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CARCINOPHYLLUM FROM THE ICHINOTANI FORMATION IN FUKUJI, CENTRAL JAPAN

by

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(with 1 text-figure and 1 plate)

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Abstract

Carcinophyllum lonsdaleiforme is described from the Ichinotani Formation, Fukuji district, Gifu Prefecture, Central Japan.

The Geological age of the horizon with *Carcinophyllum* is discussed.

Introduction

Quite recently Niikawa (1978) established the Zone of *Eostaffella* in the lowest part of the Carboniferous Ichinotani Formation, Fukuji district, Central Japan. Within this zone there have been two coral horizons recognized (Minato & Kato, 1957; Kato, 1959), although Igo (1956, 1957, 1959) and Fujimoto & Igo (1958) questioned the separation of two coral horizons.

The present author could confirm the presence of two coral horizons within his Zone of *Eostaffella* (Niikawa, 1978). The lower coral horizon, *Siphonodendron hidense* Zone of Minato & Kato (1957), is definitely Upper Viséan as it yields *Eostaffella proikensis* Rauser-Chernousova as well as such corals as *Kueichouphyllum*, *Dibunophyllum*, *Palaeosmilia*, *Heterocaninia*, all of them show affinity with the Onimaru corals of Upper Viséan.

While the age of the upper coral horizon, based on corals, was suggested as Namurian by Minato & Kato (1957). From about the same horizon with this coral horizon which Minato & Kato called the *Neokoninckophyllum nipponense* Zone Igo (1978) recently recorded the occurrence of a Namurian conodont species, *Idiognathoides noduliferus*. Therefore the Namurian age for this coral horizon is now ascertained.

The author collected from the upper coral horizon the following corals. *Arachnolasma cylindrica* Yü, A. sp., *Dibunophyllum* sp., *Lithostrotion portlocki* (Bronn), *Palaeosmilia murchisoni* Edwards & Haime, *Carcinophyllum lonsdaleiforme* Salée, "*Neokoninckopyllum*" *nipponense* Kato, *Koninckophyllum* sp., "*Chienchangia*" *minatoi* (Kato), and *Lonsdaleia duplicata* (Martin).

In this short note, the author is given to describe *Carcinophyllum lonsdaleiforme* which has been unknown in this country and which is believed to be a Namurian representative of that species.

Acknowledgement

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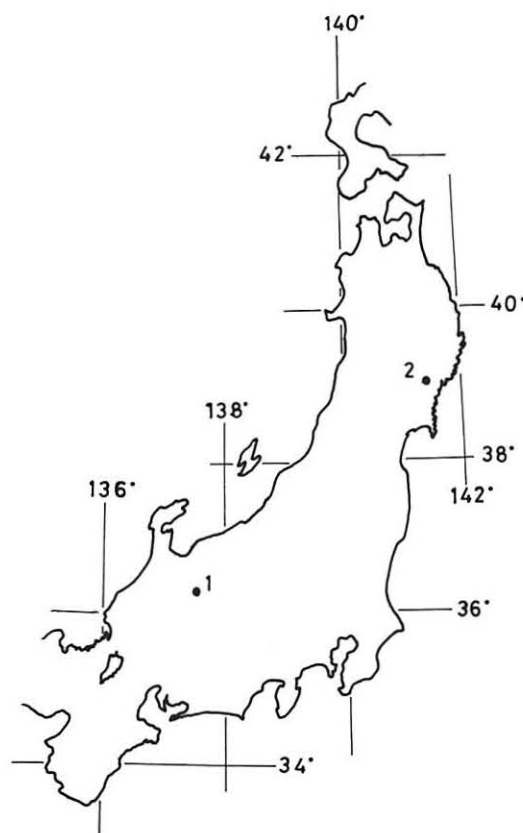
Description of the Species

Order Rugosa Milne-Edwards & Haime, 1850

Family Carcinophyllidae Fomitchev, 1953

Genus *Carcinophyllum* Thomson & Nicholson, 1876

Generic Diagnosis: Small, solitary rugose coral with axial structure and conico-cylindrical



Text-figure 1 Index map, showing the distributions of *Carcinophyllum* in Japan.

