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Some Early Cretaceous Coelenterates from the Yonôzu Group, Ôita Prefecture, in the Shimanto Terrain, Southwest Japan

by

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Introduction

Some interesting coelenterates reported in this article were collected by Prof. Isamu HASHIMOTO from two Torinosu type limestone lenses (Loc. 1 and Loc. 2) in the upper part of the Yonôzu Group exposed at the north of Ôno, Saiki City, Ôita Prefecture, in the Shimanto Terrain, Southwest Japan. In this article, *Eohydnophora saikiensis* n. sp. and *Stylina* (*Convexastrea*) sp. indet., two species of hexacoral are described, and the age of the present fossil assemblage is discussed.

According to HASHIMOTO (1962), the Yonôzu Group trends ENE to WSW and dips northward of about 30 to 65 degrees; it is composed of alternation of thick sandstone member and thick shale member, with intercalation of green basic igneous rocks (intrusive sheet and lava-flow), chert, banded alternation of sandstone and shale, limestone of the Torinosu type, tuff-like rock and thin coaly shale. The thickness is about 2000 m. On the north, the Yonôzu Group is overlain with conformity by the Saeki Formation in the Banshôgawa Group. On the south, it is in fault contact with the Kamae Group. Although no useful fossil occurs in these groups, he presumed the age of the Kamae, Yonôzu and Banshôgawa Groups to be Jurassic-Cretaceous, Cretaceous and Cretaceous, judging from their lithofacies and geological situations.

Paleontology and Correlation

From two Torinosu type limestone lenses (Loc. 1 and Loc. 2) in the upper part of the Yonôzu Group, the following coelenterates were discovered by the writers.

Hexacoral:

Eohydnophora saikiensis n. sp. ..... (Los.2)

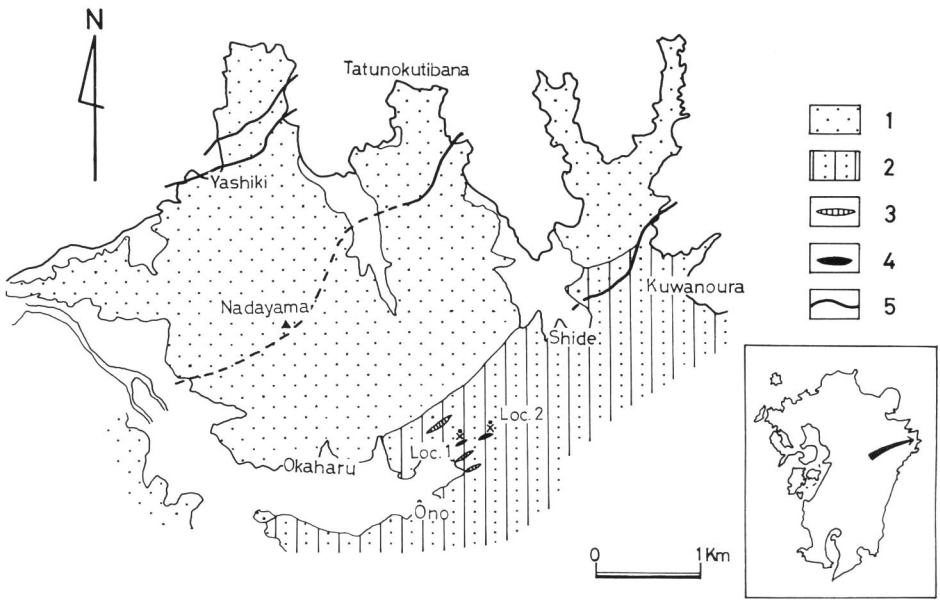

Fig. 1. Geological map (HASHIMOTO, 1962) around fossil localities.
1: Saeki Formation 2: Yonôzu Group 3: Chert 4: Limestone 5: Fault

