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Description on possibly chemosynthetic bivalves from the Cretaceous deposits of the Obira-cho, northwestern Hokkaido

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北海道北西部，小平町地域白亜系産の化学合成二枚貝類

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北海道北西部小平町の白亜系セノマニアン(97 Ma)中部蝦夷層群より産出した，二枚貝2種を記載する。

Thracia yezoensis, n. sp.(新種新称)の殻は中形の長方型楕円形である。殻は厚く，膨らみは強い。殻の前縁は丸く，後背縁は切断状で，後-腹縁は緩やかな曲線になる。殻頂は，殻の中央に位置し，とがらない，殻頂端に不鮮明な欠刻がある。靱帯は大きく，後位で，外在する。右殻と左殻はほぼ等殻である．殻表には細かく不規則な同心円状の成長線がある。殻頂から後腹縁へかけての稜はほとんどない。

Miltha sp. の殻は中形の円形で，殻は厚い。左右の殻は，よく膨らみ，レンズ状の断面になる。殻頂はとがらず，前寄りにある。殻の前縁は丸く，前-背縁は切断状になる。後-腹縁は連続的な曲線になる。靱帯は長く外在する。小月面は小さく，その幅は広く，浅い。殻表には成長線と不規則な輪肋が交互に並ぶ。

Introduction

The Late Cretaceous Middle Yezo Group widely distributes in the Obira area, northwestern Hokkaido. The fossil chemosynthetic bivalves were only recorded from the Early Cretaceous in the Ponbetsu area, Mikasa City, central Hokkaido (KANIE et al., 1996). In this paper, we describe two possibly chemosynthetic species (one of them is a new species) from the Upper Cretaceous deposits of the Obira area. The mode of occurrences and the geological age of the deposits were recorded in KANIE et al. (1996).

Systematic description

Family Thraciidae STOLICZKA, 1870

Genus *Thracia* SOWERBY, 1823

Generic diagnosis: Thick shell. Middle to large size. Right valve is larger than left one or equivalve. The valve is inflated. Beak is centrally. Anterior margin is round and posterior one is truncated. Shell surface is ornamented with growth lines, spaced ribs, and minor granulation. Under the beak, a crack exist. Edentulous hinge and the ligament is external with opisthodetic. *Remarks*: Genus *Nipponothracia* is nearly equivalve. Genus *Thracia* is close to *Nippono-*

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thracia, but the former of the shell outline differs from the latter in the ellipsoid form in the postero-dorsal and ventral margin. Another genera of the family Thraciidae are greatly different from *Thracia*, in small size, think and rounded to quadrangular form. The type species of *Thracia* is *T. pubescens* (PULTENEY, 1799) distributing in the Atlantic Ocean.

Thracia yezoensis n. sp.
(Fig. 1)

Material: At two specimens are at hand. The holotype specimen is preserved in the Yokosuka City Museum. (YCM-GP1051)

Description: Shell is middle sized for the genus (L=83.2 mm, H=61.4 mm, H/L=0.74), thick (2.4 mm at ventral margin), quadrangular, and well inflated (2W=35.6 mm). Beak is centrally (Ua/L=0.50). An indistinct crack exists under the beak. Hinge plate is uncertain. Large ligament is external with opisthodetic. Nearly equivalve. The anterior margin is intensely round and antero-ventor is round. The postero-dorsal margin is straight and the posterior margin is truncated. Postero-ventral and antero-ventral margin are weakly rounded. Shell surface is covered with numerous fine growth lines. Keel is obscure between the beak and postero-ventral margin.

Comparison: The new species is similar to *Thracia kakumana* YOKOYAMA, 1927 (Fig. 2), in size (L=78.6-98.7 mm in adult), shell form and beak position (Ua/L=0.51-0.54) but differs in thin shell. The surface with growth lines and widely spaced ribs. The keel is clear from the beak to postero-ventor. The right valve is larger than left one. *T. kakumana* reported by YOKOYAMA (1927) from the Pliocene of Kakuma, Ishikawa Prefecture. Living *T. kakumana* are known in northeast Japan thought to Okhotsk Sea of 20–100 m deep.

