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目　次 CONTENTS

報　告 Transactions

渥美半島洪積統の有孔蟲類*

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中 川 保

（昭和 15 年 6 月 29 日講演並に受理）

渥美半島洪積統の有孔蟲に就いては小澤儀明氏の同定したるものが圖幅說明書に出てゐる他には知れてゐない。洪積統の層序及び軟體動物化石に關しては大炊御門經輝學士の報文に精細に正確に記錄しあり，もはや蛇足を加ふる要はない。半島の高松の海崖には厚さ 3–5 m の間に砂質海泥層が露出し，其下部は *Dosinia* 床と稱し半淡水成であるが，上部は *Tonna* 床と稱し，全く鹽水の堆積物である。其特質は貝類により良く知られる。2 床の中間の移化部は *Mya* 床とし鹽の濃度の低い事實を指示する貝化石を產する。卽ち此砂質泥層の堆積當初は潟の狀であつたが，最後には大海岸の狀に入つた。其上に汀礫の層があり，汀線の後退期を指示する。

貝類に於て明白である半淡水より海水への漸移は有孔蟲類でも見られるであらうか。第 1 表に於ける如く半淡水層に於ける種屬數・個體數は甚だ小であるといふ他には何等特長となる差異を認めない。表中高塚とあるのも半淡水貝化石層の材料である。渥美に近い濱名湖岸佐濱象化石產地の半淡水成砂質粘土を檢したが，種數・個數共に甚だ少であつた事を附記する。

第 1 表　渥美半島洪積統の有孔蟲類

	Tonna bed	*Mya* bed	*Dosinia* bed	Takatuka
Textularia gramen d'ORBIGNY	a	f	f	—
T. conica d'ORBIGNY	r	—	—	—
T. agglutinans d'ORBIGNY	r	—	—	—
Gaudryina cf. *robusta* CUSHMAN	f	—	—	—
Bigenerina sp.	f	—	—	—
Pyrgo sarsii (SCHLUMBERGER)	r	—	—	—
Triloculina trigonula LAMARCK	f	—	r	—
T. cf. *trigonula* LAMARCK	r	—	—	—
T. tricarinata d'ORBIGNY	a	—	—	—
T. oblonga MONTAGU	r	r	—	—
T. circularis (BORNEMAN)	c	—	—	—
Quinqueloculina semiculum (LINNÉ)	a	—	—	—
Q. vulgaris d'ORBIGNY	r	—	r	—
Q. curta CUSHMAN	f	—	—	—
Q. disparilis d'ORBIGNY	r	—	—	—
Q. agglutinans (d'ORBIGNY)	c	c	r	—
Q. auberiana d'ORBIGNY	r	—	—	—
Q. bicostata d'ORBIGNY	r	—	—	—
Q. sp.	r	—	r	—
Massilina pratti CUSHMAN and ELLISER	c	—	—	—
S. grateloupi d'ORBIGNY	r	—	—	—
S. milletti WIESNER	r	—	—	—

* Transactions of the Palaeontological Society of Japan, No. 110.

	Tonna bed	*Mya* bed	*Dosinia* bed	Takatuka
S. depressa d'Orbigny	r	—	—	—
S. sp.	f	—	—	—
Coruuuspira involvens (Reuss)	r	—	—	—
Dentalina cf. *roemeri* Neugeboren	r	—	—	—
Nodosalia sp. 1	r	r	—	—
N. sp. 2	—	—	r	—
Vaginulina crepidula (Fichtel and Moll)	r	—	r	—
Lagena hexagona (Williamson)	r	—	—	—
L. squamosa (Montagu)	c	r	r	—
L. striata (d'Orbigny)	r	—	—	—
L. striata strumosa Beuss	r	—	—	—
L. semistriata Williamson	—	—	r	—
L. substriata Williamson	r	—	—	—
L. sulcata Walker and Jacob	r	—	—	—
L. cf. *laevis* (Montagu)	r	—	—	—
Lagenonodosalia scalaris (Bastch)	r	—	—	—
Guttulina kishinouyi Cushman and Ozawa	r	r	—	—
G. regina (Brady, Parker and Jones)	r	—	—	—
G. aff. *austriaca* d'Orbigny	r	—	—	—
G. sp.	r	—	—	—
Pseudopolymorphina sp. aff. *P. suboblonga* (Cushman and Ozawa)	r	—	—	—
Nonion boueana (d'Orbigny)	c	c	r	—
N. scapha (Fichtel and Moll)	f	c	r	—
N. subturgida (Cushman)	r	—	—	—
N. sp.	r	—	—	—
Astrononion stelligerum (d'Orbigny)	r	—	—	—
A. cf. *umbilicatula* (Montagu)	r	—	—	—
Pseudononion japonica Asano	—	f	r	—
Nonionella puchella Hada	—	—	f	—
Elphidium cresphum (Linné)	f	r	r	—
E. advenum (Cushman)	a	a	f	—
E. jenseni (Cushman)	r	—	—	—
E. fuba (Fichtel and Moll)	—	—	c	—
E. striatopunctata (Fichtel and Moll)	r	—	—	—
E. sp.	r	—	—	—
Bolivina striata Cushman	f	r	r	—
B. textilarioides Reuss	r	r	r	—
B. punctata d'Orbigny	r	—	—	—
B. subangularis Brady	—	r	—	—
B. hantkeniana Brady var. *hantkeniana subangularis*	a	—	r	—
Loxostoma amygdalaeforme (Brady)	r	—	—	—
Rectobolivina bifrons (Brady)	r	r	—	—
Bulimina marginata d'Orbigny	r	—	r	—
B. elegans d'Orbigny	r	—	—	—
B. simaensis Makiyama and Nakagawa	c	c	—	—
Buliminella subtures (Brady)	r	—	—	—
Geminospira simaensis Makiyama and Nakagawa.	f	—	—	—
Reussella apinulosa (Reuss)	r	r	—	—

	Tonna bed	*Mya* bed	*Dosinia* bed	Takatuka
Chr. salinella dimorpha (Brady)	r	—	—	—
Uvigerina canariensis d'Orbigny	—	—	r	—
U. cf. *ampullacea* Brady	r	—	—	—
Siphogenerina raphana (Parker and Jones)	r	r	r	—
S. cf. *striata* Schwager	r	—	—	—
Fissulina marginata (Walker and Bous)	r	r	—	—
F. sp.	r	r	—	—
Discorbis rosacea d'Orbigny	a	a	c	—
D. orbicularis (Terquem)	f	f	r	—
Rotalia beccarii (Linné)	c	c	f	—
R. japonica Hada	r	—	r	—
R. hozanansis Nakamura	—	—	f	—
R. papillosa compressiuscula Brady	a	a	r	—
R. calcar (d'Orbigny)	f	—	—	—
Eponides haidingerii d'Orbigny	c	c	r	—
E. dutempelei d'Orbigny	—	r	—	—
E. repandus (Fichtel and Moll)	c	r	c	—
Eponides concanerata (Montagu)	r	r	—	—
Cancris auricula (Fichtel and Moll)	c	c	f	—
C. cf. *oblonga* (Williamson)	—	c	—	—
C. lateralis (Terquem)	f	—	—	—
Cymbaloporella peoyi (d'Orbigny)	f	—	—	—
C. bradyi Cushman	r	—	r	—
Tretomphalus bulloides (d'Orbigny)	r	—	—	—
Cassidulina laevigata d'Orbigny	r	—	—	—
C. subglobosa depressa Asano	—	—	r	—
C. subglobosa Brady	r	—	—	—
C. sp.	—	—	r	—
Globigerina bulloides d'Orbigny	c	c	f	—
G. inflata d'Orbigny	c	f	r	—
G. cretacea d'Orbigny	f	—	r	—
G. (*Globigerinoides*) *rubra* (d'Orbigny)	c	r	f	—
G. cretacea d'Orbigny	f	—	r	—
G. (*Globigerinoides*) *rubra* (d'Orbigny)	c	r	f	—
G. (*G.*) *triloba* Reuss	a	r	r	—
G. (*G.*) *conglobata* (Brady)	r	—	—	—
Orbulina universa d'Orbigny	r	r	r	r
Pullenialina obliquiloculata (Parker and Jones)	c	r	—	—
Globorotalia tumida (Brady)	—	r	r	—
Planulina sp.	a	a	c	—
Cibicides lobatulus (Walker and Jacob)	a	a	c	—
Total gens.	42	25	25	3
Total sps.	97	39	44	4

a: abundant, c: common, r: rare.

Pleistocene Foraminifera of Atumi Peninsula

(Résumé)

By

Jirô MAKIYAMA and Tamotu NAKAGAWA

Foraminifera from three levels at Takamatu are listed. The *Tonna* bed is marine, *Dosinia* bed is estuarine in origin, whereas the *Mya* bed is intermediate of the both. We do not see any different mark in relation with the salinity, but for that the *Dosinia* bed has in it very little species and individuals.

