



北海道釧路炭田幾品層の有孔虫について

メタデータ	言語: English 出版者: 公開日: 2012-11-07 キーワード (Ja): キーワード (En): 作成者: 吉田, 三郎 メールアドレス: 所属:
URL	https://doi.org/10.32150/00000305

Foraminifera from the Ikusina Formation, Kusiro Coal-Field, Hokkaidô

(With 4 Text-figures, 1 Table and 1 Plate)

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吉田三郎：北海道釧路炭田幾品層の有孔虫について

INTRODUCTION

The Tertiary sediments of the Kusiro coal-field have been divided into the following groups and formations (Y. Sasa, 1953) :

Pliocene	Honbetu group	
	Siredoko group	Ikusina formation
Miocene		Kosikawa formation
	Tyurui group	
Oligocene	Onbetu group	
Eocene	Urahoru group	

Among them, Foraminifera from the Ikusina formation is here treated.

The Ikusina formation are well exposed along the Sekitan-zawa and Isiizawa, IKm. southwest of Atunai station, Nemuro Main Line, which contains several species of Foraminifera.

He wishes to express his cordial thanks to Professor Kiyosi Asano of the Institute of Geology and Paleontology, Tôhoku University who reviewed the manuscript, and Yasuo Sasa of the Geological and Mineralogical Institute, Hokkaidô University for his valuable suggestions.

IKUSINA FORMATION

The Ikusina formation of this district, which is about 800m thick, mainly consists of tuffaceous sandstone, siltstone and tuff, often with pumiceous coarse sandstone, pebble and diatomaceous siltstone intercalated. Sandstone is rather massive but sometimes cross-lamination is found. The dip of the formation is N 10-35°E, and the strike is 10-30°SE.

Y. Sasa (1940) discussed the stratigraphic significance of the Ikusina formation and concluded that the Ikusina formation overlies unconformably the Onbetu group. The relationship between the Ikusina and the underlying formation of this district is distinct

Figure 1- Columnar section at the Isii-zawa. Scale as indicated.

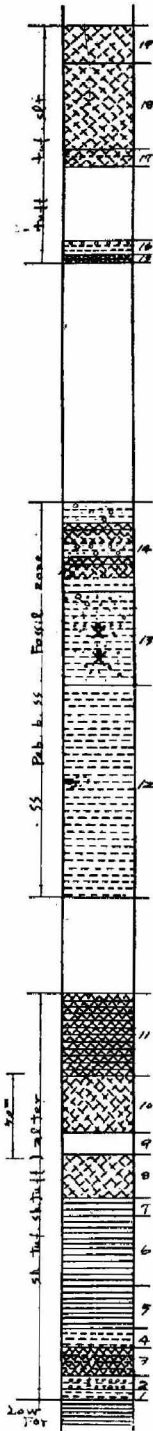


Figure 2- Columnar section at the Sekitan-zawa. Scale as indicated.

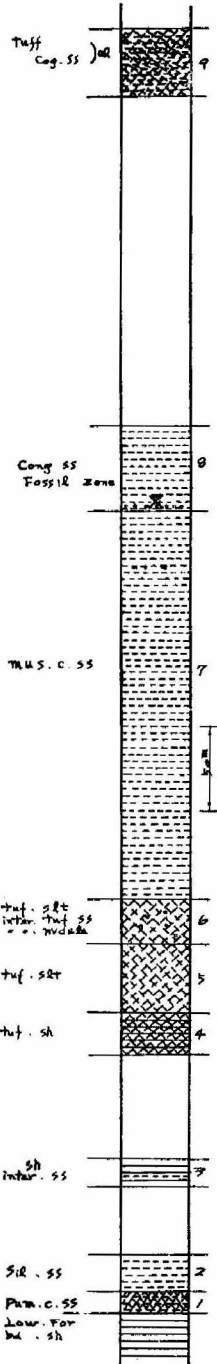
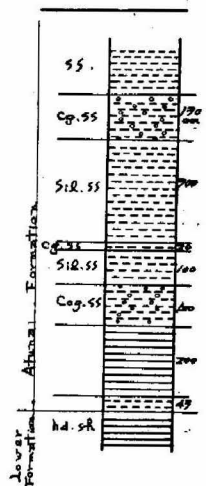


Figure 3- Relationship between the Atunai and lower formation along the Atunai river.



