A BEAUTIFUL PLASMOPOROID CORAL FROM THE FENGCHU SHALE OF LOWER SILURIAN IN SW. CHEKIANG.

(With one plate)

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The Fengchu Shale of Silurian age is typically developed in the Changshan-Chiangshan (常山江山) region of SW. Chekiang, but so far its fossil content remains little known. C. C. Liu[1] and Y. T. Chao in 1926, first discovered a number of Graptolites, chiefly *Monograptus* and *Climocograptus* in its lower bed, yet they could not be specifically determined due to their poor state of preservation. During 1930, the author[2] accompanied by Mr. Y. Chiang made a geologic trip to SW. Chekiang, they happened to find a rich fauna occurring in the uppermost part of the Fengchu Shale from a village called Shihyangwei (任陽尾) quite near Chekiang-Kiangsi border. This fauna consists mainly of Brachiopods including very abundant shells of *Strepheodonta* and a few *Rhynchonella* cf. *borealis* associated with a large beautiful specimen of compound coral. From preliminary determination, this coral can be compared with a European species *Plasmopora tubulata* (Lonsdale) which is also known from the Chienshui Limestone[3] of Silurian in Tsingling region. During his stay in the Geological Survey Laboratory at Peiping in the late summer of 1931, the author made a number of sections for microscopic study and carefully examined its internal structures. It is very interesting to note that this beautiful coral shows characters quite similar to a Norwegian species *Plasmoporella convexotabulata* (Kiar) from the Lower Silurian formation of Staraestangen, Ringeriske. It is also noticeable that our Brachiopod fauna with this beautiful coral comes from the highest part of the Fengchu Shale and thus must be distinct from the Graptolite fauna occurring in its basal part, i. e. they should represent two different faunal horizons, though the whole formation of Fengchu Shale has been referred to Lower Silurian. This coral may be now described as follows:—

1. C. C. Liu & Y. T. Chao—Geology of SW. Chekiang. Bull. Geol. Surv. China, No. 9, 1927, p. 19.
2. S. S. Yoh & Y. Chiang—Geology of the Coal Fields of SW. Chekiang. Ann. Rep. Geol. Surv. K. K. Vol. 3 pt. 1, p. 18, 1930.
3. A. W. Graban—Stratigraphy of China, Pt. 1, p. 132, 1923-24.

Plasmoporella convexotabulata var. *Chekiangensis* Yoh var nov.

1899 *Plasmoporella convexotabulata* Kiar, Die Korallenfaumen der Etage 5 des Norwegischen Silursystems, Palaeontographica, Vol. 46, pp 35-36, Pl. V, Figs 9-11.

Corallum large, semispherical with a flat basal common epitheca which is concentrically wrinkled. It has a maximum diameter of 20 cm. and a thickness of 11.5 cm. Autopores are entirely embedded in the vesicular coenenchyma of siphonopores. The former corallites usually closely set, separated from one another with a space less than their diameter which is invariably 2 mm.

In transverse sections, the autopores are radiated with 12 strong septa which are prolonged into the form of costæ. Septa very short, equally developed and chiefly wedge-shaped with their thinner ends towards the centre. They appear in vertical section as narrow continuous lamellæ which cut accross their wall with equal length on either side. Accordingly the theca of each autopore is divided into 12 corresponding convex arcs, each of them is interposed between two short septa. This results in the formation of a petaloid section of the autopores. No "aureola" of the typical *Plasmopora* is found in the surrounding area of the autopores. The siphonopores cannot be well-defined as they are entirely filled up by the vesicular tissue of coenenchyma, and their walls finally become lost. Thus the interspaces of autopores are wholly occupied by many irregulaly curved lines as observed in the transverse section.

In longitudinal section, the tabulæ of autopores are very numerous and closely set. They are mostly incomplete but usually coalesced by two or three convex vesicles. They are also not infrequently intercalated with some complete ones which are chiefly convex, but rarely horizontal or concave. Siphonopores typically vesiculose, built of numerous convex vesicles in different sizes and shapes but invariably horizontally disposed. They are mostly highly convex with a number of flat ones. Owing to the lateral extension of the horizontally arranged vesicles in irregular ways, the theca of siphonopores are almost wholly destroyed, except in very few cases, vestiges of theca still can be detected only where the vesicles are arranged in rather regular vertical rows. Neither aculæ nor becilli are observable in both section. Propagated apparently by epithecal gemmation.

