ALVEOLITES LEMNISCUS SMITH FROM THE UPPER SILURIAN OF SEDEF ADASI (ANTIROVITHA) WITH REMARKS ON THE GENERA ROSEOPORELLA AND KITAKAMIIA

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ABSTRACT. — The object of this contribution is to describe the topotype specimen of *Roseoporella praecedens* Weissermel, which is an absolute synonymy of *Alveolites lemniscus* Smith, from the Upper Silurian strata of Sedef Adası, and to make some remarks on the genera *Roseoporella* Spriestersbach and *Kitakamiia* Sugiyama.

INTRODUCTION

Some fossil specimens collected by Paeckelmann from the Upper Silurian strata of Sedef Adası (Antirovitha) in the Sea of Marmara, İstanbul, Turkey, were examined and identified by Weissermel (1939, p. 110), who thought two of them were new representatives of the genus Roseoporella, and named them *Roseoporella praecedens,* which he believed was a Stromatoporoidea. However, a recent examination of the topotype specimen of *Roseoporella praecedens* Weissermel shows that the species is not a Stromatoporoid as Weissermel thought, but it is a Tabulate Coral which is identical with *Alveolites lemniscus* Smith.

The topotype specimen was collected by the author and is preserved in her own collections.

I am indebted to Prof. I. Ketin who kindly arranged an excursion to the Island and supplied me with the necessary information concerning the stratigraphical position of the strata I also thank those who prepared the thin sections and photographed them.

Alveolites lemniscus Smith

Pl. I, figs. 1-7

Alveolites lemniscus Smith, 1933, p. 140, pl. II, fig. 8; pl. III, figs. 1-3.

? Roseoporella rhenana Spriestersbach, 1934, p. 487, pl. 42, fig. 4; pl. 43, figs. 1-4 (if not conspecific at least congeneric).

Roseoporella praecedens Weissermel, 1939, p. 110, pl. XII, figs. 3-6.

Kitakamiia mirabilis Sugiyama, 1940, p. 113, pl. XXXII (XX), figs. 3-6.

Only critical works are mentioned in the above brief synonymy.

Diagnosis. — Alveolites with compressed corallites, which are sub-quadrangular in section, have thin walls and few large mural pores. Septal spines are not present.

Description of the Turkish specimen.—The specimen, which is a large corallum originally measured 27 cm. by 14 cm. by 7 cm., has convex upper surface and concave lower surface. A series of thin sections made from the specimen shows that the corallum is

built up of very much flattened corallites, which are more or less sub-quadrangular in section and are superposed one above another in columns. In their longer axis the corallites vary from 1 to 1.25 mm,, in their shorter axis they are only about 0.2 mm. Septal spines are not observed. In the longitudinal section the corallites are more or less parallel to the upper surface, but they are somewhat undulated near the base. The walls are thin and the mural pores are fairly large. The tabulae are very thin, flat and usually about 1-3 in 1 mm., but they are not always observable since the interstices of the skeleton are filled up with colourless calcite ur argillaceous matrix.

Remarks.—The above description, which is based upon the topotype specimen of *Roseoporella praecedens* Weissermel, agrees in every respect with *Alveolites lemniscus* Smith. Weissermel, who erroneously included *Roseoporella praecedens* in Stromatoporoidea, gave a description of this species which can be summarized as follows:

The specimens are massive, discoidal, globose or thick lamellar in form, made up of thin laminae (25 in 5 mm.) between which there are thin and thick vertical elements.

There is no doubt that Weissermel thought the parallel, horizontal walls of corallites as laminae, and the short, vertical walls and the tabulae as the piliers of Stromatoporoidea.

Weissermel, who examined the original sections of the genotype of Roseoporella, considered that his species differed from the German type by being massive, globose or thick lamellar in form and having less prominent concentrically arranged «pores». In my opinion these features are not sufficient to establish a new species, because the thin lamellar form and prominent concentrically arranged «pores» —observed in the type specimen of *Roseoporella*

PLATE - I

Alveolites lemniscus Smith

Figs. 1-2 - *Alveolites lemniscus* Smith, topotype specimen of *Roseoporella praecedens* Weissermel, Sed. 1, Upper Silurian, Sedef Adası (Antirovitha), Sea of Marmara, Istanbul, Turkey.

Fig. 1 - Vertical section of the colony showing transverse section of the corallites.

Fig. 2 - Vertical section of the colony showing longitudinal section of the corallites.

Figs. 3-4 *Alveolites lemniscus* Smith, original figures of Smith, 1933, pl. III, fig. 2-3, *Spirifer cultrijugatus* Zone, lower part of Middle Devonian, Fourmies, Northwest France.

Fig. 3 - Paratype V, vertical section, transverse section of the corallites.

Fig. 4 - Paratype II, vertical section, longitudinal section of the corallites.

Figs. 5-6 - *Roseoporella praecedens* Weissermel, original figures of Weissermel, 1939, pl. 12, figs. 3 and 6, Antirovitha.

