

A NEW SPECIES OF *LONSDALEOIDES* FROM TOKUSHIMA PREFECTURE, SOUTHWEST JAPAN*

Nobuo YAMAGIWA

The Osaka University of the Liberal Arts and Education

The species described in this article was collected by Kagetoshi Hashimoto from a reddish limestone within a schalstein member of the so-called Chichibu complex at Omidani, north of Sakasyu, Kisawa-mura, Naka-gun, Tokushima Prefecture, Southwest Japan. Recently the formation containing the species was surveyed by Ichikawa, Ishii, Nakagawa, Suyari & Yamashita (1953) and by Hirayama, Yamashita, Suyari & Nakagawa (1956).

According to Ichikawa and others, the formation is mostly composed of reddish or greenish basic tuffs, intercalating cherts, limestones and slates. *Chaetetes* sp., other corals, stromatoporoids and gastropods were discovered in the limestone, and *Fusulinella* sp. in a boulder possibly derived from the limestone. In these respects, they considered the age of this formation to be Upper Carboniferous.

This formation was later referred by Hirayama and others to their Sawadani group, which contains the *Neoschwagerina craticulifera* fauna of the Middle Permian, besides other Permian faunas. According to their geological map, a distinct fault runs, however, between the formation containing the present species and the formation containing the *Neoschwagerina craticulifera* fauna. Therefore, the writer considers that the former may be different from the latter in horizon.

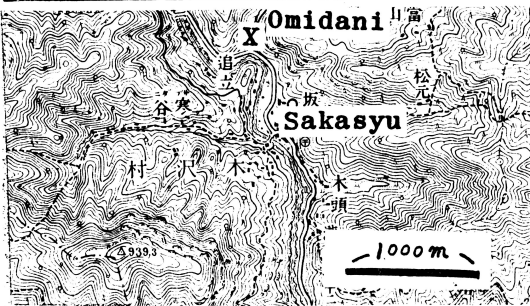
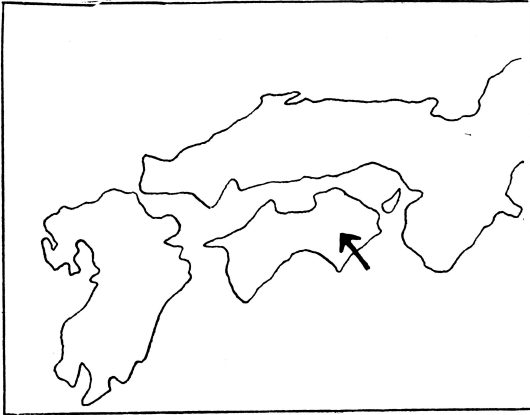
The type species of the genus *Lonsdaleoides*, *L. boswelli* Heritsch, 1936 was reported from the Lower Permian in the Carnic Alps, but the two other known species, *L. toriyamai* Minato and *L. enormis* (Ozawa) from the Carboniferous (*Clisaxophyllum awa* zone) of Japan (Minato & Kato, 1957, 1958).

In these respects, the writer considers that the formation containing the present species may be lower and middle Upper Carboniferous in age.

Heartly thanks are here expressed to Prof. H. Fujimoto of the Yamagata University for his continued encouragement, to Assist. Prof. K. Nakazawa of the Kyoto University who gave him a much-needed specimen for study and to Mr. K. Hashimoto, the collector of the specimen. Acknowledgements are also due to Assist. Prof. S. Sakaguchi of the Osaka University of the Liberal Arts and Education and Assist. Prof. K. Ichikawa of the Osaka City University for the trouble they took in discussing the

* Contribution from the Osaka Museum of Natural History, no. 67.

Read at the 71st meeting of the palaeont. Soc., Japan at Urawa, May 21, 1960.



Locality Map: X Locality

species described below.

Description of Species

Genus *Lonsdaleoides* Heritsch, 1936
em. Minato, 1955

Lonsdaleoides shikokuensis n. sp.

Pl. 1, figs. 1, 2, 3, 4, 5

Corallum fasciculate, corallites cylindrical. Calicural diameter 12-17 mm in transverse section in mature stage. Outer wall thick and prominent.

