Notes on Some Cretaceous Ammonites from Southern India : Part II Occurrence of Metoicoceras in Trichinopoly Cretaceous

Sastry, M. V. A.
Palaeontology Section, Geological Survey of India

Matsumoto, Tatsuro
Faculty of Science, Kyushu University

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Notes on Some Cretaceous Ammonites from Southern India

Part II

Occurrence of *Metoicoceras* in Trichinopoly Cretaceous

By

M. V. A. SASTRY and Tatsuro MATSUMOTO

Abstract

The ammonite genus, *Metoicoceras*, so far known from North America, Europe and Africa, is recorded for the first time from the Indian region. It occurs in the uppermost beds of the Utatur Group in the Trichinopoly Cretaceous, of Lower Turonian age. The specimen is described and figured in this note.

Introduction

The senior author while engaged in field work, collected a specimen of *Metoicoceras* from a *nala* section, north of Mungilpadi, Tiruchirapalli, Madras. The specimen came from the topmost beds of the Utatur Group. Though there is only one individual in the collection it needs a special notice since this is the first record of the genus *Metoicoceras* from the Indian region.

The genus *Metoicoceras* includes a number of species which have been recorded from the Gulf Coast and Western Interior Provinces of North America, Mexico, Western Europe (France, Spain, Germany and England), Nigeria and Madagascar. There seems to be no record of this genus in Asia and the circum-Pacific region. Hence the report of *Metoicoceras* in the Trichinopoly Group of South India throws light on the distribution of this important ammonite genus.

It may be noted here that KOSSMAT (1897) mentions that *Ammonites vicinalis* STOLICZKA is closely allied to *Ammonites swallovii* SHUMARD. As has been described at length in part 1 of this series of notes, *A. vicinalis* is the type-species of *Utaturiceras* WRIGHT, 1956, which is apparently similar to but cannot be grouped with *Metoicoceras* HYATT, 1903.

In the Gulf Coast and Western Interior Provinces of North America, a successive occurrence of various species of *Metoicoceras* is known from upper Upper Cenomanian to Lower Turonian, as has been clarified by MOREMAN (1927, 1942) STEPHENSON (1953), COBBAN (1953) and YOUNG (1957, 58). The representative species are as follows in the descending order:

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M. gibbosum HYATT		Lower Turonian
M. ornatum MOREMAN		
M. whitei HYATT	*M. whitei* HYATT	
(*M. defordei* YOUNG)	*M. mosbyense* COBBAN	upper part of Upper Cenomanian
M. swallovii (SHUMARD)	*M.* n. sp. of COBBAN (densely ribbed)	
	M. praecox HAAS	
(Gulf Coast-S. Western Interior)	(N. Western Interior)	

In Western Europe several species of *Metoicoceras* have been reported from the Lower (nearly basal) Turonian and Upper Cenomanian (PETRASCHECK, 1902; LERICHE, 1905; GROSSOUVRE, 1912; KARRENBERG, 1935; WRIGHT and WRIGHT, 1951; WIEDMANN, 1959), while REYMENT (1955) described a few examples of the genus from the Cenomanian Odukpani Formation of Nigeria. COLLIGNON (1964) has recently reported four new species under the generic name *Metoicoceras* from the Lower Cenomanian of Madagascar. This occurrence in Lower Cenomanian would be unusual, if they were really referable to *Metoicoceras*. The uppermost part of the Utatur Group from which the present specimen is collected indicates a Lower Turonian age on the evidence of other fossils, *Mammites conciliatum* (STOLICZKA) etc.

Systematic Description

Family Acanthoceratidae
Subfamily Metoicoceratinae
Genus *Metoicoceras* HYATT, 1903
Type-species: *Metoicoceras swallovii* (SHUMARD)

Metoicoceras stoliczkai sp. nov.
Pl. 1, Fig. 1a–f

Material.—Holotype is G.S.I. Type No. 18170, the figured specimen. It is fairly well preserved, but a mineral vein cuts across it, somewhat disturbing the outermost whorl.

Description.—The shell is moderately large, with a fairly rapid increase of whorls. The umbilicus is about 24 percent of the entire shell diameter. The whorl is involute; the outer one embracing the three fifths of the inner one. It is higher than broad, but comparatively stout, broadest between the umbilical tubercles, and rather trapezoid in section, having steep umbilical walls, gently inflated and somewhat convergent flanks and a narrow venter.