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in lithic character, but no marked erosion surface were observed by the writer. The writer calls the Ikusina formation, which is distributed in this area, Atunai formation (the re-definition by the writer).

The distribution and columnar section of the Atunai formation are given in Figures 1, 2, and 4, and the smaller foraminifera is listed in the Table 1.

Table 1—Foraminifera from the Ikusina Formation

Species	Localities	Sekitan-zawa	Isii-zawa
<i>Cibicides</i> cf. <i>altamiraensis</i> Kleinpell		92	3
<i>Cibicides lobatulus</i> (Walker & Jacob)		8	
<i>Cibicides</i> cf. <i>refulgens</i> (Montfort)		4	
<i>Rotalia</i> sp.		33	
<i>Eponides</i> sp.		36	1
<i>Discorbis ozawai</i> Asano		3	
<i>Discopulvinulina</i> sp.		3	
<i>Nonion pacificum</i> (Cushman)		5	
<i>Elphidium ozawai</i> Uchio		1	
<i>Elphidiella momiyamaensis</i> Uchio		6	
<i>Quinqueloculina</i> cf. <i>elongata</i> Natland		2	
<i>Quinqueloculina</i> sp.		5	
<i>Entosolenia lucida</i> Williamson		1	
<i>Lagena acuticosta</i> Reuss		2	
<i>Uvigerina</i> sp.		8	
<i>Bolibina</i> cf. <i>marginata</i> Cushman			2
<i>Cassidulina</i> cf. <i>laevigata carinata</i> Cushman		33	

FOSSIL FORAMINIFERA

Foraminiferal faunule occurs mainly in the marine molluscan bed of the conglomeratic coarse sandstone (Figure 2, No. 8). This fossil bed is traced from the Sekitan-zawa to the Isii-zawa and A-valley (Figure 4.)

In this fossil bed, *Glycimeris yessoensis* is especially common, and others are *Panope*, *Mya*, *Macra*, *Mercenaria*, *Buccinum* and *Pecten*, etc.

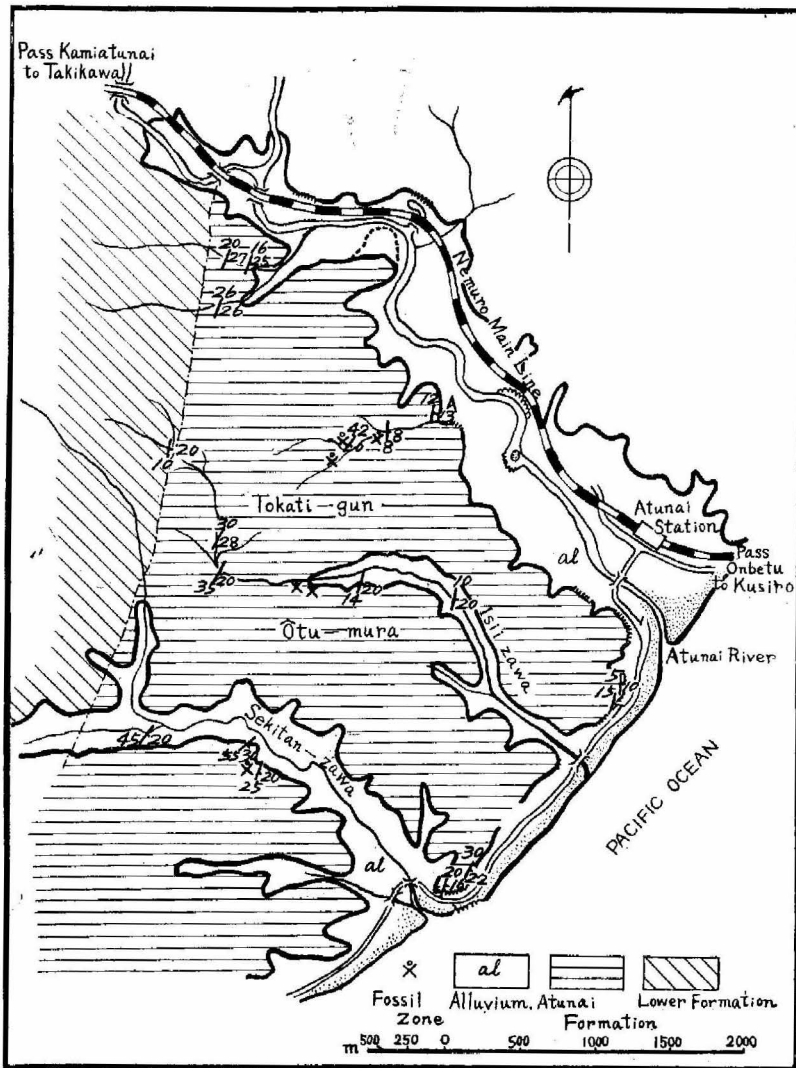
Foraminifera examined consists of 7 families, 13 genera and 19 species, and rather poor in the number of species. The common species are :

