

Anagaudryceras and *Inoceramus* from the Cretaceous
Formation of Southwestern Yuasa,
Wakayama Prefecture, Japan

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(With 1 Text-figures and 1 Plate)

和歌山県湯浅南西方の白亜系から産出した *Anagaudryceras*
と *Inoceramus* について

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和歌山県湯浅町南西の南谷から、上部白亜紀の Coniacian の時代を示すアンモナイトの *Anagaudryceras limatum* (YABE) と二枚貝の *Inoceramus uwajimensis* YEHARA の産出をみた。化石産地は平山・田中 (1956) の上部物部川亜層群、井関層とされたところであるが、湯浅の南西に分布している井関層の一部には Coniacian すなわち浦河統下部階に相当する地層があることが判明した。この地層は東方地域に分布している外和泉層群の延長にあたるものかもしれない。

An ammonite and several specimens of *Inoceramus* had been collected by Messrs. K. MURAYAMA, N. AIHARA, A. YAJIMA and M. FUSE, undergraduate students of the Geological Institute, Yokohama National University, on a geological excursion in 1970 at Minamidani, Yamada, Yuasa Town, Wakayama Prefecture. (Fig. 1) In 1971, the writer surveyed this district, and collected more specimens of *Inoceramus*.

The Cretaceous deposits in this district unconformably overlie the paleozoic Chichibu Systems. According to MATSUMOTO (1947) and HIRAYAMA and TANAKA (1956), the Cretaceous of this district is divided into the Ryoseki group (Yuasa-Kitadani formation), the Lower Monobegawa subgroup (Arita formation), the Upper Monobegawa subgroup (Nishihiro-Izeki formation) and the Sotoizumi group in ascending order, being correlated to the Lower Neocomian, Upper Neocomian, Aptian to Albian and Cenomanian to Santonian respectively. The fossils in question were found in the so-called "Izeki formation". According to HIRAYAMA and TANAKA, the Izeki formation is divided into basal conglomerate, lower sandstone, lower shale (fossil bearing), upper sandstone (fossil bearing in the intercalated shale) and upper shale beds in ascending order.

The mudstone bed of this locality, which is massive to naked eye and greyish black (brownish black when weathered) in colour, spreads in an east-west direction standing subvertically.

All the fossils were collected from a single locality,¹⁾ lying parallel to bedding plane. Shells are rarely preserved. Collected fossils²⁾ are an ammonite and 23 specimens of *Inoceramus*.

The ammonite is 11 cm in diameter and shows only the left side of the last whorl. As the specimen lacks the very last part of the whorl and the umbilical region, the character of the

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¹⁾ Dr. T. MATSUMOTO collected unidentified specimens of *Inoceramus* at the same locality in 1942. (personal communication)

²⁾ Preserved at the Yokosuka City Museum and registered number YCM. GP. 500.

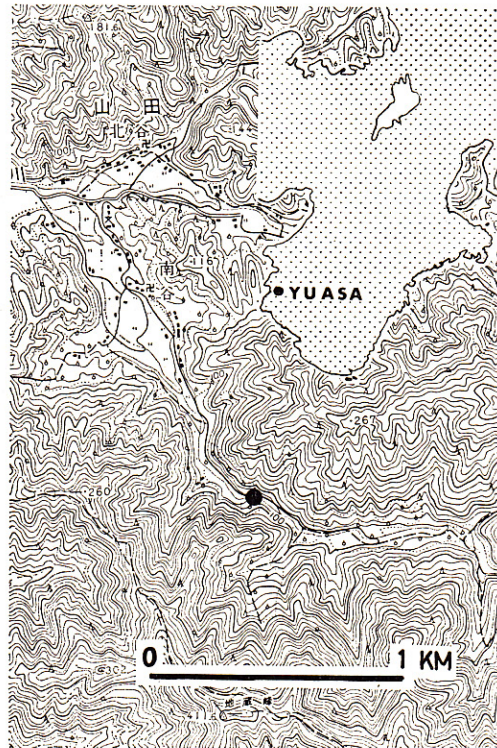


Fig. 1. Fossil locality (●).

juvenile stage cannot be known. In the late-middle stage the distance between strong ribs is about 1 cm, whereas in the adult shell rib-interspace is 5 mm. Such an appearance of rib pattern is characteristically similar to that of *Anagaudryceras limatum* (YABE, 1903), *Anagaudryceras limatum* has been reported to range from the Turonian (Upper Gyliakian) to the Coniacian (Lower Urakawan), and this form is distributed commonly throughout the Indo-Pacific region.

The Inoceramid can be identified as *Inoceramus uwajimensis* YEHARA, (NAGAO and MATSUMOTO, 1939; TAKAI and MATSUMOTO, 1961), but some fragmental shells and juveniles are unidentifiable. Two specimens (YCM. GP. 500-2, right valves; GP. 500-3, left valve) have compressed shells, the apical angle are 70° on the umbonal region and 76° in the adult shell. There is no progress of the hinge line, and the antero-ventral margin is steep and nearly perpendicular to the frank of the valve. The shell surface is ornamented with relatively strong and regular concentric rings, the top of which is rounded on the exterior but angular on the interior. Two other specimens (YCM. GP. 500-4, 5, right valves) show stronger convexity of the shell, and the height of shell is slightly larger than the length. The hinge line is not preserved. The shell surface is ornamented with rather regular concentric rings which are angular both on the exterior and interior. With these characteristics, they are concluded to be highly deformed specimens of *Inoceramus uwajimensis*. This species is said to be characteristic to the "*I. uwajimensis* zone" in the Coniacian (Lower Urakawan) of Japan.