*On a Triassic Stromatoporoid from Japan**

By

Toshio SUGIYAMA

(Read and received June 29 th, 1940)

The Stromatoporoids are accepted by most palaeontologists as an extinct group of organisms of the Coelenterata, as frequent reef-builders of the Ordovician, Gotlandian, Devonian and Upper Jurassic to Lower Cretaceous periods, and also as being widely distributed during these times. The genus *Milleporidium* of the Milleporoids group[1] is an excellent example as being one of the long lived Mesozoic Stromatoporoids, and it has been reported from the Danian of the Alps[2]. In the Triassic, however, no typical Stromatoporoids are known to occur, and the essential forms are represented by *Balatonia*[3], *Stromactinia*[4], *Jillua*[5], *Disjectopora*[6], and *Milleporidium*[7], and all these except the last one are extremely restricted in their geographical distribution in the world.

Recently, the writer collected a specimen of the genus *Stromatopora* of the typical Stromatoporoids from the Triassic rocks developed at Iwai, Ôkuno-mura, Nisitama-gun, Tôkyô-hu, where the Skytic and Noric deposits are developed. The recent field work of Mr. R. CHOH[8] at Iwai revealed the presence of the Carnic underneath the Noric characterized by *Pseudomonotis ochotica* KEYSERL. According to him, these deposits consist of greenish-grey calcareous sandstone with limestone lenses, which yielded fossils such as *Gervilleia* (*angusta* group), *Myophoria*, *Pecten*, *Lima*, and *brachiopods* referable ta *Spirifer yeharai* KOBAYASHI and *Rhynchonella tokomboensis* KOBAYASHI. Upon the evidence afforded by the fossils he referred these deposits with some query to the Carnic age and correlated the complex with similar fossils of the Sakawa district in Sikoku and the Mine district in Tyûgoku.

The specimen of *Stromatopora* now in consideration was obtained from a

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* Transactions of the Palaeontological Society of Japan, No. 111.

1) H. YABE and T. SUGIYAMA: Jurassic Stromatoporoids from Japan. Sci. Rep. Tôhoku Imp. Univ., Sec. Ser. (Geol.), Vol. 14, No. 2b, p. 159 (25).

2) O. KÜHN: Das Danien der Aeusseren Klippenzone bei Wien. Geol. u. Pal., Abh. N.F. Bd. 18, p. 26, 1960.

3) P. VINASSA de REGNY: Neue Schwamme, Tabulaten und Hydrozoen aus dem Bakony. Result. d. Wiss. Erfor. d. Balatonsees, Vol. 1, Pars. 3, p. 14, 1926.

4) P. VINASSA de REGNY: Trias-Tabulaten, Bryozoen und Hydrozoen aus dem Bakony. Ibid, Vol. 1, Pars. 4, p. 20, 1901.

5) K. KRUMBECK: Obere Trias von Buru und Misol. Palaeontogr. Suppl., IV, II Abt., p. 134, 1913.

6) P. VINASSA de REGNY: Triadische Algen, Spongien, Anthozoen und Bryozoen aus Timor. Pal. v. Timor, Stuttgart, Lief. 4, Abh. 8, p. 108, 1915.

7) O. KÜHN: Hydrozoa in Foss. Cat. Animalia, Pars. 36, p. 87, 1928.

8) R. CHOH: Some new facts concerning the Triassic formation at Iwai near Itukaiti, Province of Musasi. Jour. Geol. Soc. Japan, Vol. 46, No. 546, pp. 113-115, 1939 (Japanese).

limestone interbedded in a greenish-grey sandstone. This limestone though somewhat conglomeratic in appearance, whitish in colour, rather compact in texture, and colitic in part, attains a thickness of 1–2 m. It is exposed 2 or 3 m above the thin-banded black slaty limestone reported to belong to the complex of the Skytic which contains an ammonite perhaps assignable to *Ophiceras* and abundant remains of *Pseudomonotis* (?) probably assignable to the Claraia group. The limestone is very similar in aspect and chara ters to the limestone lenses described by CHOH to be intercalated in the calcareous sandstone of the Carnic (?), and is quite different from the underlying Skytic limestone, hence it certainly belongs to the horizon already described by him. Consequently, the present fossil is a representative of the Stromatoporoids and perhaps may afford some clue in the interpretation of the phylogenetic relationship between the Mesozoic and Palaeozoic Stromatoporoids, its description now as follows:

Stromatopora iwaiensis, sp. nov.

Fig. 1.

Exact form of coenosteum unknown, but probably columnar in extension, attaining over 23 mm long and 12 mm broad; surface characters quite unknown, astrorhizae and mamelons also unknown. Vertical elements predominated than horizontal ones, 0.15–0.2 mm broad, perpendicular in axial part and gradually bending outwards and in peripheral part almost vertical to surface of coenosteum; 6–7 of them with their interspaces being counted in 1 mm on an average. Horizontal elements not marked like vertical ones, usually discontinuous, as broad as the latter; both usually completly amalgamated so as to build vermiculated structure in tangential section. Interspaces of vertical elements more or less narrower then breadth of vertical ones, being intersected by tabulae, which are horizontal; but majority of them not preserved owing to ill preservation of material. Microstructure of skeletal elements probably porous.

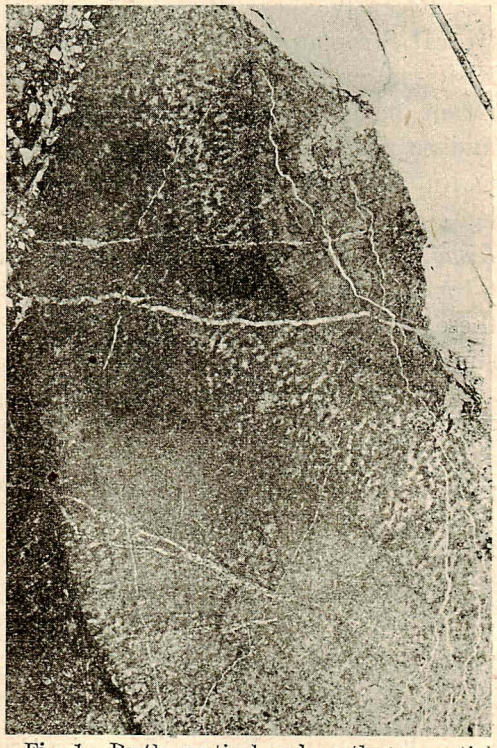

Fig. 1. Partly vertical and partly tangential section of *Stromatopora iwaiensis* SUGIYAMA, sp. nov. × 5.5.

Of the abundant species of *Stromatopora* reported from both the Palaeozoic and Mesozoic, *Stromatopora* (*Parastromatopora*) *memoria-naumanni tenuissima* YABE and SUGIYAMA[1] from the Torinosu limestone (Upper Jurassic) of Sanokuni, Okawa-mura, Taka-oka-gun, Kôti-ken has many features similar to the present new form. In the arrangement of the skeletal elements bath forms are quite indistinguishable each other,

1) H. YABE and T. SUGIYAMA: Op. cit., p. 181, pl. 53 (14), figs. 1–3; pl. 62 (24), figs. 3–5.

and the only difference recognisable between them is the fact that the skeletal elements are in the latter much more slender and more numerous than in the former, namely, in 1 mm 6–7 and 3–4 vertical elements with their interspaces are counted respectively. As shown by the present specimen, there may be general trend of the Triassic form having the tabulae in the interspaces less numerous compared to those of the Jurassic.

Locality and age : Iwai, Ôkuno-mura, Nisitama-gun, Tôkyô-hu. Probably Carnic. Reg. No. 63285.

本邦産三疊紀のストロマトポロイドに就て（摘要）

杉山敏郎

東京府西多摩郡大久野村岩井に發達するカーニック層(?)からストロマトポラ屬の1新種が産し，此處にその記載を行つた。是迄三疊紀からは未だ此屬は報告されてゐない故古生物學上興味ある事柄である。

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*On Two Permian Ammonoids from the Kitakami Mountains, North Japan**

By

Ichiro HAYASAKA

(Read and received June 29th, 1940)

I.

As is known to us Cephalopods are very rare in the younger Palaeozoic formations of Japan, though Pelecypods and Gastropods are quite abundant at certain places. Perhaps the following are all what have been recorded of the Palaeozoic Cephalopods of our country.

1. *Gastrioceras* sp. Lower Carboniferous limestone (Ômi limestone), Niigata Prefecture[1].

2. *Protocycloceras* cf. *cyclophorum* WAAGEN. Younger Permian roofing slate, Kitakami Mountains, North Japan (Miyagi Prefecture)[2].

3. *Stacheoceras iwaizakiense* MABUTI. Lower Permian limestone, Kitakami Mountains (Miyagi Prefecture)[3].

