

Discovery of *Fusulina* Fauna of the Taishaku Limestone (Studies of the Stratigraphy and the Microfossil Faunas of the Carboniferous and Permian Taishaku Limestone in West Japan, No. 7)

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Abstract : This paper treats of the description of the *Fusulina* sp. A which is the representative species of the Carboniferous *Fusulina* sp. A fauna discovered from the Ippaimizu area of the northeastern part of the Taishaku Limestone in Hiroshima Prefecture. The fauna is able to correlate with the *Fusulina* faunas described from Kyushu, Shikoku and central Japan, and its geologic age is thought to be Late Moscovian (Late Desmoinesian).

Key words : *Fusulina* fauna, Eimyoji Formation, Taishaku Limestone, Late Moscovian, Hiroshima Prefecture, Kibi-highland

Introduction

The *Fusulina* faunas have been described from the Yayamadake Limestone of Kyushu (Kanmera, 1954), the Ichinotani Formation of Fukuji in the southwestern part of the Hida Massif (Igo, 1957), and the Itadorigawa Group of western Shikoku (Ishii, 1958). However, the *Fusulina* faunas have not been reported from any limestone masses such as the Atetsu Limestone (Sada, 1965), the Nakamura Limestone (Sada, 1980) and the Koyama Limestone (Yoshimura, 1961) in the so-called Kibi-highland of central Chugoku. Recently, the *Fusulina* sp. A fauna was discovered from the Carboniferous of the Taishaku Limestone in the Ippaimizu area near Tojo Town, Hiroshima Prefecture (Yoshida and Sada, 1986). This is new to science for the biostratigraphical studies of the Taishaku Limestone in the Ippaimizu area. The description of this fauna is given in this paper.

Fusulina fauna of Taishaku

The Carboniferous fusulinacean faunas of the Taishaku Limestone have been studied by the following works : Hujimoto (1944), Okimura (1966), Hase et al. (1974), Sada

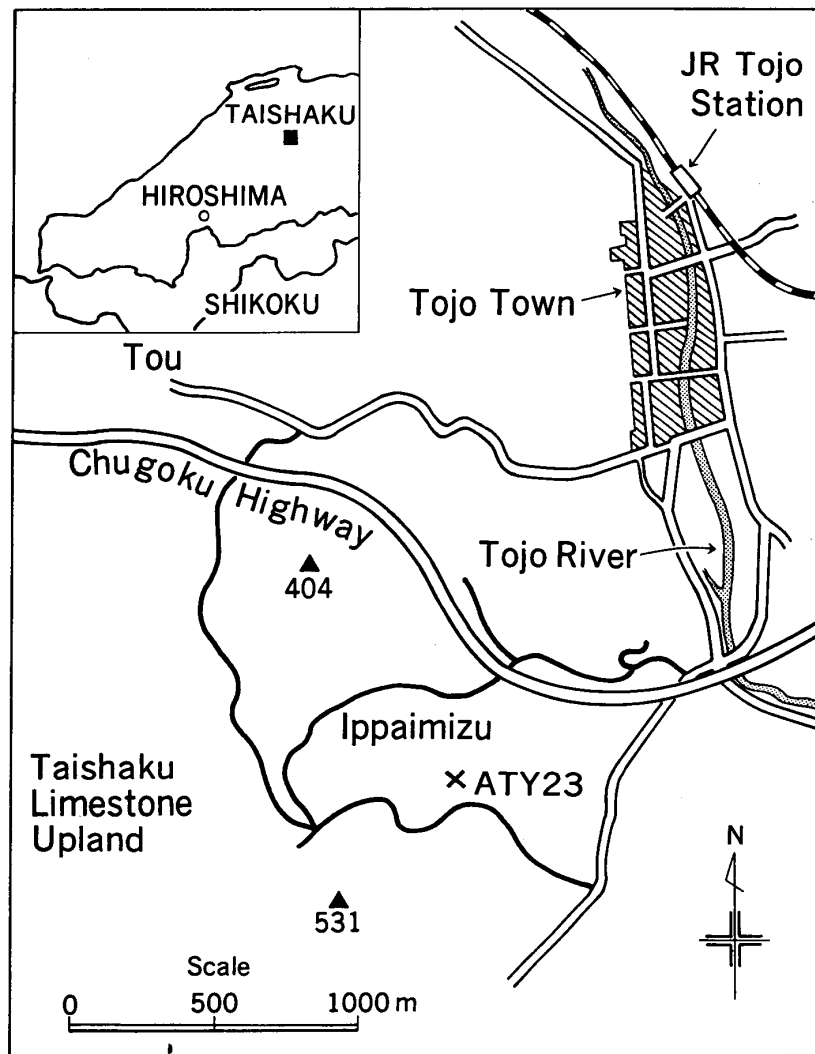


Fig. 1. Map showing the fossil locality in the Ippaimizu area near Tojo Town, Hiroshima Prefecture.