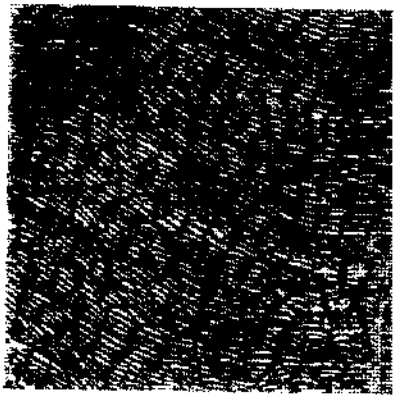
Fig. 5 - Longitudinal section.

Fig. 6 - Transverse section.

Fig. 7 - *Kitakamiia mirabilis* Sugiyama, a part of the original figure of Sugiyama, 1940, pl. XXXII (XX), fig. 3, Halysites Limestone (Gotlandian), Kitakami Mountainland, Northeast Japan.

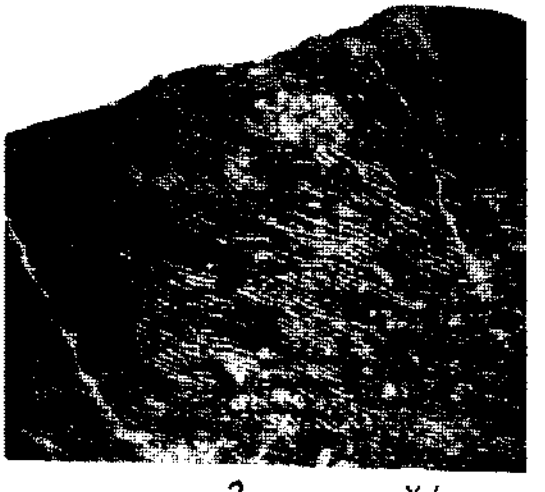
Fig. 7 - Longitudinal section.

1 x 4

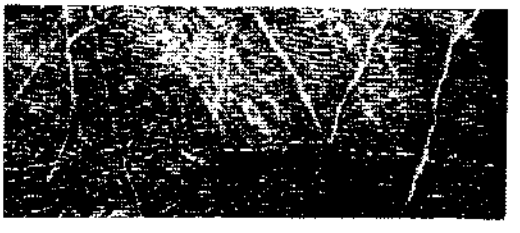


3 x 4

4 x 2



2 x 4



5 3.5

6 x 3

7 x5

rhenana — are certainly due to its young stage, its development on a sandy, calcareous rough surface and its having been exposed to erosion.

Spriestersbach, who established the genus of Roseoporella, regarded the concentrical arrangement of the «pores», which he measured 1 mm. long and 0.5 mm. wide, as the chief distinguishing character of his genus. I do not think that this feature is sufficient to be of generic value; it is more or less due to environment. As a matter of fact, somewhat similar forms have been observed on the Turkish specimens of Alveolites which developed on rough surfaces and have been exposed to erosion. The «concentrically arranged pores» of Spriestersbach are no more than the corallites of Alveolites, opening obliquely to the surface. Although Spriestersbach did not observe vertical elements in his type specimen, it is evidently because the interstices of his coral were filled up by colourless calcite. Unfortunately I have not seen his sections, but it appears that there is no essential difference between *Roseoporella praecedens* Weissermel and *Roseoporella rhenana* Spriestersbach. I suggest that both must be considered as the synonymy of *Alveolites lemniscus* Smith, and included in Tabulate Corals.

Sugiyama (1940, p. 113) erected the genus Kitakamiia upon a species which he named *Kitakamiia mirabilis* from the Halysites Limestone (Gotlandian) of the Kitakami Mountainland region in Northeast Japan. But, judging from the original figures of Sugiyama, the longitudinal section of the Japanese specimen (pl. I, fig. 7) agrees very closely with Smith's (pl. I, fig. 3) and mine (pl. I, fig. 1). In Sugiyama's figure the superposition of the corallites is very clear as in *Alveolites lemniscus* Smith. It is evident that the Japanese author considered these superposed corallite walls as the horizontal and vertical elements of Stromatoporoidea. I do not hesitate also to include the species of *Kitakamiia mirabilis* in the synonymy of *Alveolites lemniscus* Smith.

Horizon and distribution.— Alveolites lemniscus Smith is typically found in the Lower Middle Devonian of Fourmies, Northwest France. As far as I am aware the species has not been recorded below the lower Middle Devonian. Up to now the Turkish representatives of the species have been found in the Middle and Upper Devonian fauna, but the specimen which is described above has been picked up from the Upper Silurian strata of Sedef Adası. If the strata belong to the Upper Silurian, as Weissermel and Paeckelmann thought, this will be the first occurrence of *Alveolites lemniscus* Smith from this horizon. If I am right in my judgment on the species of *Kitakamiia mirabilis* Sugiyama, the coral will also exist in the Upper Silurian of Japan. Therefore, the vertical range of the species of *Alveolites lemniscus* Smith will be Upper Silurian - Devonian.

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