Cibicides cf. *altamiraensis* Kleinpell, *Rotalia* sp., *Eponides* sp.,
Cassidulina cf. *laevigata carinata* Cushman

Among them, *Cibicides* cf. *altamiraensis* is most common species and was recorded from the Miocene Takinoue formation in the Isikari coal-field, western Hokkaidô (K. Asano, 1952). *Elphidiella momiyamaensis* was found in the Momiyama formation (Miocene) by T. Utio (1951), but in Hokkaidô, this species is frequently found in the Takikawa formation (upper Pliocene).

Cassidulina cf. *laevigata carinata* is found in the Miocene formation of the north west coast of America, and in Hokkaidô the species is found in the middle Miocene Onnagawa.

Figure 4-Geological Map of Atunai District 1955. S. Yosida



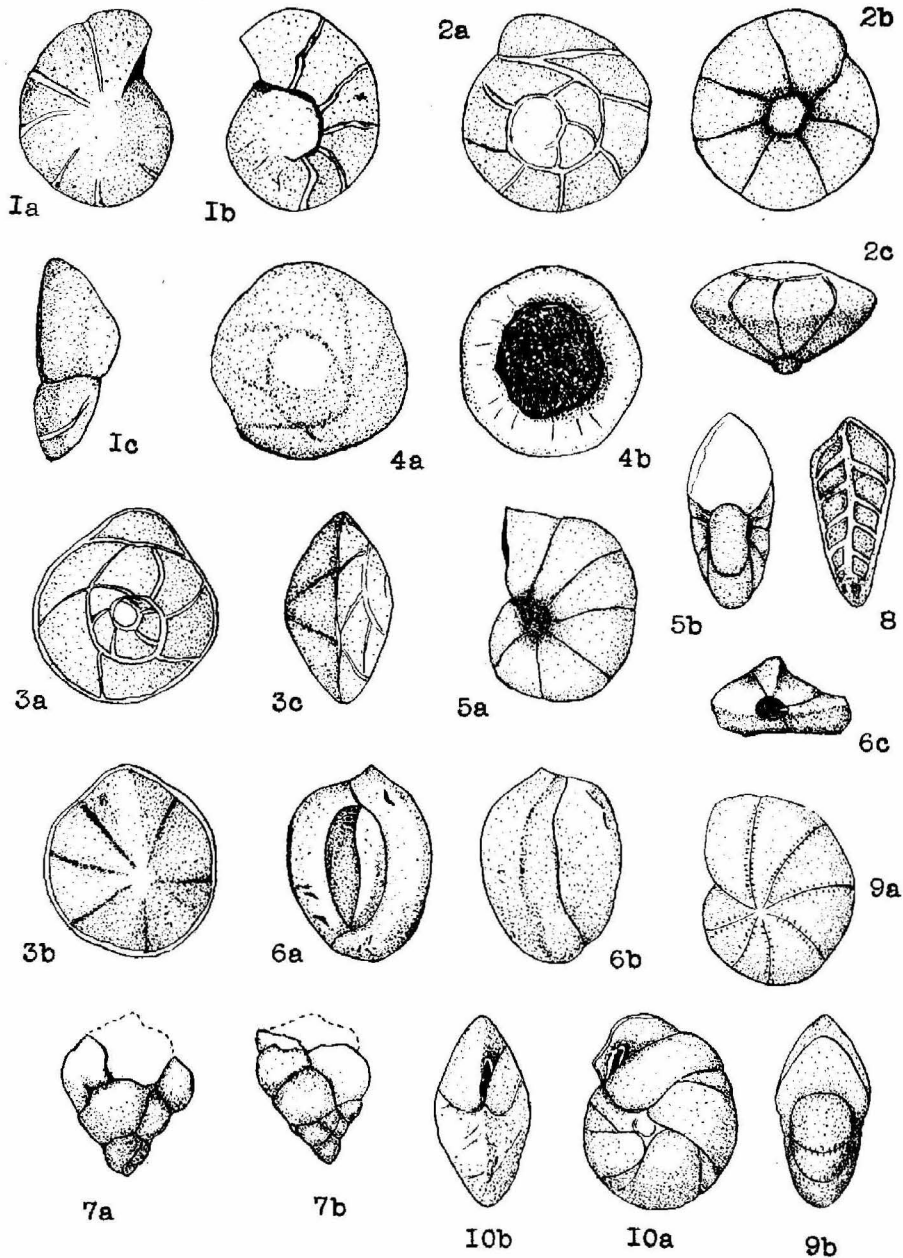
Besides, Kiyosi Asano treated some Tertiary Cyclammina of Japan, and concluded that the stratigraphic distribution of Tertiary Cyclammina of Japan is restricted from Eocene to upper Miocene, as in the Circum Pacific region, and moreover he reported some Cyclammina from the Nuibetu and Tyaro formation, Onbetu group in the Kusiro coal-field and Kosikawa formation. But in the present specimens, no Cyclammina is found at all. But Cyclammina prefers a peculiar environment and it is difficult to determine exactly its geological age, although some species are related to the Japanese Miocene assemblages.