1: Fukuji. 2: South Kitakami Mountains

corallite. Septa numerous, diffuso-trabecular in fine structure, and are interrupted from the wall by the development of lonsdaleoid dissepiments in advanced forms. Major septa reach near the axial structure and are dilated in the tabularium. Minor septa are short and confined or intruded for very short distance into the tabularium.

Axial structure is composed of median plate, several distinct septal lamellae and many tabellae. Dissepimentarium is composed of coarse and concentric dissepiments in primitive species; and both widely, irregularly lonsdaleoid ones and concentric ones in advanced species. Tabularium consists of transverse tabulae and or clinotabulae.

Carcinophyllum lonsdaleiforme Salée

(pl.1, figs.1-7)

1913 *Carcinophyllum lonsdaleiforme* Salée, p.264-269, pl.11, figs.2-3.

1913 *Clisiophyllum latevesiculosum* Salée, p.216-221, pl.5, figs.6-8.

1951 *Carcinophyllum lonsdaleiforme*, Gorsky, p.82, pl.17, figs.5a-b.

1966 *Carcinophyllum lonsdaleiformis* var. *pauciseptata* Bikova, p.83-85, pl.9, figs.1-2.

1973 *Carcinophyllum lonsdaleiforme*, Sayutina, p.107-108, pl.17, fig.1.

Material: UHR. 30402, the float in the Ichinotani valley, coll. M. Kato; UHR. 30403, the upper coral horizon (Loc. 21 on text-fig. 2, p. 534 by Niikawa, 1978) in the Ichinotani valley, Fukuji.

Description: Corallum simple, small and perhaps conico-cylindrical, attaining 25 mm in the largest diameter, as far as it is preserved.

In transverse section, corallite is round in outline, but peripheral part of one specimen is variously eroded away. Corallite is consisting of moderately thick wall, wide dissepimentarium, wide tabularium and axial structure with spider's web structure.

Axial structure is round to oval in outline, measures 5.5 to 6 mm. It is composed of several short septal lamellae, 6 to 8 rows of axial tabellae and a median plate which is slender, and sometimes touches a major septum. Septa are numerous and thin, but somewhat thickened in tabularium. In fine structure they are diffuso-trabecular. As many as 40 major septa are counted in a section of which the largest diameter is 25 mm, and extend to the axial structure. They are sometimes rotated near the periphery of the axial structure. Minor septa are alternated with the major, and a little intruded into the tabularium. Septa are commonly straight in tabularium, however somewhat sinuous in the dissepimentarium. No septa are connected to the wall, because they are interrupted by irregular sized lonsdaleoid dissepiments.

Cardinal and alar fossula are not observed. Tabularium is wide, about 1 mm in the longest short diameter. Cut edges of tabulae are observed between septa. Dissepimentarium is wide and composed of large and irregular lonsdaleoid dissepiments and narrow, small concentric ones which are arranged in 6 to 8 rows.

In longitudinal section, dissepimentarium, tabularium and axial structure are clearly discernible. Dissepiments are large, irregular and flattened in the periphery and small, vertical near the tabularium. Tabularium consist of sparsely arranged clinotabulae and tabellae. Axial structure is composed of rather crowded axial tabellae, septal lamellae and a straight median plate.

Remarks: The present species is characteristic in having well developed lonsdaleoid dissepiments and oval to round axial structure which consists of a long median plate, many axial tabellae and short septal lamellae. From the characteristics above described, the present species is identical with *Carcinophyllum lonsdaleiforme* Salée from Belgium, however the former has well developed lonsdaleoid dissepiments, thinner median plate and less dilated major septa.

So-called "*Carcinophyllum*" of Hill (1940) to my mind, has only 3 species, *C. lonsdaleiforme*, *C. vughani* and *C. delepini*, all of which were described by Salée (1913) from Belgium. Compared with *Carcinophyllum lonsdaleiforme*, *C. vughani* and *C. delepini* have weakly developed lonsdaleoid dissepiments and simple axial structure which consists of short and thick median plate, less numerous axial tabellae and very distinct and thick septal lamellae.

Discussion

Carcinophyllum first appears from C2 in the British Isles and a primitive "lonsdaleoid *Carcinophyllum*", *C. θ Vaughan* (= *Carcinophyllum vughani* Salée) is known from S2. It has rudimental lonsdaleoid dissepiments. *Carcinophyllum vughani* in Belgium also is from S2 to D1. Advanced type of "lonsdaleoid *Carcinophyllum*", *C. lonsdaleiforme* and *C. delepini*, are from D2 to D3 in Belgium. They have more developed lonsdaleoid dissepiments.

