Appendix

On Some Berriasian Ammonites from the Ayukawa Formation, Ojika Peninsula

By

Tadashi SATO* & Fuminori TAKIZAWA

One of the writers (TAKIZAWA) discovered a number of ammonites from the Ayukawa Formation, the upper part of the Jurasso-Cretaceous Ojika Group, of the Ojika Peninsula, and then SATO identified them. As a result, among the ammonites there are discriminated three species which are quite similar to the ammonites reported by SATO from the Berriasian Isokusa and Nagasaki Formations of Oshima Island in the Karakuwa district. Therefore, these characteristic ammonites indicate a Berriasian age at least for the middle part of the Ayukawa Formation and then supports the aforementioned stratigraphical scheme of the same formation established by the junior author.

Of the ammonites from the Ayukawa Formation *Berriasella* occurs in abundance at Yokone and Bando-no-hama of Ajishima Island.

Brief paleontological remarks are given on four identified ammonoid species including one species from the underlying Kozumi Member of the Oginohama Formation.

Family Berriasellidae SPATH, 1922

Subfamily Berriasellinae SPATH, 1922

Genus *Berriasella* UHLIG, 1905

Berriasella sp. Pl. 1, Fig. 1.

Material—Several specimens, all fragmental.

Description—A large adult or rather senile specimen, though highly corroded, presents Berriasellid characters such as irregular, somewhat flexuous, generally bifurcated ribbing. The ribbing becomes obsolete at the senile stage. No ventral aspect is known. But a specimen from Yokone, well-preserved outer mold of the ventral portion, exhibits clear and smooth siphonal band, bounded by the swelled terminals of the ribs. There is no guarantee, however, that all the specimens belong to one and the same species.

Remarks—Despite the impossibility of specific determination, the general aspect of the shell ornamentation suggests some of the more or less advanced forms of *Berriasella*. Such forms can coexist with the *Thurmanniceras* as in the case of the Nagasaki and Isokusa Formations of Oshima Island.

Occurrence—Black sandy shale at Yokone of Ajishima Island. Probably Berriasian.

Subfamily Neocomitinae SPATH, 1924

Genus *Thurmanniceras* COSSMANN, 1901

Thurmanniceras sp. cf. *T. isokusensis* (KOBAYASHI and FUKADA) Pl. 1, Fig. 2.

Compare—1947. *Perisphinctes* (*Discosphinctes*) *isokusensis* KOBAYASHI and FUKADA,

* Geological Institute, University of Tokyo

p. 55, pl. XIII, figs. 2–4.

1958. *Thurmanniceras isokuseasis*, SATO, p. 592, pl. XXVIII, figs. 9–12.

Material—A single immature specimen. GSJ 5513*.

Description—Whorl rather rapidly growing, with somewhat convex side and slightly flattened ventral region. Ribbing fine and dense, somewhat sinuous and prorsiradiate, but irregularly bifurcated at various heights of the side, and sometimes even bidichotomous, terminated by small swellings at the border of the smooth siphonal band. Faint constriction present.

Remarks—Since the specimen is small and immature, the comparison with the described species of *Thurmanniceras* is difficult. The attribution to the genus is, however, justified by the characteristic ribbing which definitely differs from that of *Olcostephanus* forms known from the corresponding horizons of Oshima Island.

Occurrence—Black bedded shale at a quarry near Kanayama north of Ayukawa. Berriasian.

Genus *Kilianella* UHLIG, 1905

Kilianella sp. Pl. 1, Fig. 3

Compare—1958. Kilianella sp. SATO, p. 595, pl. XXXVIII, fig. 8.

Material—A single specimen. GSJ 5514.

Description—Widely spaced, stout ribs are characteristic. Strong and probably prorsiradiate constriction present, accompanied by triplicate rib behind. Ribs are mostly simple, but there are some bifurcated ones at the ventral shoulder.

Remarks—The specimen at hand, though fragmental and deformed, closely resembles the described *Kilianella* from Oshima Island (SATO, 1958, pl. XXVIII, fig. 8) on the general aspect of the shell.

Occurrence—Derived from a rolled block at Nakashoji of Ajishima Island. Probably Berriasian.

Family Perisphinctidae STEINMANN, 1890

Subfamily Perisphinctinae STEINMANN, 1890

Perisphinctinid gen. et sp. indet. Pl. 1, Fig. 4.

Material—A single large specimen.

Description—The specimen is poorly preserved except small part of the body chamber, and is difficult to be determined even generically. The rounded ventral region, regular, biplicate and uninterrupted ribbing and presence of faint constrictions accompanied by peculiar ribs are all indicative of some Perisphinctid genera instead of some similar Berriasellids.

Occurrence—Black shale of probable Kozumi Shale Member along the western coast of Ajishima Island (Nagatoro-hama). Probably uppermost Jurassic.

References

Fuji, N. (1956): On the fossil plants from the Cretaceous Ayukawa Formation, Ojika Peninsula, Miyagi Prefecture, Japan. *Chikyu Kagaku*, no. 30, p. 32–35 (in Japanese with English

* The prefix GSJ for numbers of catalogue is an abbreviation for the Geological Survey of Japan.

abstract).

Fukada, A. (1950): On the occurrence of *Perisphinctes* (s.s.) from Ojika Peninsula in the southern Kitakami mountainland. *Jour. Fac. Sci., Hokkaido Imp. Univ., Ser. IV*, vol. 7, no. 3, p. 211–216.

Hanzawa, S. (1956): *Regional Geology of Japan, Tohoku District*. Asakura Book Co., Tokyo (in Japanese).