SYSTEMATIC DESCRIPTION

Family Anomalinidae

Genus *Cibicides* Montfort, 1808

Cibicides cf. *altamiraensis* Kleinpell



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EXPLANATION OF PLATE 1

- Figs. 1a-c—*Cibicides* cf. *altamiraensis* Kleinpell x 45. 2a-c—*Rotalia* sp. x 85.
 3a-c—*Eponides* sp. x 60. 4a-b—*Discopulvinulina* sp. x 100.
 5a-b—*Nonion pacificum* (Cushman) x 50. 6a-c—*Quinqueloculina* sp. x 40.
 7a-b—*Uvigerina* sp. x 50. 8—*Bolibina* cf. *marginata* Cushman x 80.
 9a-b—*Elphidiella momiyamaensis* Uchio x 65. 10a-b—*Cassidulina* cf. *laevigata carinata* Cushman x 60.

Pl. 1, Figs. 1a, 1b, 1c.

Cibicides altamiraensis Kleinpell, 1938, Mioc. Str. Calif., p. 351, pl. 19, figs. 4, 5, 8,

Test strongly plano-convex, nearly flat on dorsal side, convex on ventral side, periphery not lobulate, acute, about 7 broad chambers in last whorl, increasing very gradually in size; sutures limbate, earlier whorls on the flattened dorsal side covered with secondary material; wall finely perforate; aperture a narrow curved slit. Diameter up to 0.5mm.

Family Rotaliidae

Genus *Eponides* Montfort, 1808

Eponides sp.