4. *Metacoceras* sp. indet. Permian limestone, Kitakami Mountains (Miyagi Prefecture)[4].

Of these four, there are from the Kitakami Mountains region of North Japan where Permian fossils of various forms are very abundantly found, the many species hitherto described being only a fraction. Possibility is very great that sometime many more Cephalopods may be discovered among them. The two ammonoid species to be described in this short note are also from the Permian formations of the Kitakami Mountains region. Specimens are not in a favourable state of preservation, but certain more important features are preserved, and their

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* Transactions of the Palaeontological Society of Japan. No. 112.

1) H. YABE: A Contribution to the Genus *Fusulina*, etc. Jour. Coll. Sci., Tokyo Imp. Univ., Vol. 21, Art. 5, Foot-note, 1906, p. 11.

2) I. HAYASAKA: Fossils in the Roofing Slate of Ogachi, etc. Jap. Jour. Geol. Geogr., III. 1924, p. 46, pl. vi, figs. 1-3 Recently the late Dr. SHIMIZU and OBATA expressed their opinion that this species must be a *Cycloceras* instead of a *Protocycloceras*, being indeterminable but probably new specifically. See Jour. Geol. Soc. Japan. XLIII, 1936, p. 11.

3) S. MABUTI: On the Iwaizaki Limestone and Its Stratigraphical Meaning (in Japanese). Saitô Ho-on Kai Zihô, No. 101, 1935, pp. 5, 10.

S. MABUTI: On the Occurrence of *Stacheoceras* in the Kitakami Mountainland, Northeast Honsyû, Japan. Saitô Ho-on Kai Museum Research Bull. No. 6, 1935, p. 143. Pl. XV.

H. YABE: Carboniferous-Permian Deposits of the Japanese Islands, Tyôsen (Korea) and Manchuria. IIme Congrès pour l'Avancement des Études de Stratigaphie Carbonifère, 1935. Copte Rendu, III, 1938, p. 1623.

4) H. YABE and S. MABUTI: On Two Upper Paleozoic Nautiloids from Japan and China. Jap. Jour. Geol. Geogr., XII, 1935, p. 12.

being the following species is quite certain :

1. *Stacheoceras* sp.
2. *Paraceltites* aff. *elegans* GIRTY.

Both these fossils have been in my possession for about twenty years. The former was obtained by myself and the latter was presented to me by Mr. G. TOBA, an old friend of mine, who had been very successful in collecting abundant Permian and other fossils of various kinds in the southern parts of the Kitakami Mountains. Many of the fossils I have hitherto described from this region belong to the collection of TOBA.

II. *Stacheoceras* sp.

(Fig. 1.)

This is represented by a small slice of an ammonoid transversely cutting whorls, but not through initial and early portions. As is observed on the polished surface of the specimen, the shell is almost completely involute and the whorls are deeply crescent, embracing the preceding one. The fragmentary specimen consists of 5 volutions, and the thickness or the width of the outermost volution is about 26 mm, its height being abut 10 mm. The two inner volutions measure 18 mm and 13 mm in width and 7 mm and 5 mm in height, respectively. These values, however, are not necessarily true widths and heights, becouse the cut-edge polished is by no means strictly centric. On the strongly weathered ventro-lateral surface as well as on the polished cut-edge the development of about 20 saddles and lobes that are arranged in slightly, arcuate series is recognized : details are not accessible, however.

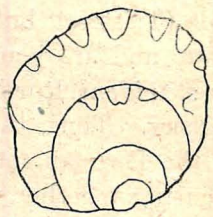

Fig. 1. A diagrammatic reproduction of the eccentric cut-edge of *Stacheoceras* sp. from the Kitakami Mountains. ×1.

As the details of the present specimen are not accessible, it is not easy to venture any definite judgement as to its relation to the one described by MABUTI. However, it is very likely that the two are different from each other, because the measurements made of the whorls respectively give considerably different values and proportions.

Locality :—West of Kobama, Zyûgohama-mura, Monô-gun, Miyagi Prefecture. In this locality and in the immediate neighbourhood the following species have been recognized by me, namely, *Coelocladia spinosa* GIRTY var. *major* HAYASAKA[1], *Camarophoria humbletonensis* HOWSE[2], *Productus* (*Marginifera*) *flemingii* (SOW.) DE KON[3]., *Rhynchonella* (*Uncinulus*) *jabiensis* WAAGEN.

Remarks :—*Stacheoceras* is rather a widely distributed genus, having been reported to occur from the Ural Mountains region, Sicily, Crimea, India, Timor,

1) I. HAYASAKA : Some Perm. Foss. fr. Kitakami Mts. Jap. Jour. Geol. Geogr., II, 1923, p. 108.
2) I. HAYASAKA : Some Perm. Brachiopods fr. Kitakami Mts. Ditto, I, 1922, p. 62.
3) Ditto, p. 63.

Texas, Japan, and China[1]. According to TOUMANSKY[2], who not only described many species of the genus from the Permo-Carboniferous formations of Crimea but also briefly and clearly summarized the informations concerning it up to that time, it occurs both in his Mount Kichkhi-Burun and Mount Kichkhi-Soraman limestones. The former is regarded to correspond in geological age to the Sosio limestone of Sicily, the Bitauni beds of Timor, the *Waagenoceras* zone (Word formation) of Texas, etc., while the latter has to be considered as Upper Pennsylvanian (*Uddenites* zone of Texas, for instance). Of the 4 species-groups of *Stacheoceras* proposed by TOUMANSKY[3] the group 1 (the group of *Stacheoceras mediterraneum* GEMM.) seems to include species that are comparable with the one under consideration, because it comprizes forms that are characterized by having "a great number of lobes and saddles" forming arcuate suture-lines. This group is not represented in the limestone of the Mount Kichkhi-Soraman in the Crimea. This conforms to the fact that Japanese *Stacheoceras* under consideration is Permian in age.

In Timor *Stacheoceras* occurs in the Besleo beds and the overlying Amarassi beds (Triassic), but not in the Bitauni beds[4] and the Besleo beds are Upper Permian, and are younger than the Sosio limestone. The Timorese species, *Stacheoceras tridens* ROTHPLETZ[5] and *S. arthabei* SMITH[6] belong to the group 1 of TOUMANSKY. Thus, the determination of the more exact horizon of the Japanese species in the Permian formation is not possible without having any other fossils whatever occuring together with it.

III. *Paraceltites* aff. *elegans* GIRTY.

(Fig. 2—4.)

The genus *Paraceltites* which was established by GEMMELLARO in 1888 was recently redescribed by PLUMMER and SCOTT[7]. According to him "the genus includes discoidal, strongly compressed disc-shaped shells with strong transverse ribs, which are most strongly developed near the umbilicus and end before they reach the narrow venters. The external suture line consists of a ventral lobe, which is indented by a very short insignificant ventral saddle, a rather broad rounded lateral lobe, two broad rounded lateral saddles, and a smaller, somewhat

1) A species of *Stacheoceras* is represented in a small cephalopod faunule from the Anhui Province China which will be described by me shortly.

2) TOUMANSKY: The Permo-Carboniferous Beds of the Crimea, Pt. I. Cephalopoda, Ammonoidea, 1931.

3) Ditto, pp. 22, 86.

4) WANNER: Das Alter der permischen Besles-Schichten von Timor. Centralbl. f. Min etc. Jahrg. 1931, Abt. B, p. 543.

5) SMITH: Permian Ammonoids of Timor. Jahrb. v. h. Mijnwezen in Nederlandsch-Indie, Jahrg. 1926, 1927, p. 50. This is regarded by SCHINDEWOLF as to belong to his *Neostacheoceras*, and represents a younger horizon than *Stacheoceras* s. s. does. For this, see, SCHINDEWOLF: Ueber den Ammoniten-Sipho. Sitzungsber. preuss. geol. Landesanst., Heft 6, 1931, p. 201.

6) Ditto, p. 50.

7) PLUMMER and SCOTT: Upper Paleozoic Ammonoids in Texas. The Univ. Texas Bull. No. 3701. The Geology of Texas, Vol. III, Pt. 1, 1937, p. 566.

pointed, umbilical lobe on the umbilical wall".

In my collection of the Permian fossils from the Kitakami mountains there is a small water-worn pebble of a dark gray sandy shale, which, on breaking, is found to consist of a number of a small, discoidal ammonoid preserved as external and internal molds. Of the external molds gypsum and gutta-percha casts have been made so that the surface sculpture of the shell might be much better observed. A few of the internal molds have been carefully polished down, and fortunately, the general trend of the suture line development has been observed.

