Additional notes on some species of *Mantelliceras* (Ammonoidea) from central Hokkaido, North Japan  
(Studies of the Cretaceous ammonites from Hokkaido and Sakhalin-XCVIII)

Tatsuro Matsumoto¹ and Seiichi Toshimitsu²


**Abstract:** In addition to *Mantelliceras japonicum* Matsumoto, Muramoto and Takahashi and *M. cantianum* Spath, previously reported from the lower Cenomanian in the Ikushunbetsu Valley of the Mikasa district, *M. cf. mantelli* (J. Sowerby) from the basal part of the Cenomanian, *M. cf. picteti* Hyatt and *M. cf. dixoni* Spath from somewhat higher stratigraphic levels in the same area are described. Also *M. cf. couloni* (Orbigny) from the Hobetsu district is redescribed with some amendment.

**Keywords:** *Mantelliceras couloni*, *M. dixoni*, *M. mantelli*, *M. picteti*, Cenomanian, Hokkaido

1. **Introduction**

The ammonoid genus *Mantelliceras* is highly important, for it includes a number of species, each of which has a short stratigraphic range and an extensive geographic distribution. For some reasons, *M. japonicum* Matsumoto, Muramoto and Takahashi, 1969, which occurs abundantly in the lower part of the Cenomanian Mikasa Formation, is so far endemic to Japan. It is fairly variable in morphological characters and in some respects allied to *M. tuberculatum* (Mantell, 1822) from England and Madagascar (see Matsumoto et al., 1969, p. 225). As a possibility, *M. japonicum* could be regarded as a geographic subspecies of *M. tuberculatum*. Since there is no material in the extensive area between Japan and western Europe or Madagascar, it is practically difficult to examine this possibility. On the other hand, *M. cantianum* Spath, 1926 and *M. aff. cantianum* have been reported from the same bed as that of *M. japonicum*, although rather rarely (Matsumoto et al., 1969, p. 256, pl. 27, fig. 3; pl. 28, fig. 1).

In this paper more species of *Mantelliceras* from the central part of Hokkaido are described, so that someone may find better preserved one in the future. Although their mode of preservation is somewhat incomplete, they can be classified into four species, as described in detail below. The morphological terminology in the description is the same as that used in the previous papers (e.g., Matsumoto, 1954).

The repositories of the specimens described below are as follows, with the abbreviation of the institution at the heading:

- GK: Paleontological Collections, Kyushu University Museum, Fukuoka 812-8581
- NSM: National Science Museum, Tokyo 169-0073
- HMG: Hobetsu Museum, Hokkaido 054-0021

2. **Systematic descriptions**

Family Acanthoceratidae Grossouvre, 1894
Genus *Mantelliceras* Hyatt, 1903

**Type species.** — *Ammonites mantelli* J. Sowerby, 1814, by original designation (Hyatt, 1903, p. 113).

*Mantelliceras cf. couloni* (Orbigny, 1850)

Figure 1A, B

**Synonymy.** — *Mantelliceras cf. couloni* (d’Orbigny), Matsumoto and Toshimitsu, 1991, p. 2, pl. 1, figs. A-B.

**Material.** — HMG 740 (its plaster cast kept at GSJ F16754), a single specimen of half ammonite preservation.

**Description.** — A fairly large specimen, about 110 mm diameter at the end of the phragmocone, followed by the living chamber for half whorl, although the ventral part is somewhat deficient at the last portion. The whorl is higher than broad and oval in cross-section. It is involute and narrowly umbilicate, although it tends to be somewhat evolute at its last growth stage.

---

¹ c/o The Kyushu University Museum, 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812-8581, Japan.
² Institute of Geology and Geoinformation, GSJ, AIST, Central 7, 1-1-1 Higashi, Tsukuba 305-8567, Japan.
The shell is ornamented by numerous radial ribs which are nearly straight or slightly arcuate and alternately long and short. The major ribs are bullate at the umbilical margin. They may show faint lateral tubercles in the early growth stage, but no lateral tubercles are discernible on the later whorl, whereas the inner and outer ventrolateral tubercles are distinct on every rib; especially the outer ones pointed outward, where the preservation is favourable. Ribs are separated by interspaces nearly as narrow as or slightly narrower than the ribs in the late septate stage and somewhat wider interspaces on the body whorl.

Sutures are not well exposed, unless the shell layer is taken away.

Remarks. — Although the specimen is deficiently preserved, it is certainly referable to *Mantelliceras couloni* (Orbigny, 1850). It is amazing to recognize the similarity with the specimen MNHP1896-27, the paralectotype of *M. couloni* from the Lower Cenomanian *M. mantelli* Zone, the *Neostlingoceras carciتانense* Subzone of Sarthe, France (see Wright and Kennedy, 1984, pl. 20, fig. 1 in younger stage and *ibid.*, pl. 20, fig. 5 in later stage). One of us (T.M.) once saw better preserved specimen which could be certainly identified with *M. mantelli* in the collection of Kikuwo Muramoto, but we missed to illustrate it carefully because of his misfortunate decease.