(1967, 1969, 1970, 1972, 1975 and 1984). The Carboniferous of the Taishaku Limestone was divided into two formations in upward sequence: the Dangyokei Formation and the Eimyoji Formation. The Dangyokei Formation contains the *Mediocris*, the *Eostaffella kanmerai* fauna and the Eimyoji Formation contains the *Millerella bigemmicula*, the *Profusulinella toriyamai* and the *Fusulinella taishakuensis* fauna (Sada, 1967, 1969, 1970, 1972, 1975 and 1984).

The *Fusulina* sp. A fauna (Loc. ATY 23) was discovered in the upper horizon than *Fusulinella taishakuensis* fauna of the Eimyoji Formation in the Ippaimizu area near Tojo Town. The *Fusulina* sp. A fauna in limestones consisting of biomicrite is composed of *Fusulina* sp. A, *Fusulinella biconica* (Hayasaka), *F. taishakuensis* Sada and *Eoschubertella* sp. and this fauna can be easily distinguished from the *Fusulinella taishakuensis* fauna by the occurrence of *Fusulina* sp. A. Recently, *Fusulina quasicylindrica* zone was established by Ueno and Mizuno (1993) at Unata in the southern part of the Taishaku Limestone Upland in Jinseki-Gun, Hiroshima Prefecture.

Description of species

Family Fusulinidae von Möller, 1878

Subfamily Fusulininae von Moller, 1878

Genus *Fusulina* Fisher de Waldheim, 1829

Type species : *Fusulina cylindrica* Fischer de Waldheim, 1830

Fusulina sp. A

Fig. 2 – 1 - 5

Descriptive remarks.—The shell of *Fusulina* sp. A illustrated as Fig. 2–1-5 is large for the genus and fusiform in shape, with a straight axis of coiling and rounded polar region. The lateral slopes are almost convex in the outer volutions. The specimen (Rg.No. UHATY24-24) illustrated as Fig.2–1 is 4.00 mm. in length and 1.75 mm. in width, giving the form ratio of 2.28. The outside diameter of the proloculus is 94 μm . The radius vectors of the 1st to the 7th volution of the specimen are 132, 188, 264, 358, 491, 661, and 868 μm , respectively. The spirotheca is composed of a tectum, diaphanotheca and upper and lower tectoria in the outer volutions. The thickness of the spirotheca of the 1st to the 7th volution is 18, 18, 16, 27, 20, 29 and 23 μm , respectively. The septa are thin and narrowly and highly fluted throughout the length of the shell.

Fusulina sp. A somewhat resembles *Fusulina ohtanii* Kanmera (1954,136-138, pl.8, fig. 30; pl. 14, figs. 12-20) and *Fusulina regularis* Ishii (1958, pl. 1, fig. 2; pl.3, figs. 7-13). The final identification, however, is to be postponed until more material is obtained. The systematic description of this fauna will be given in near future.

Occurrence.—The associated fusulines are *Fusulinella biconica* (Hayasaka), *F. taishakuensis* Sada and *Eoschubertella* sp. Fossil locality is Loc. ATY-23.

Concluding remarks

The *Fusulina* sp. A fauna discovered from the Taishaku Limestone is similar in the generic composition to the *Fusulina kurikiensis* fauna (Kanmera, 1954), *Fusulina kanmerai* fauna (It2)(Ishii, 1958) and the *Fusulina ichinotaniensis* fauna (Igo, 1957). They may be of equivalent in age and their geologic age is thought to be Late Moscovian (Late Desmoinesian).

Fusulina sp. A fauna of Taishaku can be considered to indicate the possibility of the occurrences of the *Fusulina* faunas in the Atetsu, the Nakamura and the Koyama Limestone in the so-called Kibi-highland of the central Chugoku region. Thus, from the reasons stated above, it is worthy of note that the *Fusulina* sp. A fauna was discovered from the Ippaimizu area of Taishaku.