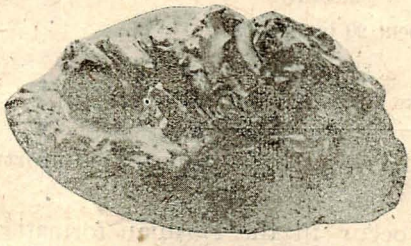

Fig. 2. A fragment of the sandy shale with molds of *Paraceltites* aff. *Elegans* GIRTY from the Kitakami Mountains. ×1.

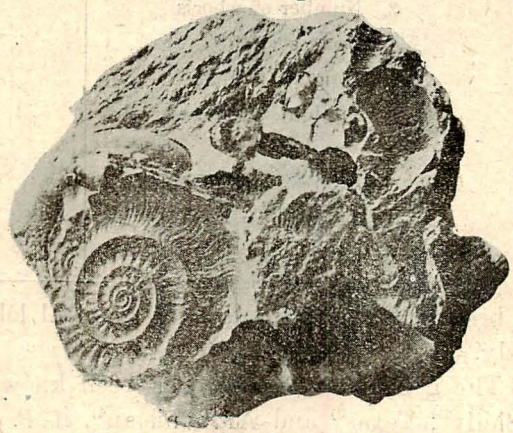

Fig. 3. Another fragment of the sandy shale. ×2.

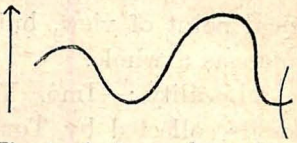

Fig. 4. An incomplete suture line of *Paraceltites* aff. *elegans* GIRTY.

The discoidal and very evolute form of the shells, the strong transverse ribs ending before reaching the ventral portion of the shell, and the few rounded series of lobes and saddles are enough to make me regard the fossil to be a *Paraceltites*.

A few words seem to be necessary concerning the surface sculpture of the shell, however. It is usually described to consist of coarse, transverse ribs. In the specimens at my disposal such coarse, transverse ribs are characteristically developed over the shell surface except the very last portion of the volution, which is ornamented with much finer and more or lesss fascicular striae that are slightly wavy with ventral, lateral and dorsal convexities : these striae appear to be sigmoidal on the lateral shell surface (Fig. 3). While the coarse ribs are straight and stop short of the ventral border of the shell, the finer, sigmoidal striae stretch across the venter. Moreover, the boundary between the ribbed and striated portions of the shell is quite sharp, too. Thus, it may be suggested that the fine, wavy striation shows the length of the living chamber : for this assumption I have no material evidence, however.

Now, turning to the specific characteristics of the fossil under consideration, let me point out a few, more important features observed, For the sake of convenience and clearness they may be tabulated next page.

These and other less significant characters suggest that the fossil species is very closely allied to *Paraceltites elegans* GIRTY from Texas. The suture line has

	Specimen 1	Specimen 2
1. Diameter of the shell	14.5 mm	13 mm
2. Thickness	3.0 mm	3 mm
3. Number of whorls	about 6	
4. Cross section	oval	
Height : Width	1.3 : 1.1	
5. Straight, transverse ribs	12~13 in 10 mm	
Venter	smooth	
6. Fine sigmoidal striae	about 20 in 10 mm	
Venter	striated	
7. Suture line	like *Paraceltites elegans* GIRTY[1]	

not been traced all through, the ventral lobe not having been made out, unfortunately.

The genus *Paraceltites* has been known to occur in the Permian formations of Sicily[2], Texas[3] and Afghanistan[4], if *P. pseudoopalinus* FRECH from Anhui Province, China[5], is really another thing as GRABAU assumes[6]. Therefore, its occurrence in the Kitakami mountains is of a great interest not only from the palaeontological point of view, but also for the palaeogeographical consideration of the Permian as a whole.

Locality :—Imô, Yahagi-mura, Kesen-gun, Miyagi Prefecture. Among the fossils collected by TOBA and myself in the neighbourhood of Imô the following species have been described by me[7]. *Orthotetes rugosa* FREDERICKS, *Derbyia hemisphaerica* WAAGEN, *Chonetes blanfordi* C. REED var. *lata* HAYASAKA, *Ch. sinuosa* SCHELLWIEN, *Productus cora* (D'ORBIGNY), *Prod. villiersi kozlowskianus* FREDERICKS, *Prod.* (*Marginifera*) *flemingii* (SOW.) DE KONINCK, *Prod. vishnu* WAAGEN, *Lyttonia richthofeni* KAYSER, *Rhynchonella* (*Uncinulus*) *jabiensis* WAAGEN, *Spirifer* cf. *saranae* VERNEUIL mut. *lita* FREDERICKS, *Spir.* (*Martinia*) sp. indet., *Spiriferina cristata* KING, *Myophoria sub-elegans* WAAGEN var. *tobai* HAYASAKA, *Conularia rectangularis* HAYASAKA, *Phillipsia* sp. indet.

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1) GIRTY : Guadalupian Fauna. 1908, p. 499, pl. XXV, figs. 12–14.
PLUMMER and SCOTT : Upper Paleozoic Ammonoids in Texas. 1937, p. 367, pl. 37, figs. 1–8.

2) GEMMELLARO : Giorn. Soc. Sci. Nat. Econ., XIX, 1888.

3) BÖSE : Univ. Texas Bull., No. 1762, 1917.
PLUMMER and SCOTT : l.c.

4) COWPER REED : Pal. Indica, N. Ser. XIX, 1931. p. 39. (*P. bamianus* C. REED)

5) FRECH : N. Jahrb. II, 1895 p. 56.

6) GRABAU : Stratigraphy of China, I, 1924 p.p. 479, 480.

7) HAYASAKA : Some Permian Brachiopods from the Kitakami Mountains. Japanese Jour. Geol. Geography, I, No. 2, 1922.
HAYASAKA : Some Permian Fossils from the Kitakami Mountains. Ditto, II, No. 4, 1923.
HAYASAKA : On Some Brachiopods from the *Lyttonia* Horizon of the Kitakami Mountains. Ditto, IV, Nos. 3-4, 1925.

北上山地産二疊紀アムモノイド 2 種（摘要）

早 坂 一 郎

古くから手許にあつた北上山地地方産アムモノイド 2 種の記事で，即ち

1. 宮城縣桃生郡十五濱村小濱の西方に産した *Stacheoceras* sp.（第 1 圖）
2. 岩手縣氣仙郡矢作村飯森産（鳥羽源藏氏採集）の *Paraceltitens* aff. *elegas* Girty（第 2～4 圖）

の記載である。ただし，前者は唯 1 個の極めて不完全な破片で，縫合線なども殻の斷面と，烈しく溶蝕された側面とから，その大勢がうかがはれるに過ぎないが，それが *Stacheoceras* であることだけは確實で，又，數年前馬淵理學士が氣仙沼南方の岩井崎から記載した *Stacheoceras iwaizakiense* とは明瞭に異るものである。後者は 1 塊の灰黒色砂質頁岩の水蝕圓礫を破碎したところ，その中に數多の型となつて殘つてゐたもので，凡ての點で Girty の種 *Paraceltites elegans* に酷似してゐるが，縫合線の外側の部分が不明であり，又，螺卷の最終の部分の表面が細い，多少波狀の肋線を擔ふといふ點で，固定をさし控えて置く。此後の性質は，*Paraceltites* の他の種類にも見られることではあるまいか？ そして，それは殻の living chamber の部分を示すのではあるまいか？

今日まで我が國で知られた古代末期の頭足類は次の 4 種類であり，從つて，此の文のものを加へて 6 種となる。今後の探求を待つ。

1. *Gasirioceras* sp. 新潟縣青海石灰岩（矢部，1906）
2. *Protocycloceras* cf. *cyclophorum* Waagen. 宮城縣雄勝粘板岩（早坂，1924）清水・小幡兩氏に依れば，これは *Cycloceras* probab. n. sp. の由。
3. *Stacheoceras iwaizakiense* Mabuti. 宮城縣岩井崎石灰岩（馬淵，1935）
4. *Metacoceras* sp. indet. 宮城縣米谷町上部二疊系石灰岩（矢部・馬淵，1935）

*Characteristic Features of the Yusima Molluscan Fauna**

By

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(Read and received June 29th, 1940

The Yusima molluscan fauna as treated with in the present article in meant to include the fossil molluscan remains derived from the Yusima beds. The stratigraphical position of this marine beds has already been published by M. SHIMAKURA and S. TUTIDA in an article entitled, "Cenozoic Strata of the Borderland of the Kitakami-gawa, Especially the Bases of the Coal-beds."