The new species is different from *Nipponothracia ponbetsensis* KANIE et SAKAI (KANIE and SAKAI, in press) from the Upper Albian of the Cretaceous Middle Yezo Group in Ponbetsu, Mikasa City, central Hokkaido. In quadrangular shell form, but similar to central beak position (Ua/L=0.46), indistinct keel at beak to postero-ventral area and of numerous growth lines at shell surface.

The new species is easily different from *T. subhombica* HAYAMI (1958). (L=33.5 mm, H=24.0 mm, H/L=0.72) from the Callovian of the Jurassic, Niranohama Formation of the Shizukawa Group, Shizukawa area, Miyagi Prefecture. *T. subhombica* is small size, thin, subhomboidal outline, weakly truncated posterior margin and round ventral margin.

The new species differs from *T. shokawaensis* HAYAMI (1959) from the Callovian of the Jurassic, Mitarai Formation, Tetori Group of Makido area, Gifu Prefecture, in its small size (L=47.0 mm, H=33.5 mm), oval form, thin, weakly inflated shell, surface ornamentation with thick growth lines.

The new species is discriminated from *T. fukushimensis* TAMURA (1960) from the Kimmeridgian of the Jurassic, Nakanosawa Formation, Soma Group in Soma area, Fukushima Prefecture, in its small size (L=23.5 mm, H=15.5 mm), trigonal, thin, weakly inflated shell. Obliquely truncated anterior margin, rounded ventral margin and surface ornamentation of irregular concentric ribs.

Geological horizon and age: Member Mh of the Middle Yezo Group in the Yezo Supergroup. Lower Cenomanian (97 Ma) of the Late Cretaceous. (KANIE et al., 1996)

Family Lucinidae FLEMING, 1828

Genus *Miltha* H. ADAMS et A. ADAMS, 1857

Generic diagnosis: Shell is small to large sized, ovate oblong, shell surface with smooth or lamellose and faint areas. Ligament is external with opisthodetic. Hinge is weak and small. Shell surface with fine thick growth lines.

Remarks: Genus *Myrtea* TURTON, 1882 in COX et al., (1969) is oblong ovate and, weakly inflated. Genus *Lucinoma* DALL, 1901 is small to large size, inflated, surface with numerous growth lines.