Hayami, I. (1960): Pelecypods of the Upper Jurassic and Lowermost Cretaceous Shishiori Group in Northeast Japan. *Jap. Jour. Geol. Geogr.*, vol. 31, no. 1, p. 85–98.

Hayami, I. (1961): On the Jurassic pelecypod fauna in Japan. *Jour. Fac. Sci., Univ. Tokyo, Sec. II*, vol. 8, pt. 2, p. 247–343.

Hayami, I. (1961): Successions of the Kitakami Jurassic (Jurassic stratigraphy of South Kitakami, Japan I). *Jap. Jour. Geol. Geogr.*, vol. 32, no. 2, p. 157–177.

Hayami, I. (1961): Sediments and correlation of Kitakami Jurassic (Jurassic stratigraphy of South Kitakami, Japan II). *Ibid.*, p. 179–190.

Hayami, I. (1961): Geological History recorded in the Kitakami Jurassic (Jurassic stratigraphy of South Kitakami, Japan II). *Ibid.*, p. 191–204.

Igi, S., Katada, M., Takizawa, F. & Abe, T. (1968): The gabbroic rocks from Kasagai islet and the Ojika Peninsula, Miyagi Prefecture, Northeast Japan (abstract). *Jour. Geol. Soc. Japan*, vol. 75, no. 2, p. 80 (in Japanese).

Inai, Y. & Takahashi, N. (1940): On the geology of the southern Kitakami Mountainland. *Contr. Inst. Geol. Paleont., Tohoku Imp. Univ.*, no. 34, p. 1–40 (in Japanese).

Kambe, N. & Shimazu, M. (1961): Explanatory text of the Geol. Map of Japan, Kesennuma sheet, Scale 1:50,000. Geol. Surv. Japan. (in Japanese with English abstract).

Matsumoto, T. (1967): *Jurassic Period and Cretaceous Period, in Historical Geology*, vol. 2, Asakura Book Co., Tokyo (in Japanese).

Minato, M. (1953): *Chisogaku (Stratigraphy)*. Iwanami Book Co., Tokyo (in Japanese).

Minato, M., Gorai, M. & Hunahashi, M. (1965): *The Geologic Development of the Japanese Islands*. Tsukiji-shokan Co., Tokyo.

Onuki, Y. (1956): Geology of the Kitakami Mountains. Explanatory text of the Geologic Map of Iwate Prefecture (1:100,000) Iwate Prefecture (in Japanese).

Sato, T. (1958): Présence du Berriasien dans la stratigraphie de plateau de Kitakami (Japon septentrional). *Bull. Soc. Géol. France, Sér. 6*, Tom. 8, p. 585–599.

Takahashi, H. (1962): Mesozoic Formations of Ojika Peninsula. *Bull. Fac. Arts Sci., Ibaraki Univ., Nat. Sci.*, no. 13, p. 89–99. (in Japanese).

Yamashita, N. (1957): The Mesozoic II. *Geosci. Series Assoc. Geol. Collab. Japan*, no. 11, p. 1–116 (in Japanese).

宮城県牡鹿半島の鮎川層について

滝 沢 文 教

要 旨

牡鹿層群(中部ジュラ系～下部白亜系)の最上部層である鮎川層の層序と構造について新知見を述べた。本層については,従来等斜褶曲構造を示し,層厚250mあるいは450mとされていた。筆者の調査では,本層は主分布域において基本的に同斜構造を呈し,厚さ約 1,600mに達することがわかった。本稿では新しい層序区分を示し,対比に関連してアンモナイトの記載を付記した。鮎川層は岩相的に下位から次の3部層に区分される。

(下部) 清崎砂岩:浅海～陸成(?)の粗粒アルコーズ砂岩を主とする。厚さ 670m

(中部) 長渡頁岩:泥質フリッシュ型の海成黒色頁岩,厚さ 620m

(上部) ドウメキ砂岩:粗粒アルコーズ砂岩厚さ約 300m

本層の粗粒砂岩は酸性火山岩の礫および岩石片を多量に含有することで特徴づけられ,田代島の砂岩が層相から清崎砂岩と同層準であることは確実である。アンモナイトおよび海棲二枚介は下部層～中部層下半より産出し,それらは下部白亜紀 Berriasian を示している。しかも唐桑地域の磯草・長崎層産のものに酷似する。

Explanation of PLATE I (*Plate 44*)

Fig. 1. *Berriasella* sp.

A gypsum cast from external mold, GSJ 5512 from loc. 5, Yokone, Ajishima Island, Unit Ky. 4, Kiyosaki Sandstone Member, Ayukawa Formation (Coll. TAKIZAWA). Lateral view × 0.7.

Fig. 2. *Thurmanniceras* sp. cf. *T. isokusensis* (KOBAYASHI and FUKADA)

GSJ 5513, from loc. 2, near Kanayama north of Ayukawa, Unit F3, Futawatashi Shale Member, Ayukawa Formation (Coll. TAKIZAWA). Lateral view × 2.8.

Fig. 3. *Kilianella* sp.

GSJ 5514, from loc. 4, Nakashoji, Ajishima Island, probably derived from Unit F3, Futawatashi Shale Member, Ayukawa Formation (Coll. TAKIZAWA). Lateral view × 1.1.

Fig. 4. *Perisphinctinid* gen. et sp. indet.

GSJ 5515, from loc. 6, Nagatoro-hama, western coast of Ajishima, Kozumi Shale Member, Oginohama Formation underlain by the Ayukawa Formation (Coll. TAKIZAWA). Lateral view × 0.7.

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