According to M. SHIMAKURA and S. TUTIDA[1], the Yusima beds in the Itinoseki-Wakayanagi district in the central region of the area surveyed by them, occupy the following stratigraphic position (in descending order) :

Terrace deposits : sand, gravel, and clay
····· unconformity ·····
Yasaka beds : tuffaceous sandstone and conglomerate
····· unconformity ·····
Mataki coal-bearing beds : tuffaceous sandstone, coal-bearing strata, conglomerate
····· unconformity ·····
Kazawa beds : tuffaceous sandstone, tuff, coal-bearing strata, conglomerate
····· unconformity ·····
Yusima beds : massive tuffaceous shales
Arikabe beds : coal-bearing strata, tuff, and conglomerate
····· unconformity ·····
Miocene deposits : Masiba shell-beds and Tukumo sandstone (the Miocene deposits have been subdivided, but here it is not necessary to give precise accounts)
····· unconformity ·····
Toyoma beds : Pre-Cenozoic deposits

The fossils mentioned in this article are all from the Yusima beds of M. SHIMAKURA and S. TUTIDA, and belong to the Lower Pliocene age of the standard of chronology as now employed by the members of the Institute of Geology and Palaeontology, Tôhoku Imperial University, Sendai[2]. The Lower Pliocene age for the Yusima beds was first stated by M. SHIMAKURA and S. TUTIDA, and now the present writers can verify this statement from their own observations.

* Transactions of the Palaeontological Society of Japan, No. 113.

1) M. SHIMAKURA and S. TUTIDA : 1939, Cenozoic Strata of the Borderland of the Kitakami-gawa, Espe ially the Bases of the Coal-beds. Contri. Inst. Geol. Pal., Tôhoku Imp. Univ., in Japanese Language, No. 32.

2) H. YABE : 1935, The Middle and Lower Mizuho Period. Ibid., No. 12.

The Yusima beds consist chiefly of tuffaceous shales and occur in different regions under different names as, in the Itinoseki-Wakayanagi district it is known as the Yusima beds, in the Iwayado-Hiraizumi district it is known as the Koromogawa beds, in the Onuki-Wakuya district it is known as the Kogota beds, in the Hirobuti-Sue district it is known as the Sue beds, and in the vicinity of Sendai it is known as the Tatunokuti beds. In the present article, the writers treat the Koromogawa beds and Yusima beds by the latter name, and also add the new locality of near Isikosi, as a typical development of the Yusima beds; the view being upheld by both stratigraphical and palaeontological evidence.

From the Yusima beds, M. SHIMAKURA and S. TUTIDA reported on the occurrence of the following molluscan remains, namely :

Cardium (*Clinocardium*) *californiense* DESHAYES
Cardium sp. indet.
Lucina sp. indet.
Macoma praetexta (v. MARTENS)
Ostrea gigas THUMBERG
Pecten takahashii YOKOYAMA
Panope japonica (A. ADAMS)
Lucina (*Lucinoma*) *acutilineata* CONRAD
Macoma tokyoensis MAKIYAMA
Macoma incongrua (v. MARTENS)
Mya arenaria LINNÉ
Pecten sp. indet.
Tellina venulosa SCHRENCK

Among these fossils, *Pecten takahashii* YOKOYAMA alone is sufficient for determination of the geological age of the fauna; the species is fully discussed by H. YABE and K. HATAI[1]. The remaining fossils are those which occur recent as well as fossil.

From the Koromogawa beds, which is an equivalent of the Yusima beds, S. NOMURA[2] reported on the following fossils, namely :

Cardium (*Clinocardium*) *pseudofastosum* NOMURA
Macoma tokyoensis MAKIYAMA
Ostrea gigas THUMBERG
Mya arenaria LINNÉ
Spisula voyi GABB

Although the fauna reported by S. NOMURA is a small one, it is noteworthy that *Cardium pseudofastosum* was newly discovered. This large cockle is a very characteristic fossil in the Tatunokuti beds in the vicinity of Sendai[3] and also plays an important role in the stratigraphy of the Cenozoic strata of the borderland of the Kitakami-gawa, since its horizon of occurrence is much restricted.

From the same beds, M. SHIMAKURA and S. TUTIDA successfully obtained the following fossils, namely :

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1) H. YABE and K. M. HATAI: 1940, A Note on *Pecten* (*Fortipecten* subgn. n.) *takahashii* YOKOYAMA, and Its Bearing on the Neogene Deposts of Japan. Sci. Rep., Tôhoku Imp. Univ., Ser. 2, Vol. 21, No. 2 (in press).

2) S. NOMURA: 1937, Three New Species of Neogene Mollusca from along the Koromogawa, Iwate-ken, Northeast Honsyû, Japan. Saito Ho-on Kai Mus., Res. Bull., No. 13.

3) S. NOMURA: 1938, Molluscan Fossils from the Tatunokuti Shell Bed Exposed at Gôroku Cliff in the Western Border of Sendai. Sci. Rep., Tôhoku Imp. Univ., Ser. 2, Vol. 19, No. 2.

Cardium (*Clinocardium*) *californiense* DESHAYES
Cardium sp. indet.
Lucina (*Lucinoma*) *acutilineata* CONRAD
Macoma tokyoensis MAKIYAMA
Macoma calcarea GMELIN
Macoma sp. indet.
Nucula sp. indet.
Pecten yessoensis JAY
Solen gouldii CONRAD
Tellina venulosa SCHRENCK
Margarites (*Pupilaris*) sp. indet.
Laternula sp. indet.
Lucina (*Lucinoma*) sp. indet.
Macoma praetexta (v. MARTENS)
Mya arenaria LINNÉ
Ostrea gigas THUMBERG
Panope japonica (A. ADAMS)
Taras ? sp. indet.
Yoldia sp. indet.
Isurus hastalis (AGASSIZ)

The occurrence of *Isurus hastalis* (AGASSIZ) from the Koromogawa beds of M. SHIMAKURA and S. TUTIDA or from the Yusima beds of the writers is of interest, seeing that it occurs from Miocene deposits more commonly than from Pliocene beds. Further, the presence of *Pecten yessoensis* JAY readily indicates the rather low temperature of the seas in which the Yusima fauna once lived.

From the other beds, as Kogota beds and Sue beds, they were not successful in obtaining good specimens and merely mentioned that such genera as *Macoma*, *Tellina*, *Cardium*, *Lucina*, *Panope*, and *Lingula* cf. *unguis* (LINNÉ)[1] occur. As already stated, the Kogota beds and Sue beds are equivalent deposits of the Yusima beds, according to M. SHIMAKURA and S. TUTIDA, who worked out the stratigraphy of the different districts mentioned in earlier lines.

The foregoing lines show that our knowledge concerning the molluscan fauna of the Yusima beds and its equivalent deposits is not great. However, among the fossils reported by S. NOMURA as well as by M. SHIMAKURA and S. TUTIDA, it is quite evident that the following ones are very characteristic, namely :

Cardium pseudofastosum NOMURA
Pecten yessoensis JAY
Pecten takahashii YOKOYAMA
Isurus hastalis (AGASSIZ)

These fossils are considered to be characteristic for several reasons, such as, *Pecten takahashii* is a scallop which has a fairly wide geographical distribution and a rather short geological range, *Isurus hastalis* is a shark tooth found commonly in deposits of Miocene age and also occurs in the Pliocene, and *Cardium pseudofastosum* is unknown from deposits either younger or older than the Lower Pliocene. The occurrence of *Pecten yessoensis*, which is a common living species in North Japan, throws additional light on the climatological conditions of the past, seeing that it is a cool-water species which does not flourish in the seas adjacent to the fossil locality. The specimens of this species from the southern part of the Sanriku coast, are those which have been brought from the north in order for culture of oysters ; their original habitat may not extend south of Aomori-ken.

Among recently collected fossils from the Yusima beds near Isikosi, the following few are of particular interest, namely :

1) M. SHIMAKURA and K. HATAI : On a Fossil Species of *Lingula* from Hirobuti-mura, Miyagi-ken. Trans. Pal. Soc. Japan, No. 86.

Anadara tatunokutiensis (NOMURA and HATAI) *Pitar sendaica* NOMURA
Pitar sendaica monstrosa NOMURA *Polinices kiritaniana* YOKOYAMA, var.

All of these species are not known to be living in the seas adjacent to Japan or elsewhere, and are characteristic members of the Yusima beds near Isikosi. The three bivalves were originally described from the Tatunokuti beds in the vicinity of Sendai[1]. The occurrence of these species in the Yusima beds extends the geographical distribution of them and also increases their stratigraphical value as horizon indicators and age reliance.

Anadara tatunokutiensis occurs in great numbers in the soft tuffaceous shales of the Yusima beds near Isikosi, and shows good development in growth. The very heavy nature of the test and large size are features which serve to easily distinguish it from allied ones of the genus. Probably the very large size and heavy test may be related to reflections of peculiar environmental conditions, while the bipartite nature of the radial ribs shows that it is related to such fossils as *Anadara trilineata* (CONRAD) and *Anadara amicula* (YOKOYAMA)[2].

Pitar sendaica and its subspecies *monstrosa* are also noteworthy members of the Yusima fauna. These fossils also have very large size and heavy shells, and thus closely simulate *Anadara tatunokutiensis* in this respect. Even the varietal form of *Polinices kiritaniana* has a thick shell.