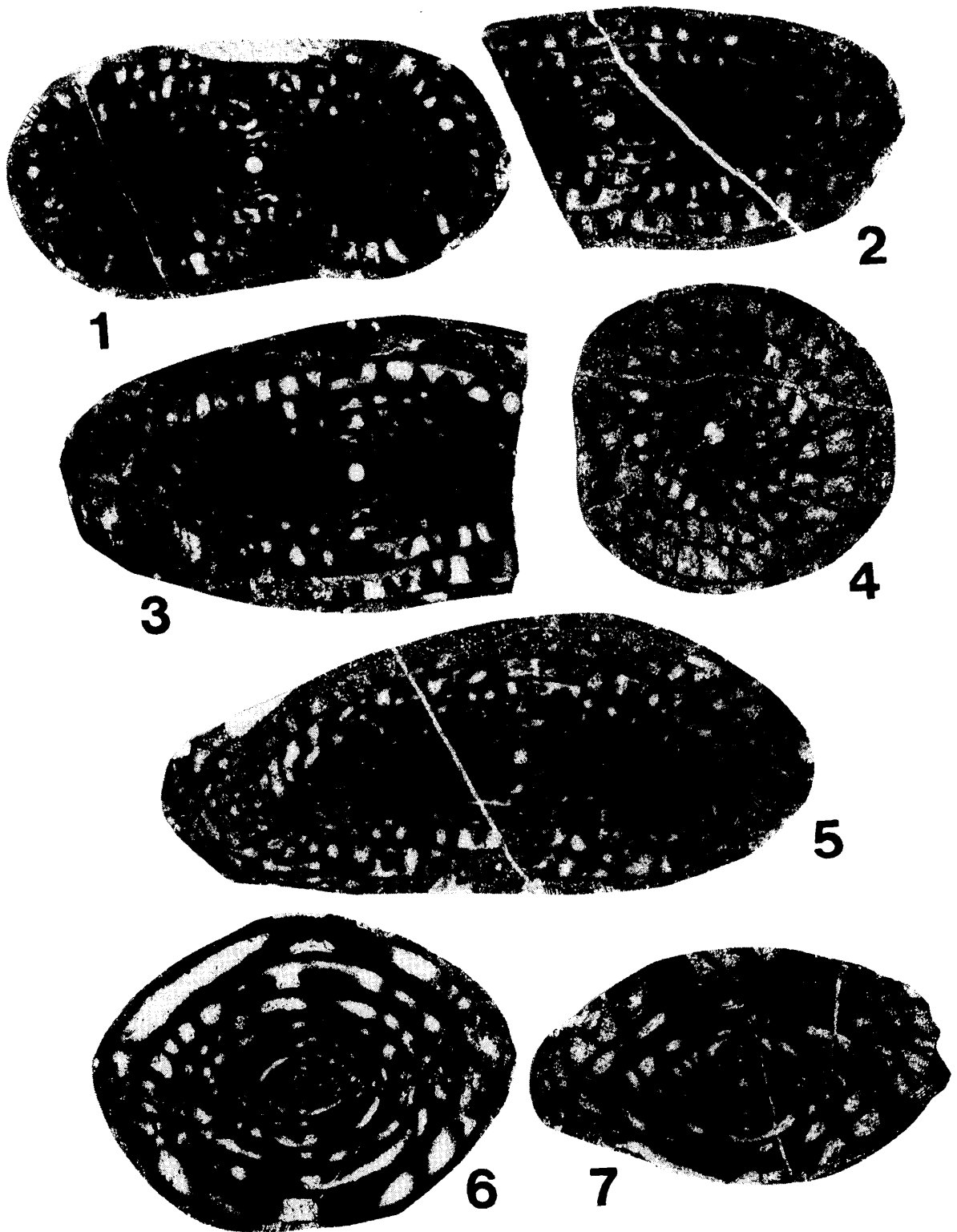


Fig. 2. 1-5. *Fusulina* sp. A. 1-4. Axial sections, Rg. No. UHATY24-24, UHATY24-82, UHATY24-108 and UHATY24-100, respectively. 5. Sgittal section, UHATY24-57. 6-7. *Fusulinella biconica* (Hayasaka). 6-7. Axial section, UHATY24-29 and UHATY24-103, respectively. All figures X 20.

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