This form appears to be the intermediate species between the groups of *Plasmopora* and *Propora* as our form is characterized by typical vesicular coenenchyma of *Propora* and exsert septa of *Plasmopora* but without "aureola" of the later. The Chinese form at our disposal conforms almost in every respect with the Norwegian species *P. convexotabulata*, except the abundant aculæ occurred in the latter are entirely absent in the former. Accordingly the author here would rather make the Chinese species a new variety.

Horizon and Locality: From the upper beds of the greenish fragile shale of Lower Silurian (Fengchu Shale) near Shihyanwei (任岩尾), Changshanhsien in SW. Chekiang. Coll. S. S. Yoh and Y. Chiang in 1930.

Explanation of

Plate I.

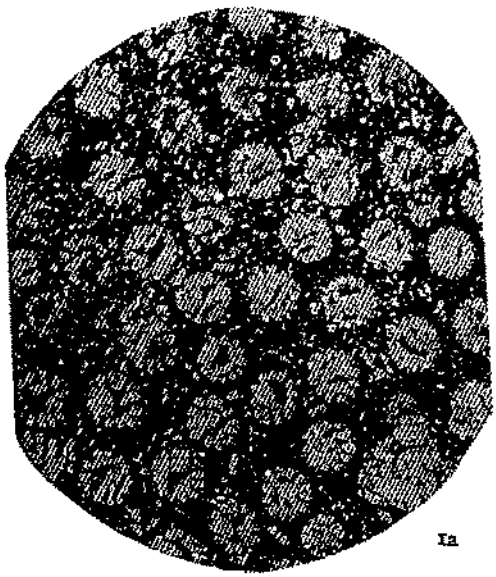
Fig. 1. *Plasmoporella convexotabulata* var. *chekiangensis* Yoh var nov.

1a. Transverse section × 3 showing the closely set autopores and the highly vesiculose siphonopores.

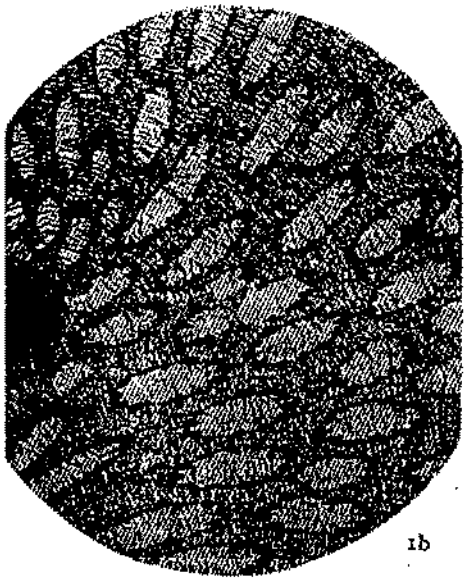
1b. Longitudinal section of the same specimen × 3, showing the crowded and convex tabulæ in both autopores and siphonopores.

1c. Transverse section of 1a × 6, showing the 12 strong septa and the petaloid form of autopores.

1d. Longitudinal section of 1b × 6.

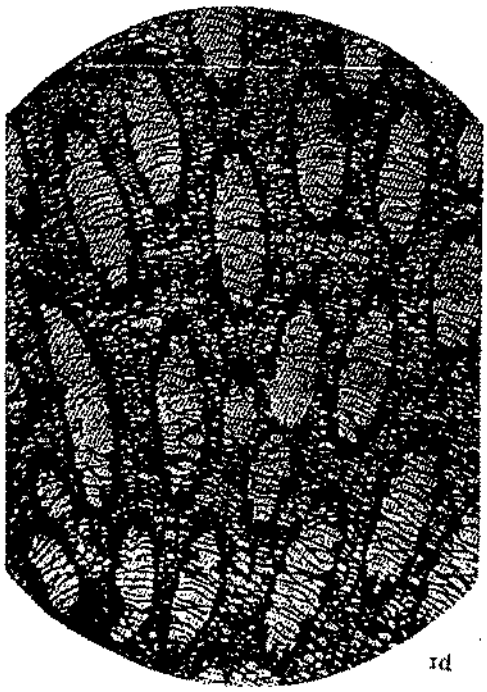


1a



1b

1c



1d