From the finding of these 2 fossil species, it should be evident that the present bed is assigned to the Coniacian in age, Lower Urakawan, at least for a part of the lower shale member of the

Izeki formation at Minamidani, southwestern Yuasa. Although it is still obscure what relation exists between the strata in this district and the corresponding strata of the Izeki formation of the middle course of Arita river. The bed which yielded the present fossils presumably corresponds to the western extension of the Sotoizumi group. More detailed geological work is required to establish a proper stratigraphic sequence.

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Ryoseki	領石	Kitadani	北谷
Monobegawa	物部川	Arita	有田
Izeki	井関	Sotoizumi	外和泉
Minamidani, Yamada, Yuasa town	湯浅町山田, 南谷		

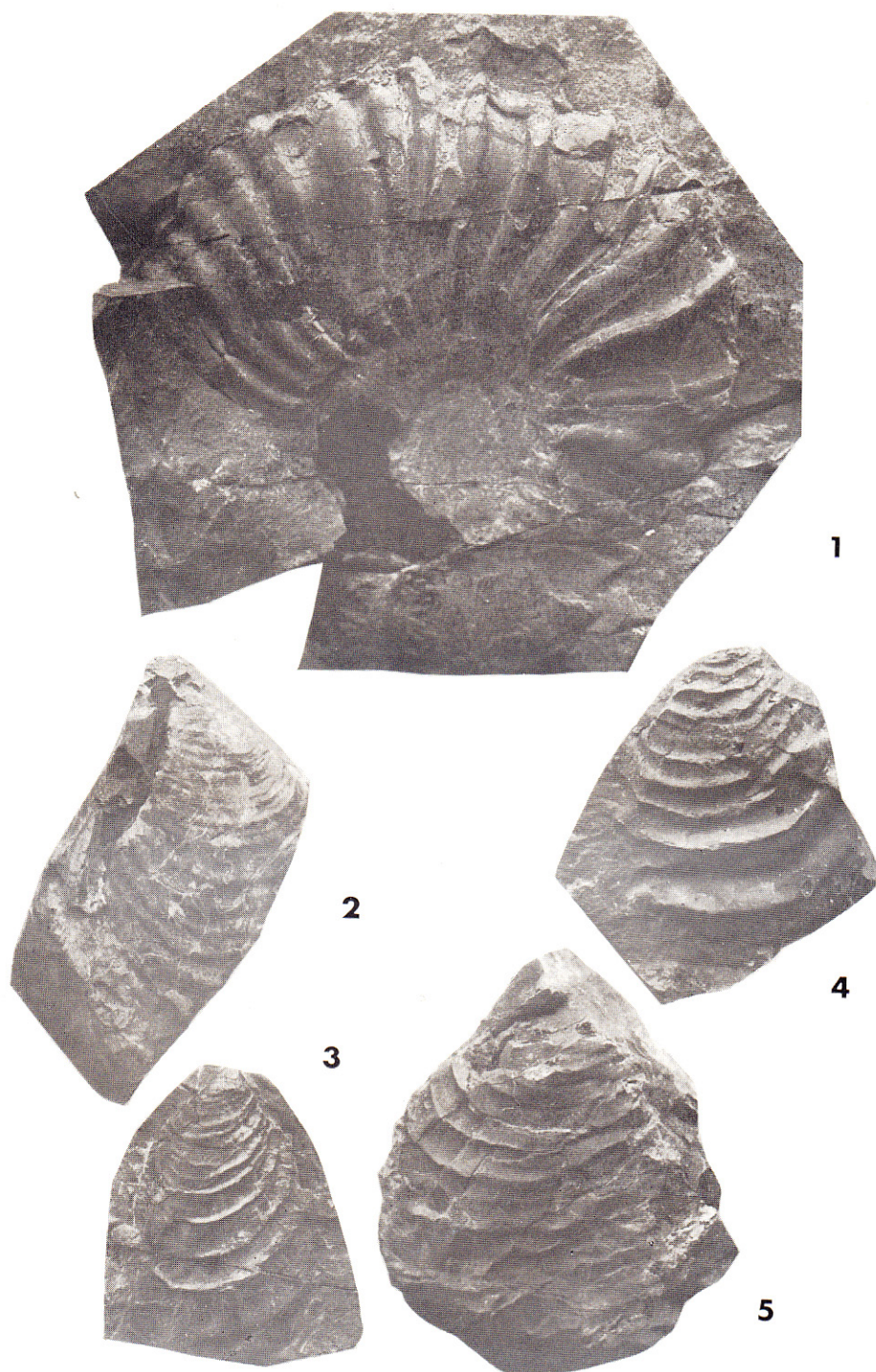


Fig. 1. *Angaudryceras limatum* (YABE), YCM. GP. 500-1,
D: 111, H: 45, U: 39.1 mm (35.1%).

Figs. 2, 3. *Inoceramus uwajimensis* (YEHARA)

2: Right valve, YCM. GP. 500-2; 3: Left valve, YCM. GP. 500-3.

Figs. 4, 5. *Inoceramus* cf. *uwajimensis* (YEHARA)

4: Right valve, YCM, GP. 500-4; 5: Right valve, YCM. GP. 500-5.

All figures are 3/4 of natural size.