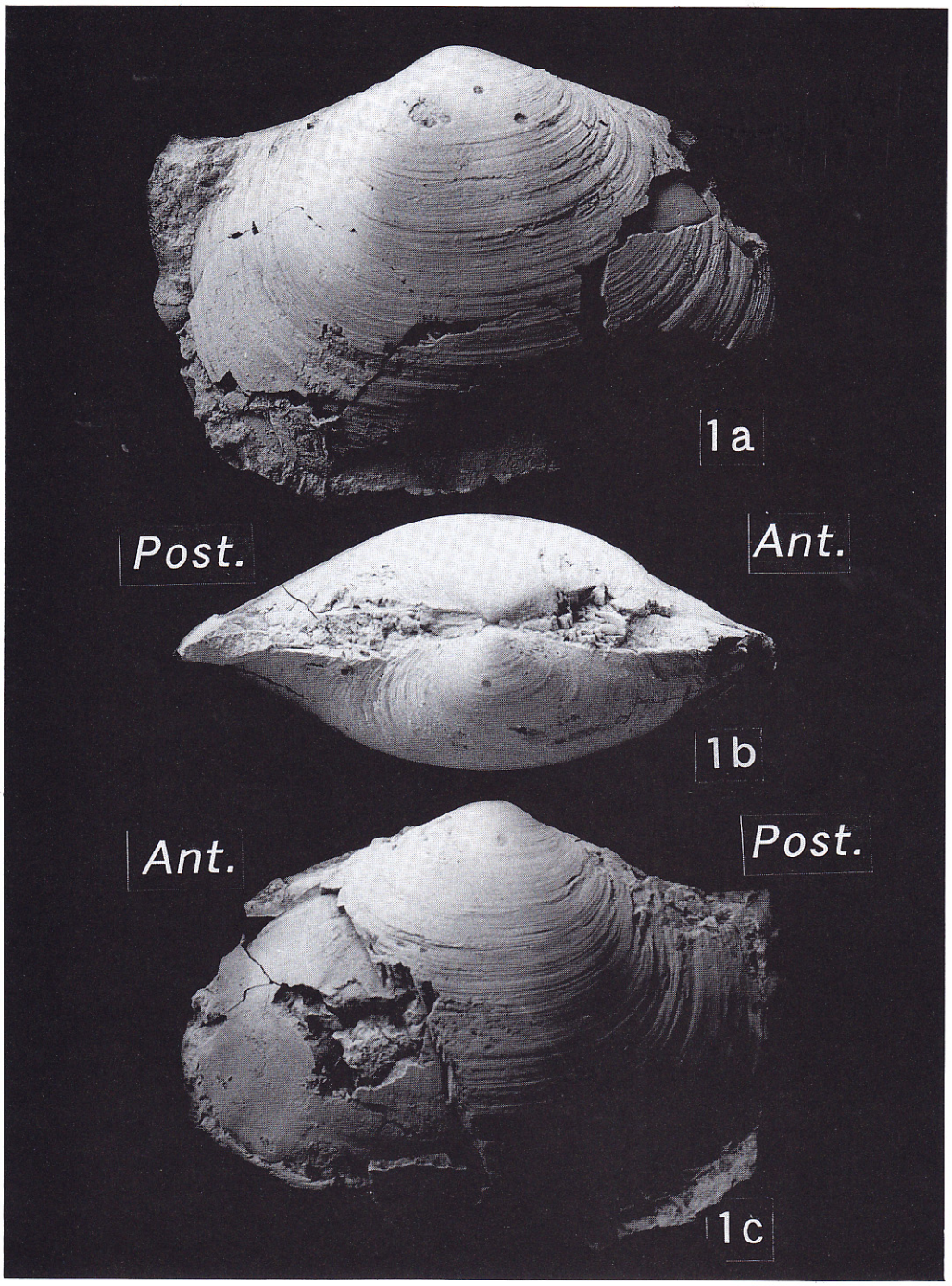

Fig. 1 *Thracia yezoensis* n. sp.
YCM-GP1051. Loc. OK04. Kanajirisawa forest road, the upper stream of the Obirashibe River, Obira-cho, NW Hokkaido. *Ant.*: anterior, *Post.*: posterior. Natural size.