Stylina (*Convexastrea*) sp. indet. .....(Loc. 1)
Hexacoral gen. sp. indet. .....(Loc. 1 & Loc. 2)
Stromatoporoid:
Actinostromaria? sp. indet. .....(Loc. 1)

Eohydnophora saikiensis n. sp. much resembles one specimen of *E. picteti* described by TURNŠEK & BUSER (1976) (see description) from the Senonian breccia of Banjška Planota, NW Yugoslavia. They presumed that the latter one might be derived from the Barremian-Aptian. It is similar to *Eohydnophora* cf. *picteti* by EGUCHI (1951) from the Upper Neocomian Oshima Formation, Japan. It is also related to the original specimens of *Eohydnophora picteti* (KOBY, 1896) from the Urgonian, Switzerland. Moreover, it somewhat resembles *Eohydnophora* aff. *picteti* by EGUCHI (1951) from the Aptian-Albian Miyako Group, Japan. On the other hand, it is noteworthy that the ephebic stage of the present new species is similar to *Eugyra oshimaensis* by EGUCHI (1951) from the Oshima Formation.

Stylina (*Convexastrea*) sp. indet. is related to *S.* (*C.*) *dubia* described by KOBY (1896) from the Urgonian, Switzerland. Only the following species belonging to *Stylina* (*Convexastrea*) which show late Jurassic age have been found from the Mesozoic in Japan: *Stylina* (*Convexastrea*) *motonobui* EGUCHI (1942), *S.* (*C.*) *hukazawensis* EGUCHI (1951) and *S.* (*C.*) *somaensis* MORI (1963). However, these three species distinctly differ from the present form. Many species of *Stylina* have been reported from the Upper Triassic to the Lower Cretaceous at many places in the world.

Actinostromaria ? sp. indet. is not well preserved. The species of this genus have been discovered from the Jurassic to the Cretaceous in the world.

Judging from the paleontological evidence mentioned above, the writers consider that the age of the present fossil assemblage indicates early Cretaceous (probably Barremian or Aptian).

Acknowledgements

Here the writers wish to express their hearty thanks to Prof. Dr. Isamu HASHIMOTO of the Kyusyu University who permited them to study some interesting materials collected by him and gave them kind advice to this study. The writers also express their gratitude to Dr. Ienori FUJIYAMA of the National Science Museum for his kind advice in the present paleontological study.

Systematic Description

Genus *Eohydnophora* YABE & EGUCHI, 1936

Eohydnophora saikiensis n. sp.

Plate 1, figs. 1a–c

Corallum meandroid in ephebic stage and hydnophoroid in mature stage.

Meandroid type (Ephebic stage): Corallum with meandroid series. Corallites bounded by usually continuous wall forming very long collines. Wall straight and rather thin, but sometimes slightly sinuous. Septa relatively thick and subrhopaloid in shape, subequal in size, numbering 4 per 2 mm; they arranged in subparaller. Columella absent. Width of series 1.1 to 1.5 mm.

Hydonophoroid type (Mature stage): Corallum hydnophoroid with subseries. Thick wall forming collines usually short, straight and discontinuous, but sometimes long and curve. Septa thick and usually rhopaloid in shape, subequal in size, numbering 4 per 2 mm. No columella is seen. Width of series 1.2 to 2.0 mm.

In longitudinal section, endothecal dissepiments crowded, 7 per 2 mm in average. They complete and loosely dome-like in shape, rarely incomplete and vesicles.

Comparison: The mature stage of the present form shows the hydnophoroid type indicating *Eohydnophora*. However, it is noteworthy that its ephebic stage shows the meandroid type indicating *Eugyra*. MORYCOWA (1971, fig. 10–B) formerly figured one intermediate form of Eohydnophora and Eugyra. According to his figure, its ontogenetic character is very similar to the present form's. The writers consider that the present one may belong to *Eohydnophora* on the basis of its morphological characters in mature stage.