In the USSR, an advanced type is known from the lowest to lower Namurian of Nowaya Zemlya by Gorsky (1951), from Namurian (Cnd-1) of Central Kazakhstan by Bikova (1966), and from Serpukhovian of North Ural by Sayutina (1973). *Carcinophyllum lonsdaleiforme* in Nowaya Zemlya is quite identical with the syntype from Belgium. In Kazakhstan, Bikova described this form as *Carcinophyllum lonsdaleiforme* var. *pauciseptata* which has very well developed lonsdaleoid dissepiments. However this form is, to the present author, inseparable from *C. lonsdaleiforme*, although lonsdaleoid dissepiments are very well developed in this Kazakhstan form. And *Carcinophyllum lonsdaleiforme* in North Ural is very similar to the present species and is intermediate with regard to the development of lonsdaleoid dissepiments in between the Belgian as well as the Nowaya Zemlya form and Kazakhstan type.

Also *Carcinophyllum lonsdaleiforme* is from the Tatung series which is correlated with C2-S to D Zones in the Kwangsi Province, South China. And Lo & Zhao (1962) described several species of *Carcinophyllum* from Yuanophyllum Zone (Yc) in Chi-Lien-Shan, North

Explanation of Plate 1.

(Figs. 1-5 × 2, Figs. 6-8 × 2.5)

Figs. 1-5 *Carcinophyllum lonsdaleiforme* Salée, UHR30402, the float in the Ichinotani valley, coll. M. Kato. figs. 1-4: transverse section. fig. 5: longitudinal section.

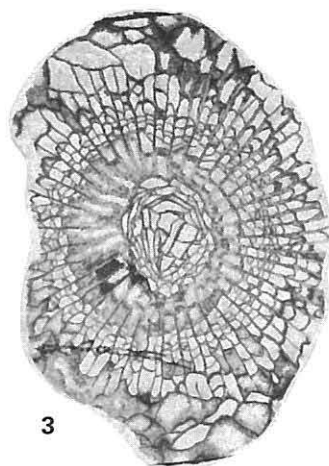
Figs. 6-8 *Carcinophyllum lonsdaleiforme* Salée, UHR30403, the upper coral horizon (Loc. 21 on text-fig. 2, p. 534 by Niikawa, 1978), figs. 6-7: transverse section, fig. 8: longitudinal section.



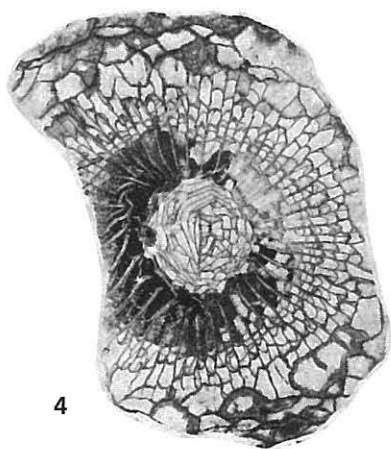
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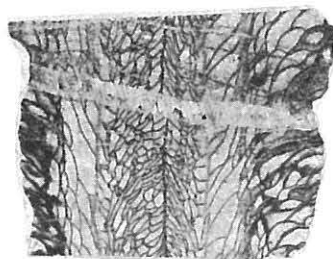
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west China which is correlatable with the upper S2 to the lower D1 European standard. Among them a "lonsdaleoid *Carcinophyllum*" in this area is *C. vauhani* of primitive type.

In Japan, Minato (1955) described *Carcinophyllum onukii* from the Onimaru Formation, Upper Viséan, in South Kitakami Mountains.

This is the only *Carcinophyllum* known in Japan so far. But the species has thick skeletal element and ill developed dissepiments, and is therefore easily distinguished from the present form.

Conclusion

Carcinophyllum lonsdaleiforme first appears from D2, but Soviet representatives, which possess more well developed lonsdaleoid dissepiments than the Belgian syntypes, are all lower Namurian in age. Therefore the present Japanese form which is so identical with the Soviet forms of *C. lonsdaleiforme* may be regarded also as the Lower Namurian in age.

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