Occurrence. — As for material; probably the basal part of the Cenomanian Stage.

*Mantelliceras* cf. *picteti* Hyatt, 1903

Figure 3A-D

Material. — A single specimen, GK.H8363, collected by Akio Tomita (No. 2 of his collection on May 25th, 1970) and provided us for study by way of Takemi Takahashi.

Description. — The shell is small, about 50 mm diameter at the end of its phragmocone, and less than half (about 40°) of the secondarily compressed body whorl is preserved. The umbilical ratio (U/D) at the end of the phragmocone is 0.26, but it seems to enlarge with growth. The ribs are moderately strong, alternately long and short; occasionally with two shorter ones intercalated. They are slightly flexuous and of moderate frequency, separated by interspaces somewhat broader than the ribs; 13 major ribs are on the preserved outer whorl. The umbilical and lateral tubercles are on each major rib; the inner and outer ventrolateral tubercles on every rib. The outer ventrolateral tubercles are clavate and fairly prominent. Sutures are fairly well exposed where the shell layer is taken away. They are generally similar to the illustration of Wright and Kennedy, 1984, text-fig. 25G.

Remarks. — Although this specimen is deficient in its incomplete preservation of the body whorl, it is well comparable with such specimens of *Mantelliceras picteti* Hyatt as described by Wright and Kennedy, 1984 (p. 117, pl. 27, figs. 3, 4). The previous assignment by Matsumoto and Toshimitsu (1991, p. 3) to *M. couloni* (Orbigny) is obviously inadequate.

— 32 —
Fig. 1. *Mantelliceras* cf. *couloni* (Orbigny, 1850).

HMG 740 of half-ammonite preservation from Loc. H3111, Tosa-no-sawa, Tomiuchi, Hobetsu district. Left lateral (A) and ventral (B) views. Scale bar = 10 mm.

Arrow indicates the end of the phragmocone. The figure is reproduced from Matsumoto and Toshimitsu, 1991, with additional indication of the end of the phragmocone by an arrow. Photos by S.T.
Mantelliceras from central Hokkaido (Matsumoto and Toshimitsu)

Occurrence. — Obtained by A. Tomita in situ at the waterfall of the 6th branch of the Kami-ichi-no-sawa, a tributary of the Ikushunbetsu River, Mikasa district. The upper part of the Lower Cenomanian Substage is suggested by this ammonite.

*Mantelliceras* cf. *dixoni* Spath, 1926

Figure 4A-D

Material. — A single specimen, NSM5733, collected by the late Tatsuo Muramoto and provided to us for study by way of the stuff of the National Science Museum.

Description. — A very small specimen, with the following dimensions: D= 22.4, U= 5.6, U/D= 0.25, H= 10.0, B= 10.6, B/H= 1.06 (linear dimension in mm). The whorl is subquadrate in cross-section, with slightly rounded venter and subangular umbilical shoulder.

The shell is ornamented by ribs of unequal length; 10 major ribs in the exposed outer whorl; each provided with tubercles at the umbilical shoulder, mid-lateral, inner and outer ventrolateral points; one or two minor ribs without umbilical and lateral tubercles are intercalated between the major ones. A few minor ribs are somewhat longer than others and may have faint mid-lateral tubercle. Suture unexposed.
Comparison. — The specimen described above is very small, but it shows so characteristic features that can be regarded as a young part of the macroconch, as represented by the adult shells of BMNH C83750 and BMNH C81351 figured by Wright and Kennedy, 1984, pl. 37, fig. 1a, b and pl. 37, fig. 4a, b. The two British specimens are rather robust forms and regarded by the two authors as macroconchs.

Occurrence. — Solitarily at Loc. Ik1051b on the right side of the Ikushunbetsu River (see Matsumoto et al., 1969, fig. 9). This locality is referable to the upper part of the Lower Cenomanian Substage.

Acknowledgements: We wish to record here the debt of gratitude to Messrs. Takemi Takahashi and Akio Tomita who provided a specimen to this study and also a staff of the National Science Museum and that of the Hobetsu Museum for the loan of the specimens of their care. We owe to Dr. Masayuki Noda for the majority of photos (Figs. 3A-D, 4A-C) and to Dr. Tamio Nishida for Fig. 4D. We sincerely thank Prof. Masao Futakami (Kawamura Gakuen Woman’s University) and Dr. Satoshi Nakae (Geological Survey of Japan) for very careful examination to improve the manuscript.

References

Received September 28, 2004
Accepted February 24, 2005

北海道中央部から産出したMantelliceras（アンモナイト類）の若干種の追加試料について

松本達郎・利光誠一

要 旨
これまで北海道中央部三笠地域の浅春別川流域の白亜系セノマニアン階下部から産出したMantelliceras japonicum Matsumoto, Muramoto and Takahashi及びM. cantianum Spathを記載したが、その後これらに加えて、M. cf. mantelliや、それより上位の層準からM. cf. picteti Hyatt及びM. cf. dixoni Spathを得たのでここに記載する。あわせて、総別地域産のM. cf. couloni (Orbigny)についても修正を加えて再記載する。