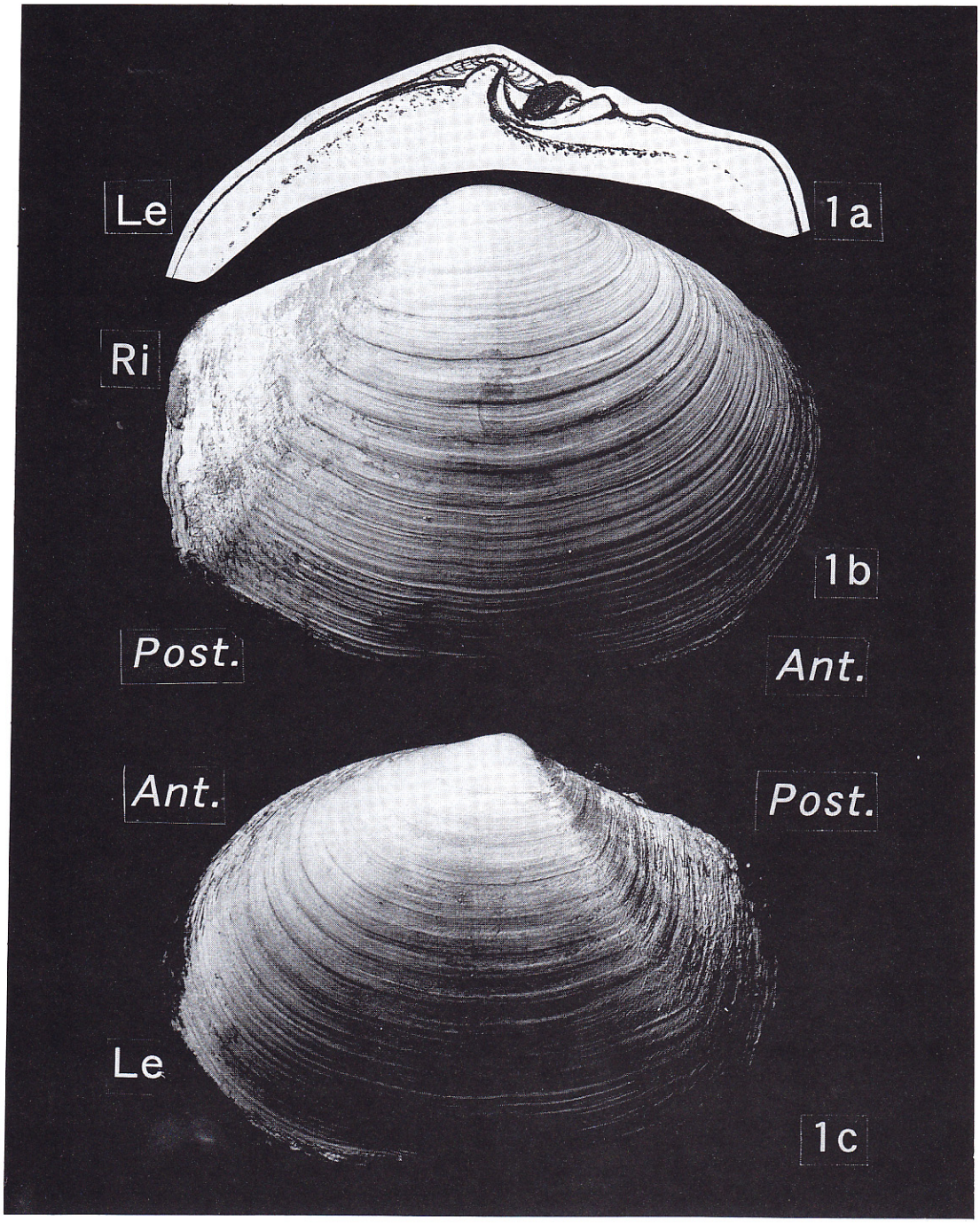

Fig. 2 *Thracia kakumana* (YOKOYAMA)
YCM-H8740. 1a: Inner view of the beak area of the left valve. 2: right (Ri) valve, 3: left (Le) valve. *Ant.*: anterior, *Post.*: posterior. Loc. off Nakashiretoko Cape, 120 m deep, Soya Strait. Natural size.

Miltha sp.

(Fig. 3)

Material: At least three specimens are at hand. (YCM-GP1052-1054)

Description: Shell is middle sized from the genus (L=54.5 mm, H=49.8 mm in the specimen YCM-GP1052), round form and thick (about 2.0 mm). Well inflated as lens form (2W=37.8 mm). Unproject small beak situates centrally. The anterior margin is strongly inflected. The antero-dorsal margin is truncated. The postero-dorsal margin is straight, and the postero-ventral margin is round. Ligament is long, oprosodetic and external. Hinge is uncertain. Lunule is short, but