The tubercles at the umbilical shoulder are small and fairly crowded in the immature stage but are large, fairly strong and distant in the probably adult stage. There are only four umbilical tubercles on the outermost half whorl. The tubercles on either side of the venter, which may be called the outer ventrolateral tubercles, are distinct, clavate, being more so and distant in the adult stage. They are roughly twice as numerous as the umbilical tubercles. The ribs between the

umbilical and outer ventrolateral tubercles on the flank are low, broad, and prorsiradiate. Two ribs normally arise from a single umbilical node, but a shorter one may be sometimes intercalated between the longer ones. The inner ventrolateral tubercles are very faint or almost obsolete.

The suture, which is incompletely preserved, shows a rather reduced pattern of Metoicoceratinae. The ventral lobe (E) is deeper than broad; the first lateral lobe (L) is slightly shallower than but broader than E and irregularly subdivided. The saddle between E and L is massive, nearly as broad as L, and irregularly subdivided by minor incisions. The second lateral lobe (U2) is much smaller than E, forming a part of the gently descending, pseudoceratitic auxiliaries.

Measurements (in mm.).—

	Diameter	Umbilicus	Height	Breadth	B./H.
(1)	77.6(1)	17.0(0.22)	38.7(0.50)	32.2(app.) (0.41)	0.83
(2)	67.0(1)	15.0(0.22)	32.4(0.48)	26.0(app.) (0.39)	0.80
(3)	—	—	23.5	18.7	0.79

(2): at the illustrated suture on the intercostal part;
(3): ½ vol. earlier than (1)

Remarks.—As the present species is represented by a single specimen, the extent of variation is not known.

Affinities.—On the grounds of the described characters the present species is most probably referable to *Metoicoceras*. It is, however, atypical, because it differs from *M. swallovii* (SHUMARD, 1859) (HYATT, 1903, p. 118, pl. 11, figs. 7–24; pl. 13, figs. 1–2; pl. 15, figs. 1–4), the type-species of *Metoicoceras*, in its less involute whorl, almost vertical instead of gently sloping umbilical wall, indistinct inner ventrolateral tubercles, thicker and stronger umbilical tubercles on the outer whorl, and irregularly subdivided instead of bipartite first lateral saddle (between E and L).

In the stout, comparatively broad whorl, with a trapezoid section, the present species resembles *Metoicoceras gibbosum* HYATT (1903, p. 121, pl. 15, figs. 5–8) and *Metoicoceras ornatum* MOREMAN (1942, p. 211, pl. 32, fig. 4, text-fig. 2c) (=*Metoicoceras swallovii*, MOREMAN, 1927, p. 95, pl. 15, fig. 3 *non* SHUMARD, 1859), from the Lower Turonian of Texas. The present species has a wider umbilicus which is surrounded by a more steeply inclined wall than *M. gibbosum*. The former has rather rounded tubercles at the umbilical shoulder, while the latter has bullate ones at some distance from the umbilical margin. In the character of the umbilical tubercles the present species is closer to *M. ornatum*. Ribs are somewhat stronger in *M. gibbosum* and much so in *M. ornatum* than in the present species. The inner ventrolateral nodes are distinct and persist to later growth-stages in *M. gibbosum, M. ornatum, M. whitei* and certain other species, but they are almost obsolete on the outer whorl of the present species.

The present species in the late growth-stage is apparently similar to some species of *Pseudotissotia* PERON, 1897, in the trapezoidal whorl-section and broad ribs but is distinguished by the absence of ventral keels. It is also somewhat similar to some species of *Knemiceras* BOEHM, 1898, in the thick umbilical nodes and other features but is clearly distinct from them by the great difference in the

ornament of the immature stage as well as in the pattern of suture.

The specimen from India apparently resembles the immature shell of *Acompsoceras bochumensis* (SCHLÜTER, 1871, p. 1, pl. 1, fig. 1–4, especially figs. 3–4; pl. 2, fig. 1) in shell-form and ornamentation, but the latter species has, like other species of *Acompsoceras*, much complicated, deeply and finely incised sutures, which are entirely different from those of *Metoicoceras*. The similarity is, thus, an example of homoeomorphy. Species of *Acompsoceras* occur in the Lower Cenomanian.

Occurrence.—The type locality is one mile north of Mungilpadi (Lat. 11°12′30″, Long. 79°00), Perambalur Taluk, Tiruchirapalii [Trichinopoly] District, Madras, India. Its stratigraphic position is the uppermost part of the Utatur Group, Lower Turonian.

Etymology.—The specific name is designated in honour of Ferdinand STOLICZKA, the pioneer of Indian Palaeontology.