The mature stage of the present form much resembles one specimen of *Eohydnophora picteti* described by TURNŠEK & BUSER (1976, p. 14, 39, pl. 4, figs. 3–4) in crowded and thick septa, crowded endothecal dissepiments in longitudinal section, short, thick

and discontinuous wall, almost same width of series. Therefore, the latter may belong to the former. It distinctly differs from other specimen by TURNŠEK & BUSER (1976, pl. 4, figs. 5–6) in having more crowded endothecal dissepiments in longitudinal section and thicker rhophaloid septa. It is similar to *Eohydnophora* cf. *picteti* by EGUCHI (1971, pl. 45, pl. 15, figs. 2–4) in many respects. However, the former's endothecal dissepiments in longitudinal section show dome-like structure, but the latter's ones horizontal. It is also related to the original specimens of *Eohydnophora picteti* (KOBY, 1896, p. 45, pl. 8, figs. 1–2), but differs from the latter in having more crowded septa. It is somewhat related to *Eohydnophora* aff. *picteti* by EGUCHI (1951, p. 14, pl. 2, figs. 7–8), but can be distinguishable from the latter in having thicker septa and dome like endothecal dissepiments in longitudinal section. It distinctly differs from *Eohydnophora* aff. *picteti* by MORYCOWA (1971, p. 65, pl. 13, fig. 1), *E.* aff. *picteti* by TURNŠEK & BUSER (1974, p. 15, 33, pl. 5, figs. 3–4) and *E. tosaensis* by YABE & EGUCHI (1936, p. 142, figs. 1–3) in having more crowded endothecal dissepiments in longitudinal section. The ephebic stage of the present form resembles *Eugyra oshimaensis* EGUCHI (1951, p. 15, pl. 15, fig. 5) in crowded septa, crowded endothecal dissepiments in longitudinal section, long wall and others. However, the latter has horizontal endothecal dissepiments in longitudinal section.

Locality: A Torinosu type limestone (Loc. 2) in the upper part of the Yonôzu Group at the north of Ôno, Saiki City, Ôita Prefecture.

Collector: Isamu HASHIMOTO.

Repository: Reg. no. NSM-PA12101 (Holotype) (National Science Museum, Tokyo).

Genus *Stylina* LAMARCK, 1816

Subgenus *Convexastrea* d'ORBIGNY, 1849

Stylina (*Convexastrea*) sp. indet.

Plate 1, fig. 2

Corallum massive and plocoid. Corallites subcircular or suboval in transverse section, usually 1.0 to 1.5 mm in inside diameter. Central distance 2.0 to 2.5 mm. Septa thick and thinning distally; usually 7 or 8 in number in the first cycle and absent or rarely present in the second cycle. Columella absent. No longitudinal section is seen.

Comparison: The present form resembles *Stylina* (*Convexastrea*) *dubia* KOBY (1896, p. 31. pl. 4, figs. 1–3) in having eight septa in the first cycle. However, the present one has larger corallites and longer central distance. *Stylina* (*Convexastrea*) *somaensis* MORI (1963, p. 57, pl. 21, figs. 4–5) is distingushed from the present one in having larger corallites, thinner septa and complete octameral septa in the second cycle.

Locality: A Torinosu type limestone (Loc. 1) in the upper part of the Yonôzu Group at the north of Ôno, Saiki City, Ôita Prefecture.

Collector: Isamu HASHIMOTO.
Repository: Reg. no. NSM-PA12102 (National Science Museum, Tokyo).