Other characteristic members of the Yusima beds near Isikosi, are such as *Spisula voyi* (GABB), *Panope japonica* (A. ADAMS), *Mya arenaria* (LINNÉ), *Aloides venustus* (GOULD), and several species of *Macoma*.

These mentioned species are quite characteristic in the Tatunokuti beds in the vicinity of Sendai, where they occur in considerable numbers and especially *Panope japonica* is characterized by its long shell-outline compared to its living representatives.

Ostrea gigas THUMBERG is also a noteworthy member of the Yusima fauna, and where it occurs in large numbers, other species are very rare, and near Saruhana where the *Ostrea*-bed is well developed only *Anomia cytaeum* GRAY, *Aloides venustus* (GOULD) and indeterminable fragments of *Macoma* and *Balanus* only could be collected. The *Ostrea*-bed is developed at several places, but no good fossils could be collected owing to the predominating numbers of the oyster, and to the easily crumbling nature of the shells. However, as in the vicinity of Sendai, this oyster plays an important role, particularly in indicating similar ecological conditions.

The Yusima beds in showing varied conditions of marine life as can be judged by the fossil-content and their mode of occurrence, is characterized by a molluscan fauna having direct bearing on the environmental conditions and depth of the seas in which they once lived. The shallow and muddy nature of the seas in which the Yusima molluscan fauna once lived together with the lateral change in

1) S. NOMURA: 1938, Op. cit.
2) K.M. HATAI and S. NISIYAMA: 1938, Remarks on Certain Fossils from the Borderland of the Japan Sea. Jap. Jour. Geol. Geogr., Vol. 16, Nos. 1-2.

rock- and faunal-facies, are all features which strongly suggest that the Yusima fauna was deposited in a very large bay or enclosed water body not in the influence of strong action of waves or currents. Furthermore, the molluscan fauna strongly suggests that the seas at this particular time were cooler than the recent seas at a similar latitude. If the depth of the seas in which the molluscan remains were preserved is to be estimated, probably the regions where the *Ostrea*-bed is developed was not deeper than two meters, and most probably the *Ostrea*-bed was exposed in part during low tide. The same or similar conditions can now be observed in Matusima bay, Miyagi-ken. The depth of the regions where molluscan shells other than *Ostrea* are well developed may not have exceeded ten meters or thereabout.

The Yusima fauna can be briefly characterized as, 1) nearly total absence of gastropods ; this may be due to the bottom control, 2) large number of species in common with the Tatunokuti beds in the vicinity of Sendai ; this suggests that the Yusima fauna lived in the same seas, 3) decidely northerly aspect of the whole fauna, without a single typical southern form intermingled, 4) the majority of the bivalves are provided with very thick and heavy tests and show very good development in growth, 5) fauna consisting essentially of shallow-water species with some brackish-water forms, 6) water-worn shells were not found ; this suggests that the fossils were embedded in situ, 7) where the *Ostrea*-bed occurs other forms of molluscan shells are nearly absent ; this indicates unfavorable bottom control and environmental conditions for shells other than oysters, 8) small number of species but rather large individual number, and, 9) species typical of sandy or other coarse materials are not found in the fauna.

As to the age of the Yusima fauna, it is evident that the Lower Pliocene[1] may be accepted.

In closing this short article[2], the writers which to express their thanks to Profs. H. Yabe, and R. Aoki and Assist. Prof. S. Hanzawa of the Institute of Geology and Palaeontology, Tôhoku Imperial University, Sendai, where the work was undertaken, for their kind advices and permission to submit this article for publication.

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1) K.M. Hatai: 1939, Plio-Pleistocene versus Lower Pliocene Age for the Tatunokuti Beds Developed in Sendai and Its Environs, Rikuzen Province, Northeast Honsyû, Japan. Ibid., Vol. 16, Nos. 3-4.

2) Faunal remarks on the entire molluscan fauna of the Yusima beds will be given by the writers at another opportunity.

油島介化石の特徴（摘要）

畑井小虎・山本正五

岩手縣西磐井郡油島村近傍に標式的に發達する油島介層に就ては既に島倉・土田の兩學士に依つて報告されて居るが，筆者等は更に同地方を調査した結果新なる化石を採取し得たので，茲に之等の主要なるものに付報告せんとするものである。

油島介層の化石群には殆ど巻貝類がなく大部分は二枚貝類である。之等の大多數は仙臺附近に發達する瀧の口介層の化石群と共通種であり，下部鮮新統を示すものである。總體的に見て淺海性種であるが稀に半鹹半淡水性のものもある。新しく採取した化石の多くは一般に介殻が厚く，且重くて北方型を示して居る。比較的に種の數は少ないが個體の數は可成りに多く，或個所に於ては殆ど1種のみ無數に集合して存在することもある。

東京府八王子市近傍産化石2種

バタグルミ (*Juglans cinerea*) とエゾシカ (*Cervus* cf. *yesoensis*)*

大　西　　弘

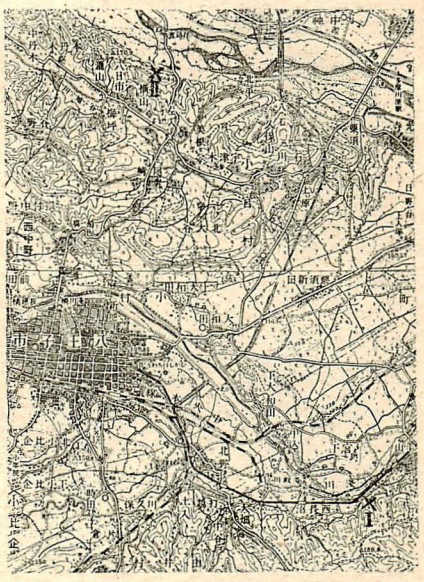
(昭和15年4月27日講演, 7月1日受理)

筆者は關東構造盆地西南部の地質に就いて巡檢中，多摩丘陵の北西部八王子市近傍よりバタグルミ (*Juglans cinerea* LINNÉ) の堅果化石とエゾシカ (*Cervus* cf. *yesoensis* HEUDE) の下顎骨化石を採集した。バタグルミは地質時代を決定する上に可なり重要な資料[1]であり，一方この附近からは哺乳類動物化石の報告を聞かないので，その各々の産地と産出地層の概要を報告する。

尙これ等の化石標本は東北帝國大學理學部地質學古生物學教室に保存されてゐる。標本同定其他の勞をとられし同教室の鹿間時夫學士，格別の御便宜を與へられし同教室の職員各位に深謝する。

I. バタグルミ (*Juglans cinerea* LINNÉ)

多摩丘陵の北西部，八王子市の東南約4 km，多摩川の支流である淺川の右岸，東京府南多摩郡由井村雨田からバタグルミの堅果化石を産することを確め得た。標品は唯1個であるが表面の彫刻・外形・内部の構造等よりバタグルミと同定することが出來た。乾燥狀態に於ける長さは4.0 cm，最大幅は2.5 cm，厚さは1.0 cm と測定した。



第1圖　東京府八王子市近傍化石産地
(陸測地形圖青梅・八王子)
× I　バタグルミ (*Juglans cinerea* LINNÉ) の産地
×II　エゾシカ (*Cervus* cf. *yesoensis* HEUDE) の産地

産地附近の地層は青色細粒均一質砂岩で所々に浮石の細礫・介類化石 (*Pecten* sp., *Dentalium* sp., *Natica* sp., *Macoma* sp., *Mactra* sp. 等) の印痕と埋木の破片を含む。この地層は大塚彌之

第2圖　バタグルミ *Juglans cinerea* LINNÉ
東京府南多摩郡由井村雨田産 (第1圖參照)

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* Transactions of the Palaeontological Society of Japan, No. 114.

1) S. ENDÔ: The Butternut (*Juglans cinerea* L.) from the Upper Pliocene of Japan. Jap. Jour. Geol. Geogr., Vol. 11, Nos. 3-4, 1934.