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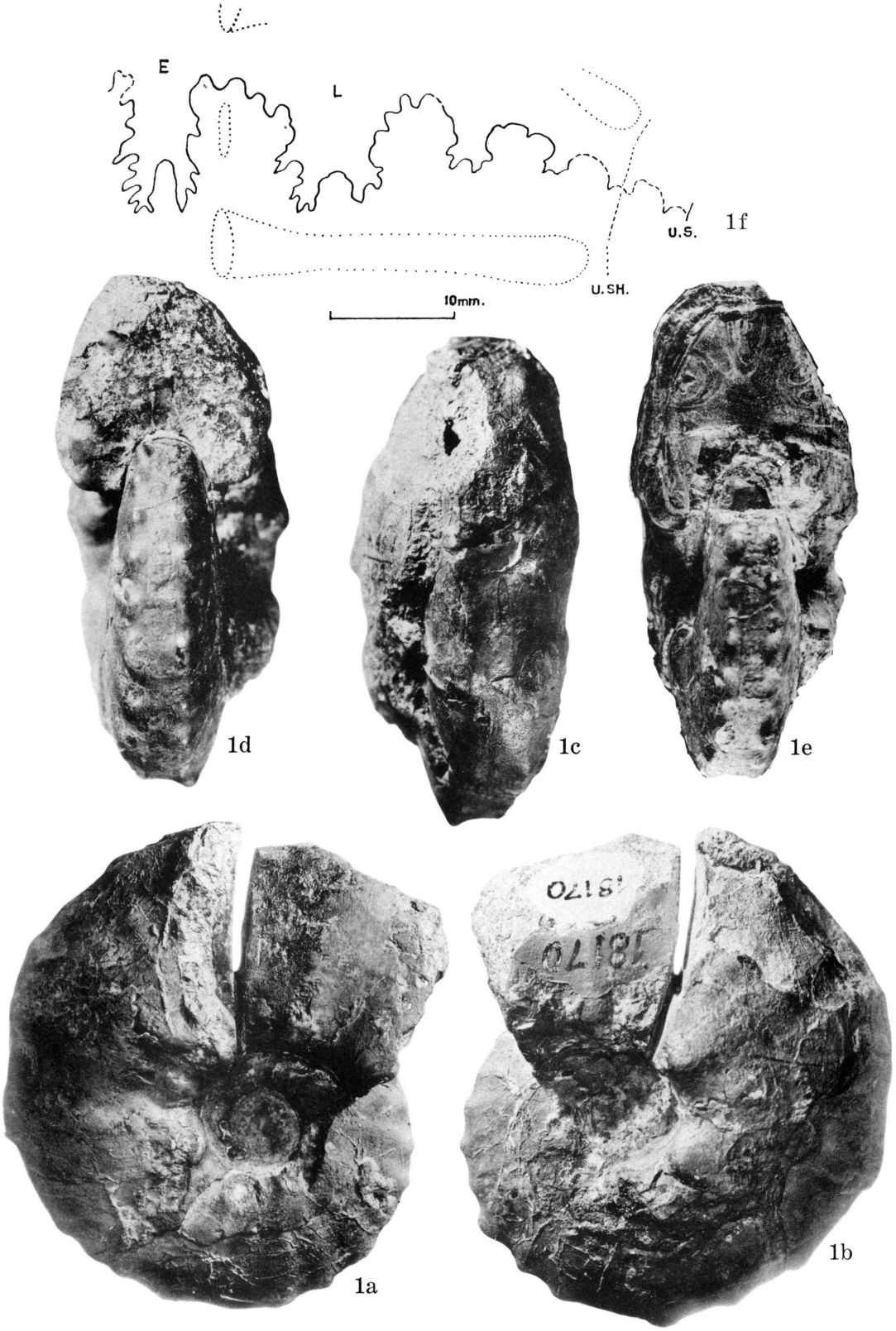
Part II

Plate 1

Explanation of Plate 1

Fig. 1. *Metoicoceras stoliczkai* sp. nov. ..... Page 2
Holotype, G.S.I. No. 18170, from the uppermost part of the Utatur Group, one mile north of Mungilpadi, Perambalur Taluk, Tiruchirapalli District, Madras, India. Two lateral (a, b), ventral (c) and frontal (d) views, ×1; frontal view, with a cross section of the outer whorl (e), ×1; external suture at whorl-height=32.4 mm. (f), ×2, indicating the relative position of the ribs and tubercles with dotted lines; U. SH: umbilical shoulder; U. S.: umbilical seam.

Photos (a–d) at Kyushu University and (e) Geological Survey of India.



M. V. A. SASTRY & T. MATSUMOTO: *Metoicoceras*