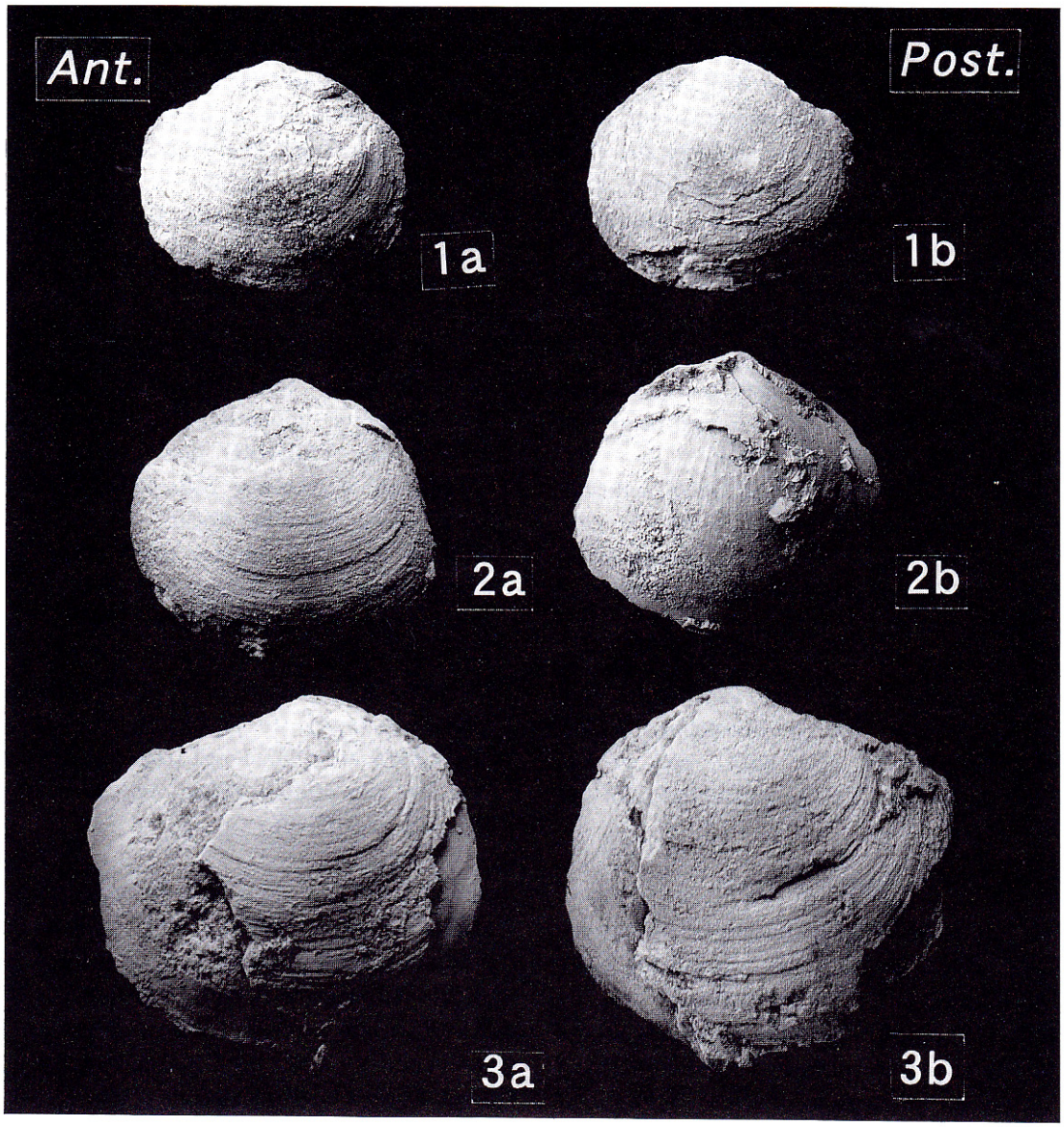

Fig. 3 *Miltha* sp.
1a-b, YCM-GP1052; 2a-b. YCM-GP-1053; 3a-b, YCM-GP1054. Loc. OK06p, Oku-kinenbetsu River, the upper stream of the Obirashibe River, Obira-cho, NW Hokkaido. *Ant.*: anterior, *Post.*: posterior. Natural size.

wide. Shell surface is ornamented with fine irregular concentric growth lines and alternated weak costae.