In mature stage, peripheral area composed of numerous lonsdaleoid dissepiments which are comparatively wide, but often lacking partly where normal concentric dissepiments are developed. Major septa long, thick, 20-30 in number and usually connected with the axial structure in mature stage. Minor ones shorter, about 1/2 as long as the major. Many septa not connected with the

outer wall. Axial structure sub-elliptical in transverse section in mature stage, composed of axial tabellae, less numerous septal lamellae and a median plate, all of which are covered by stereoplasmic deposits. The median plate distinct and much thicker than the other elements. In the axial structure, septa and dissepiments, younger stages resemble in some cases the genus *Cionodendron* and in some other cases genus *Siphonodendron*? or *Lophophyllidium*?

Comparison: This species closely resembles the type species of the genus *Lonsdaleoides*, *L. boswelli* Heritsch, 1936 (pp. 129, text-fig. 33) in many respects, but differs from the latter, having much broader peripheral area with lonsdaleoid dissepiments in transverse section. This resembles the type species of the genus *Lonsdaleia*, *L. duplicata* (Martin) (Smith, 1915, pp. 238-241, pl. 17-figs. 1-4, pl. 18-fig. 1) in some respects, but differs from the latter, having a different ontogeny and a dilated axial structure in mature stage. Lastly the ontogeny of *L. duplicata alstonensis* was studied by Smith (1915, pp. 241, pl. 17, figs. 5-24). According to him, it may be derived from *Thysanophyllum*-like coral. Recently Minato (1955, pp. 157, 163 & 166) considered that the genus *Lonsdaleoides* might be derived from the corals, which resembles *Cionodendron*, through the *Lophophyllidium*-stage. As described above, the

present species resembles *Cionodendron* in a certain younger stage, and also has a dilated axial structure to be characteristic of the genus *Lonsdaleoides* in mature stage. The writer considers, therefore, that the species belongs to the genus *Lonsdaleoides* rather than to the genus *Lonsdaleia*. It is closely allied to *L. toriyamai* Minato (1955, pp. 165-167, pl. 3-fig. 6, pl. 16-fig. 7, pl. 23-figs. 1-3, text-figs. 21, 22; Minato & Kato, 1958, pp. 173, 174, text-fig. 1) in many respects. It differs, however, in having less numerous septal lamellae in axial structure in transverse section. It differs from *L. enormis* (Ozawa) (1925, pp. 69, pl. 14, fig. 1-4; Minato, 1955, pl. 23-figs. 4, 5, pl. 38-fig. 4) in having a distinct and thicker median plate and much broader peripheral area with lonsdaleoid dissepiments in transverse section.

Locality and Horizon : Omidani, north of Sakasyu, Kisawa-mura, Naka-gun, Tokushima Prefecture, Southwest Japan. Probably lower or middle Upper Carboniferous.

Repository : Deposited in Geol. & Mineral. Institute, Univ. Kyoto. Reg. no: JPC. 40028 (Holotype) and in the Osaka Museum of Natural History. Reg. no. : F 7847 C (Paratype).

Reference

- Heritsch, F. (1936): Korallen der Moskauer-, Gshel- und Schwagerinen-Stufe der Karnischen Alpen. *Palaeontogr.* Bd. 83, Abt. A, pp. 99-162, pls. 17-18.
- Hirayama, K., Yamashita, N., Suyari, K. & Nakagaya, C. (1956): Explanatory text of the Sheet Kenzan (1/75000). Tokushima-ken.
- Ichikawa, K., Ishii, K., Nakagawa, C., Suyari, K. & Yamashita, N. (1953): On "Sakasyu-unconformity". *Jour. Gakugei. Tokushima Univ., Nat. Sci.*, vol. 3, pp. 61-74.
- Minato, M. (1955): Japanese Carboniferous and Permian Corals. *Jour. Fac. Sci. Hokkaido Univ.*, ser. 4, vol. 9, no. 2, pp. 1-202, pl. 1-43, text-figs. 1-24.
- Minato, M. & Kato, M. (1957): On the Carboniferous Coral Zones in the Akiyoshi plateau, Southwest Japan. *Proc. Japan. Acad.*, vol. 33, pp. 541-546.
- Minato, M. & Kato, M. (1958): A short note on *Lonsdaleoides toriyamai* Minato. *Trans. Proc. Palaeont. Soc. Japan*, N., S., no. 29, pp. 173-174, text-fig. 1.
- Ozawa, Y. (1925): Palaeontological and Stratigraphical Studies on the Permo-Carboniferous of Nagato, Part. 2, art. 6, pp. 1-90, pls. 1-16.
- Smith, S. (1915): The genus *Lonsdaleia* and *Dibunophyllum rugosum* (M' Coy). *Quar. Jour. Geol. Sci.* vol. 71, pp. 218-272, pls. 17-21.