助博士が南多摩層群の黄褐色砂層[1]とせるものに該當する様である。

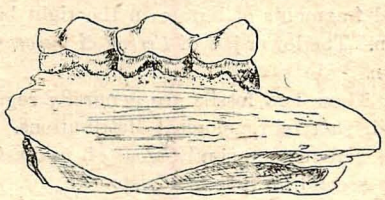
多摩丘陵からのバタグルミ堅果化石の産地は曩に島倉巳三郎學士により報告[2]された神奈川縣都築郡柿生村山口と合して2ケ所となつた。今までに日本各地より報告されたバタグルミ堅果化石の産地は岩手縣稗貫郡花巻町字小舟渡・同縣膽澤郡佐倉河村・宮城縣仙臺市評定河原・福島縣河沼郡川西村字長井・愛知縣瀬戸市・同縣愛知郡長久手・兵庫縣明石郡林崎村西八木・長崎縣南高來郡加津佐村水月等で最上部鮮新世の地質時代を指示するものが多い様である。

II. エゾシカ (*Cervus* cf. *yesoensis* HEUDE)

八王子市の北約 4 km，廣義の多摩丘陵の一部と見られる藤本治義博士の加住丘陵[3]，田中啓爾學士の龍山丘陵[4]の北東緣，東京府北多摩郡昭和村拜島渡から鹿の右側下顎骨の化石を採集した。標品は第 2，第 3，第 4 前臼齒を附着せる下顎骨の一部であるが鹿間時夫學士により，その形・大きさ等を多數の現棲種標本と比較研究されエゾシカと同定された。

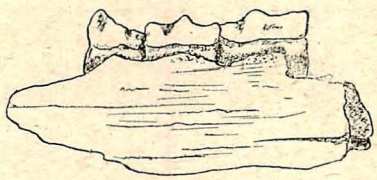
本化石の産出地點は多摩川の現河流に面した高さ約 30 m の崖で下部より中粒乃至細粒礫層・白灰色凝灰質砂層・黄褐色砂層・ローム層の順序に重なる。本化石はローム層の下位に不整合關係にある黄褐色砂層より發見された。崖の下底部の礫層は西北方へ加住村・多西村附近まで追跡され，30 m 以上の厚い地層をなす。この地層は三土知芳學士の下部洪積世礫層[5]，青木廉二郎教授・田山利三郎助教授の五日市砂礫層[6]に該當するものであらう。

エゾシカは化石としては長濱の礫層・瀬戸内海等より報告され，その後石器時代に全盛を極めたものであるが現今では北海道及東北地方の一部に棲息する。地質時代は下部洪積世乃至現世である。



第 3 圖　エゾシカ *Cervus* cf. *yesoensis* HEUDE 內側面
東京府北多摩郡昭和村拜島渡産
(第 1 圖參照)

第 4 圖　同上　上面



第 5 圖　同上　外側面

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1) 大塚彌之助：多摩丘陵の地質（其の 1），地質學雜誌，第 39 卷，1932.

2) 島倉巳三郎：神奈川縣下に產する *Juglans cinerea* LINNÉ の化石，同上，第 42 卷，1935.

3) 藤本治義：武藏野臺地と多摩丘陵の地形及地質竝に夫等の相互關係に就て（豫報），其の 1・其の 2，地學雜誌，第 42 年，1930.

4) 田中啓爾：多摩御陵附近の地誌，單行本，1927.

5) 三土知芳：7 萬 5 千分之 1 八王子地質圖幅及同說明書，1932.

6) 青木廉二郎・田山利三郎：關東構造盆地特に其の西邊部の地形及び地質に就て，齋藤報恩會學術研究報告，第 8，1930.

Juglans cinerea LINNÉ and *Cervus* cf. *yesoensis* HEUDE from the Vicinity of Hatiôzi City, Tôkyô Prefecture

(Résumé)

By

Hiromu ÔNISI

In the present report are given new localities of two interesting fossils from Tama hill in the vicinity of Hatiôzi City, Tôkyô-hu.

Juglans cinerea LINNÉ was discovered in a blue fine sand with some moulds of molluscan shells and fragments of lignite in the right bank of the river Asakawa in Ameda, Yui-mura, Minamitama-gun. The lower jaw of *Cervus* cf. *yesoensis* HEUDE was found at Haizimawatasi, Syôwa-mura, Kitatama-Gun.

These two fossils are generally regarded as having close bearing on the geological ages owing to their short chronological distributions. *Juglans cinerea* probably indicates the Upper Pliocene age for the first locality, and *Cervus* cf. *yesoensis* ranges from Lower Pleistocene to Recent, thus the age of the second locality is Pleistocene.

*A New Species of Posidonia from the Inai Series (?) in the Southern Kitakami Mountainland, Japan**

By

Teiichi KOBAYASHI and Tuneo HUKASAWA

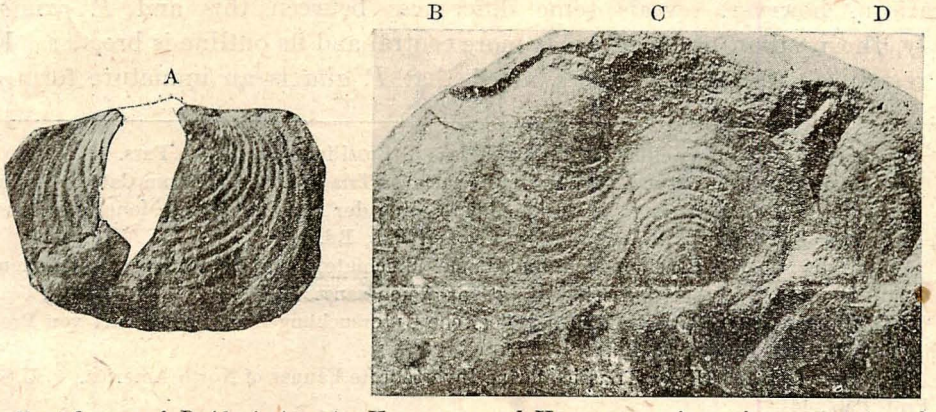
Geological Institute, Imperial University of Tokyo.

(Read June 29th, received July 1st, 1940)

The pelecypod described here was found by Yosiyuki IWAYA in a boulder of a dark gray hard sandy slate at the shore east of the beak of Biwa (琵琶崎), Shizukawa-machi, Motoyoshi-gun, Miyagi Prefecture, and added to the collection of the Geological Institute, Imperial University of Tokyo. Judging from the facts that the rock-aspect is typical of the Inai member and that the locality stands in the terrain of the upper Inai series, it is most probable that the boulder was derived somewhere from the upper part of the series. While the Anisic ammonites have been known to occur in the upper Inai series at Inai and other places in the southern Kitakami mountainland, no pelecypod is so far known and this is really the first announcement.

Posidonia japonica, new species

Description :——Shell longer than high and semi-elliptical broadest at a distance one-third from the hinge margin, and more broadly rounded in the anterior than in the posterior ; hinge margin straight, corresponding to about three-fourths the length of the shell ; beak located at a point a little anterior to the center of the margin, slightly projected beyond the margin and a little bent forward ; shell most convex at a point one-fourth from the beak. Concentric ribs and furrows fine and faint in a distance of some 4 mm. from the beak, distinct but not very



Text-figures of *Posidonia japonica* KOBAYASHI and HUKASAWA. A specimen, an internal mould ; B, C and D specimens clay-casts taken from their external moulds. ×2.

* Transactions of the Palaeontological Society of Japan, No. 115.

strong in the next 7 mm. and weakening in the peripheral zone; the ribs in the middle zone numbering seven to ten and *A*-shaped; fine radial lines crossing the ribs and furrows in the outer half.

Remark :——Four specimens illustrated are the cotypes. Seeing that the concentric ribs are broadly spaced in the middle part, narrowly spaced in the umbonal and peripheral parts, it may be judged that the specimens in figs. A and B are full-grown shells. Dimensions of the valve in the mature stage are about 22 mm. in length, 15 mm. in height and 2 mm. in thickness. Irregular winkles as frequently seen in *Estheria* cannot be observed in the specimens even under a high magnifying lens. In the external mould, however, there are very fine and numerous radial lines which are faintly impressed in the peripheral zone as seen in the specimens in figs. B and D, but they are not strong enough to be impressed in the internal mould. The absence of the radial ribs and the anterior triangular area precludes this form from *Daonella* as well as *Halobia*, and *Posidonia* remains for its generic reference.

With the assistance of Diener and Kutassy's catalogues[1] comparison was made with many Triassic species of the genus, as far as their literatures are accessible. Most of them are semi-elliptical or obliquely semi-ovate in outline, but subcircular in *P. wengensis* var. *cycloidalis* Kittl[2] and high oblique and elongated in *P. bosniaca*[3] and low oblique in *P. obliqua*[4]. *P. madisonensis* and *P. jacksoni*[5] are quite distinct from most others of *Posidonia*. The relative length of the hinge margin with the shell also varies among the species. The hinge line is long in *P. pannonica*, *P. böckhi*, *P. bittneri*[6], and several other species. In *P. bittneri*, *P. ovalis*, and *P. becheri* the radial marking is absent, but it may be present in *P. pannonica* and *P. wengensis*.

While this form agrees with *P. bittneri* and *P. pannonica*[7] in outline, the presence of weak radial lines shows its alliance to *P. pannonica* and *P. wengensis*. Therefore it is certain that this form belongs to the group of *P. pannonica*. Close comparison, however, reveals some differences between this and *P. pannonica*. Namely, the position of its umbo is more central and its outline is broader. Kittl who restudied Mojsisovics' types noted that *P. alta* is an immature form of *P.*

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1) C. Diener: (1923), Lamellibranchiata Triadica. Fossilium Catalogus, Pars. 19.
C. Diener & A. Kutassy: (1931), Lamellibranchiata Triadica. Fossilium Catalogus, Pars. 51.