Comparison: *Miltha* sp. (Fig. 3) is discriminated from *M. japonica* TASHIRO, 1990 from the Aptian of the Lower Cretaceous Kesado Formation of the Pre-Sotoizumi Group, Kumamoto Prefecture, in its rounded form, smaller size than *M. japonica* (L=64.9-72.5 mm), and fine regular growth lines on the shell surface. *M. amakusaensis* TASHIRO, 1976 from the Santonian of the Upper Cretaceous the Himenoura Group, Amakusa, Kumamoto Prefecture, is large size than *Miltha* sp. (Fig. 3), ovate, well inflated. shell surface covered by growth lines, but, the beak is unproject.

Miltha sp. (Fig. 3) is close to *Miltha* sp. TASHIRO, 1980 from the Cenomanian Shinshokawa Group in Kochi Prefecture. The latter species is characterized elongate ovate shell and the surface with fine irregular concentric growth lines and alternated weak costae.

Geological horizon and age: Loc. Ok06p, a floated pebble of the member Mh of the Middle Yezo Group in the Yezo Supergroup. Lower Cenomanian (97 Ma) of the Late Cretaceous (KANIE et al., 1996).

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References cited

Cox L.R,. 1969. Family Lucinidae FLEMING, 1828. *Treat. Invert. Paleont.*: N492–N508. Geol. Soc. Amer. & Univ. Kansas Press.

HAYAMI I,. 1958. Supplementary description of the Jurassic pelecypods from the Kuruma and Shizukawa Group in Japan. *Trans. Proc. Palaeont. Soc. Japan, N.S.*, (30): 193–200, pl. 28.

HAYAMI I,. 1959. Late Jurassic and Myacid pelecypodas from Makito, Central Japan. *Japan. Jour. Geol. Geogr.*, (30): 152–167, pl. 13.

KANIE Y and SAKAI T,. in press. *Nipponothracia*, gen. et sp. nov. (Bivalvia) from the Cretaceous (106 Ma) and Miocene (15 Ma) mudstones. *Japan. Jour. Malacol.*,

KANIE Y, YOSHIKAWA Y, SAKAI T, KURAMOCHI T,. 1996. Cretaceous chemosynthetic fauna from Hokkaido. (in Japan. with Engl. abstr.) *Sci. Rept. Yokosuka City Mus.*, (44): 69–74.

TAMURA M,. 1960. Heterodont and other pelecypods from the upper Jurassic Soma Group, Japan. *Trans. Proc. Palaeont. Soc. Japan, N.S.*, (39): 285–292, pl. 33.

TASHIRO M,. 1976. Bivalve faunas of the Cretaceous Himenoura Group in Kyushu. *Palaeont. Soc. Japan, Spc. Paps.*, (19), 120 p., 12 pls.

TASHIRO M,. 1980. The bivalve fossils from the Shimanto Belt of Kochi Prefecture and their biostratigraphic implication. (In Japan.) *In* TAIRA and TASHIRO (eds.) *Geology and Paleontology of Shimanto Belt*: 249–264, pls. 37–41. Rinya Kosaikai, Kochi

TASHIRO M,. 1990. Bivalve fauna from the Kesado Formation of Yatsushiro Mountains in Kyushu. *Mem. Fac. Sci. Kochi Univ., Ser. E.*, **11**: 1–22, pls. 1–3.

TASHIRO M,. 1992. Illustrated Cretaceous Bivalvia in Japan. (In Japan.) 307 p. Kochi.

YOKOYAMA M,. 1927. Fossil from Kaga. *Jour. Fac. Sci, Imp. Univ., Tokyo., Sec, 2,* **2** (4): 165–182. pls. 47–49.

Amakusa 天草, Himenoura 姫の浦, Izumi 和泉, Kanajirisawa 金尻沢, Kesado ケサ堂, Makido 牧戸, Mitarai 御手洗, Mikasa 三笠, Nakanosawa 中の沢, Nakashiretoko 中知床, Niranohama 韮の浜, Obirashibe 小平蘂, Okukinenbetsu 奥紀念別, Ponbetsu 奔別, Pre-Sotoizumi 先外泉, Shin-shokawa 新荘川, Shizukawa 志津川, Soma 相馬, Soya 宗谷, Tetori 手取, Yezo 蝦夷