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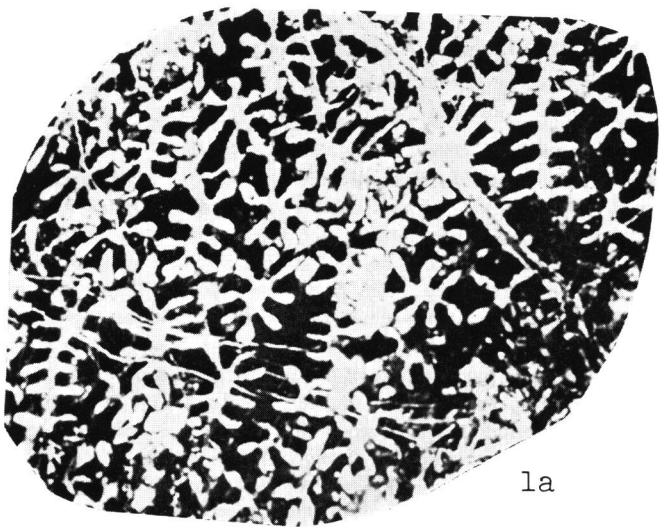
Explanation of Plate 1

Figs. 1 a–c. *Eohydnophora saikiensis* n. sp.
Fig. 1 a. Transverse section (Mature stage) ..... ×6.0 (NSM–PA12101a)
Fig. 1 b. Transverse section (Ephebic stage) ..... ×6.0 (NSM–PA12101b)
Fig. 1 c. Longitudinal section ..... ×6.0 (NSM–PA12101c)
Fig. 2. *Stylina* (*Convexastrea*) sp. indet.
Transverse (somewhat oblique) section..... ×5.0 (NSM–PA12102)



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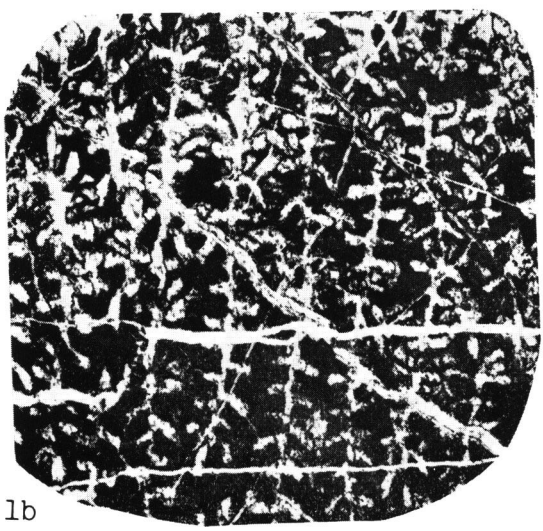

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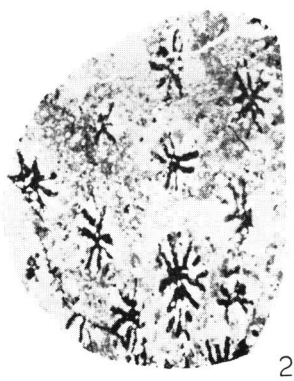

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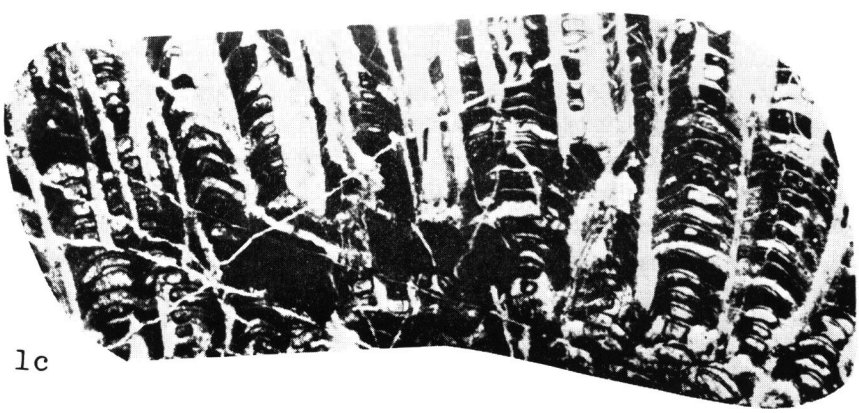

1c