Pl. 1 figs. 3a, 3b, 3c,

Test subcircular in outline, biconvex, periphery subacute, 2—3 whorls visible on dorsal side; about 6 chambers in last whorl; sutures limbate and oblique on dorsal side, radial and often filled with shell material on ventral side; aperture a short slit between peripheral and umbilical margins. Diameter up to 0.5mm, Width 0.3mm.

Genus *Rotalia* Lamarck, 1804

Rotalia sp.

Pl. 1, figs. 2a, 2b, 2c.

Test biconvex, composed of 3 whorls, periphery subacute; 7 chambers in last whorl; sutures limbate and flush on dorsal side, deeply excavated and nearly radial on ventral side; umbilicus raised, with a round plug of clear shell material; wall smooth; aperture a narrow slit at ventral border of last chamber. Diameter up to 0.4mm, Width 0.2mm.

Genus *Discopulvinulina* Hofker, 1951

Discopulvinulina sp.

Pl. 1, figs. 4a, 4b.

Several specimens were found in the material. The specimen figured stands close to *D. hofkeri* Asano in the character on dorsal side, but different on ventral side. Diameter up to 0.3mm.

Family Nonionidae

Genus *Nonion* Montfort, 1808

Nonion pacificum (Cushman)

Pl. 1, figs. 5a, 5b.

Nonion pacificum Cushman, 1939, U. S. Geol. Surv., Prof. paper 191, p. 25, pl. 6, fig. 25.

Test is somewhat longer than broad, but other characters are very similar to the typical form. Diameter up to 0.4mm, Width 0.2mm.

Genus *Elphidiella* Cushman, 1936

Elphidiella momiyamaensis Uchio

Pl. 1, figs. 9a, 9b.

Elphidiella momiyamensis Uchio, 1951, Jour. Geol. Soc. Japan, 57(671), p. 372, pl. 5, fig. 7

Test planispiral, completely involute, subcircular in side view, broadly elliptical in apertural view, periphery rounded, slightly lobulate; chambers usually 8 in last whorl; sutures slightly curved, very slightly depressed, retral processes very numerous, consisting of double lines of very minute pores and without septal bridges; wall smooth; aperture

an arcuate slit at the base of apertural face of last chamber. Diameter up to 0.35mm, Width 0.2mm.

Family Miliolidae

Genus *Quinqueloculina* d'Orbigny, 1826

Quinqueloculina sp.

pl. 1, figs. 6a, 6b, 6c.

Test broadly oval in outline, roughly pentagonal in transverse section; chambers distinct, peripheral margin rounded, often almost flattened; wall smooth; aperture oval. Tooth is not found.

Family Buliminidae

Genus *Uvigerina* d'Orbigny, 1826

Uvigerina sp.

Pl. 1, figs. 7a, 7b.

Several incomplete specimens were found in the material, more complete specimens are need to settle its specific position.

Genus *Bolivina* d'Orbigny, 1839

Bolivina cf. *marginata* Cushman

Pl. 1, fig. 8

Bolivina marginata Cushman, 1918, Bull. 676, U. S. Geol. Surv., p. 48, pl. 10, fig. 1.

Test elongate, much compressed, periphery keeled; chambers distinct, both ends gently tapering; chambers numerous; sutures distinct, limbate, oblique; wall smooth, finely perforate; aperture narrow, elongate. Length up to 0.4mm.

Family Polymorphinidae

Genus *Cassidulina* d'Orbigny, 1826

Cassidulina cf. *laevigata carinata* Cushman

Pl. 1, figs. 10a, 10b.

Cassidulina laevigata var. *carinata* Cushman, 1922, U. S. Nat. Mus., Bull., no. 104, p. 124.

Test subcircular in outline, lenticular in side view, with thickness of test more than one third its diameter, periphery round; chambers distinct, 4 pairs in last whorl, rather broad, curved; sutures distinct, slightly depressed, not limbate; wall smooth; umbilical region a small stellate area; aperture elongate, comma-shaped, nearly parallel to axis of coiling. Diameter up to 0.4mm.

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