2) E. Kittl: (1912), Materialen zu Einer Monographie der Halobiidae und Monotidae der Trias. Result. der Wiss. Erforsch. des Balatonsees, 1 Bd., Teil Pal., Bd. 2.

3) A. Bittner: (1903), Brachiopoden und Lamellibrachiaten aus der Trias von Bosnien, Dalmatien und Venetien. Jahrb. kaiserl.-königl. Geol. Reichesanst, 52 Bd.

4) H. Philipp: (1904), Paläontologisch-geologische Untersuchungen aus dem Gebiet von Predazzo. Zeitsch. deutsch. geol. Gesell., 56 Bd.

5) J.P. Smith: (1927), Upper Triassic Marine Invertebrate Faunas of North America. U.S. Geol. Su v., Prof. Pap., 141.

6) G. de Lorenzo: (1896), Fossili del Trias Medio di Lagonegro. Pal. Italica, Vol. 2.

7) E. v. Mojsisovics: (1873), Über einige Trias-Versteinerungen aus Süd-Alpen. Jahrb. kaiserl -königl. Geol. Reichsanst, 23 Bd.

pannonica and "*Daonella*" *obsoleta* is if not identical, extremely close to the species. If KITTL's reference is correct, the difference of outline in the young stage is certainly considerable between *P. pannonica* and *P. japonica*. The *pannonica* bearing limestone at Vászoly was referred to the Noric by MOJSISOVICS, but later to the Muschelkalk by KITTL. If its age is Aniso-Ladinic as cited in DIENER's catalogue, *P. pannonica* and *P. japonica* may be approximate in age, because the locality where the boulder was found lies near the top of the Inai series.

DIENER's *Posidonomya* aff. *pannonica*[1] from the Muschelkalk has a low oblique outline remarkably produced postero-ventrally through which it can easily be distinguished from *P. pannonica* as well as *P. japonica*. REED's *Posidonomya* cfr. *wengensis*[2] from the Middle Triassic Formation of Yunnan is a small specimen which resembles *P. japonica* in outline, but the comparison of the two in the same stage of growth shows the differences in that the concentric ribs are distinct, strong and widely spaced and fine lines radiate from the umbo in the former whereas in the latter the concentric ribs are weak, the furrows narrow and the radial lines absent. Furthermore the hinge line is relatively shorter in the former than in the latter. Compared to YIN's *P.* aff. *wengensis*[3] from the Ladinic formation of Omeishan which is evidently different from *P. wengensis*, this has more densely populated concentrics and less distinct radial lines, but both forms agree with each other in the subcentral position of the umbo.

北上山地南部井内統 (?) 産の *Posidonia* 1 新種 (摘要)

小林貞一・深澤恒雄

宮城縣本吉郡志津川町琵琶崎東方海岸の轉石中の *Posidonia* を研究結果, Aniso-Ladinic より記載されたる *Posidonia pannonica* に類似せる 1 新種なる事判明し *Posidonia japonica* と命名す。本化石を含む轉石は其の岩質と産地より井内統上部より將來せるものと推察す。

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1) C. DIENER: (1907), Fauna Himal. Muschelkalk. Pal. Indica, Ser. XV, Himal. Foss., Vol. 5, No.2.

2) F. R. Cowper REED: (1927), Palaeozoic and Mesozoic Fossils from Yunnan. Pal. Indica, N.S. 10, No. 1.

3) T. H. YIN: (1931), Sur une Petite Faune de Mollusques Provenant de la Marne Triasique d' Omeishan, Szechuan. Bull. Geol. Soc. China, Vol. 11.

日本古生物學會記事

Proceedings of the Palaeontological Society of Japan

昭和 15 年 10 月 12 日 日本古生物學會第 21 回例會を北海道帝國大學理學部地質學鑛物學教室に於て開催す(參會者 15 名)。講演者並に講演題目次の如し。

A New Species of *Yuanophyllum* from the Vicean of the Kitakami Mountainland, Japan
Takumi NAGAO and Masao MINATO

北海道に於ける *Circoporella semiclashrata* HAYASAKA の發見 (代讀) 矢部長克・杉山敏郎

On a Species of *Isogramma* from Manchoukuo Kotora M. HATAI and Tatuo OMURA

山西省太原府東山より採集せる古生界化石に就いて (代讀) 大塚彌之助

北海道及樺太産 *Acila* 屬の化石種に就いて 長尾 巧・藤岡一男

On a Species of *Parapachydiscus*, HYATT (s. str.) from the Hakobuti Group of Hokkaido
Takumi NAGAO and Kenitirô OTATUME

北海道及樺太新生代層の *Mya* 屬に就いて 長尾 巧・井上 武

熱河南栗紅螺峴附近の寒武・奥陶紀化石に就いて (代讀) 小林貞一

滿洲中生代植物の 2,3 に就いて 大石三郎

北海道樺太新生代植物の研究 (第 4 報) 藤岡一男

昭和 15 年 7 月 1 日以降 11 月 30 日迄の會員移動次の如し。

入會者 青地清彦 伊東朝登 竹内俊雄
深澤恒雄 長谷部言人

退會者 服部廣太郎 渡邊久吉 (死亡) 渡瀨正三郎 (死亡)
鈴木昌吉 (死亡)

SYSTEMATIC INDEX

(Note: Every reference is to the number of article)

PALAEOZOOLOGY

Protozoa

Coelenterata

Molluscoidea

Mollusca

Arthropoda

SYSTEMATIC INDEX

Vertebrata

PALAEOBOTANY

INDEX OF FOSSILS

Note: Every reference is to the number of article; words in italics are names of genera and species; words in heavy type, names of new genera and species.

M

N

O

P

R

日本古生物学會
報告・紀事

第 10 號—第 19 號

昭和 13 年—昭 和 15 年

Transactions and Proceedings of the Palaeontological Society of Japan

No. 10—No. 19

1938—1940

日 本 古 生 物 學 會

Palaeontological Society of Japan

The heading in Japanese commemorates the handwriting of Prof. M. YOKOYAMA, father of Japanese Palaeontology, who was Professor of Stratigraphy and Palaeontology at the Geological Institute, Faculty of Science, Imperial University of Tokyo.

CONTENTS

NUMBER 10

Transactions

NUMBERS 11-12

Transactions

NUMBER 13

Transactions

NUMBER 14

Transactions

NUMBER 15

Transactions

NUMBER 16

Transactions

NUMBER 17

Transactions

NUMBER 18

Transactions

NUMBER 19

Transactions

日本古生物學會規則

1. 本會ハ日本地質學會ノ部會ニシテ日本古生物學會ト稱ス
2. 本會ハ古生物學及ビ之レニ關スル諸學科ノ進歩ヲ助ケ斯學ノ普及ヲ圖ルヲ以テ目的トス
3. 本會ハ第2條ノ目的ヲ達スルタメニ總會及講演會ヲ開ク
4. 本會ノ紀事及ビ會員ノ寄稿ハ地質學雜誌ニ揭載シ，其ノ別刷ヲ日本地質學會々員ニアラザル本會々員ニ配布ス
5. 本會ノ會費ハ年額3圓トシ，日本地質學會々員ハ年額1圓トス，但シ一時ニ金100圓以上ヲ寄附セル者ヲ賛助會員ニ推ス
6. 本會ニ次ノ役員ヲ置ク

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評議員	數	名

7. 役員ノ任期ヲ1年トシ會員中ヨリ總會ニ於テ選擧ス

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(* 常務委員)

事務所——編輯所

東京帝國大學理學部地質學教室

日本古生物學會

(振替口座東京第84780番)

Constitution of the Palaeontological Society of Japan.

Article 1. The Society shall be known as the Palaeontological Society of Japan. It forms a section of the Geological Society of Japan.

Article 2. The object of the Society is the promotion of palaeontology and related sciences.

Article 3. This Society to execute the scheme outlined under Article 2, shall hold annual meetings and discussions.

Article 4. Proceedings of the Society and articles for publication shall be published through the Journal of the Geological Society of Japan. Separates and circulations will be sent to members of the Palaeontological Society who are not members of the Geological Society of Japan.

Article 5. The annual dues of this Society is two dollars for the foreign members of the Society.

Article 6. This Society shall hold the following executives. President one person, Councillors several persons.

Article 7. The President and Councillors shall be elected annually. The President and Councillors shall be elected from the Society body by vote of its members. All elections shall be ballot.

All communications relating to this Journal should be addressed to the

PALAEONTOLOGICAL SOCIETY OF JAPAN

Geological Institute, Faculty of Science, Imperial University of Tokyo, Japan