimen is defective); the only detectable ornament is distant, blunt umbilical bullae. The body chamber is much better preserved, with a depressed, reniform whorl section, and whorl breadth to height ratio of 1.47 at the adapertural end. Six low, broad, straight prorsiradiate ribs arise on the umbilical wall, and strengthen into long umbilico-lateral bullae. The bullae give rise to single narrow, straight ribs that link to very strong, blunt conical ventrolateral tubercles. A pair of delicate ribs loops between these tubercles, which are opposite rather than alternate. The interspaces between the ribs are decorated by delicate, distant, prorsiradiate riblets, straight and prorsiradiate on the flank, and feebly convex across the venter. They become increasingly prominent on the adapertural end of the specimen, where there is an incipient constriction flanked by two of these riblets.

The suture is imperfectly preserved but there is a large ventral lobe, a deeply incised E/L, and L/U₂ with narrow stems, and deeply incised L.

Discussion

A comparison of Figures 1A–D and 2A–D demonstrates the striking resemblance between *Cobbanoscaphtes menabensis* and *Menuites menu*. Any doubts that *Cobbanoscaphtes* might not be a pachydiscid, rather than a scaphite, are removed by a consideration of the suture. Although imperfectly preserved (Fig. 2), the degree and nature of the incisions are typically pachydiscid, as is the very narrow stem of the saddles.

Because the inner whorls of the holotype are so poorly preserved, it is not possible to link *Menuites menabensis* with its corresponding macroconch.

Occurrence

As for the type.

ACKNOWLEDGEMENTS

Kennedy acknowledges the financial support of the Natural Environment Research Council (U.K.), and the technical assistance of the staff of the Geological Collections, Oxford University Museum, and Department of Earth Sciences, Oxford. Klinger acknowledges financial support from the Foundation for Research Development (S.A.) and technical assistance from the South African Museum.

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