

DESCRIPTIONS OF TWO SPECIES OF CHAETETES FROM
THE MOSCOVIAN OF NORTH CHINA.

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WITH ONE PLATE.

Genus *Chaetetes* Fischer 1837

Chaetetes penchloensis Chu (sp. nov.)

Fig. 1 a-c.

Corallum massive, composed of long irregular prismatic and often curved corallites, which are completely amalgamated by means of their epithecae and show no trace of divisional lines between them. Epitheca imperforate, rather thick, equalling about one fourth the diameter of the theca. Calyx unknown, but longitudinal sections reveal the presence of hollow tubes about two millimeters deep measured from the upper surface of the corallum to the first tabula. Corallites not uniform in size. In transverse sections they appear in two kinds of irregular rotund polygons, namely, rounded and elongated. The former type comprises more than fifty percent of the whole corallites and its diameter equals about one-third a millimeter on an average, whereas the latter is generally one fourth of a millimeter in the short diameter and about one-half of a millimeter in the long one. These two types are rather irregularly distributed and show no definite relationship to each other. Septa wanting. Corallites sometimes exhibit an inward short projection from the epitheca, and occasionally another one occurs on the opposite side. On longitudinal sections they partake of the appearance of a vertical lamella. The true nature of these projections was maintained by Lonsdale as due to incomplete fission of the old tubes. These projections are very, short, being less than one-tenth of a millimeter, and appear to be very rare in the main mass of the present species, but comparatively common in those corallites which are situated on the marginal portions. Tabulae complete, thin, generally flat though sometimes also gently concave or convex. They are rather variable in number, being about one third of a millimeter or more apart. They are often placed at corresponding levels in contiguous corallites, so that the corallum appears to be conspicuously composed of concentrically disposed strata.

The present form resembles *Chaetetes radians* Fischer from the Moscovian of Russia (Nicholson's Palaeozoic Tabulate Corals, Pl. XII, Fig. 4-4b)

but differs from it pronouncedly in the much thinner epitheca. The shape of the corallites also does not quite conform between them. In *C. radians* the corallites are more irregular and elongate, while the reversal holds true for our Chinese species. Moreover, the inward projections of the corallites are shorter and occur much less frequently in the present form. The present species shows also a certain resemblance to *G. subradians* Mansuy (fig. 11 a-c on Pl. XX of Paleotologie, Geol. du Yunnan Oriental, Mem. Serv. Géol. de l'Indo Chine, 1912) in the respect of the scarceness of the corallites with inward projections, but differs from it in the much larger size, the thinner epitheca, etc.

The following table serves to show the differences between *Ch. radians* and *Ch. penchiensis*.

	<i>C. radians</i> Fisch.	<i>C. penchiensis</i> Chu
Diameter { rounded form	0.5* mm	0.25—0.45 mm
{ elongate form { long	0.7* mm	0.4 —0.5 mm
{ short	0.4* mm	0.2 —0.3 mm
Thickness of epitheca	0.2 —0.25 mm	0.05—0.1 mm
Distance between tabulae	0.52—0.55*mm	0.3 —0.5 mm
Length of projection.	0.1 —0.2 mm	0.05—0.08 mm
Percentage of elongate form.	70 —80	30—40
Percentage of rounded form.	50 —20	70—60
Percentage of corallites with projection.	40	Few

Horizon and Locality:— Moscovian; Penchi Series. Penchi limestone, Penchiu, Fengtien. (Loc. No. 1903).

Chaetetes tangshanensis (Grabau) Chu.

Fig. 2 a-c.

1923 *Alveolites tangshanensis* Gr. Stratigraphy of China

Part I, p. 256. (listed).

The present form is not unlike the preceding one but the size is smaller and the corallites are very irregular. The transverse sections show irregular polygonal corallites, which may also be divided into a rounded and an elongate type. The rounded ones are about one-fourth millimeter in diameter while the elongate ones are one-fifth millimeter in the short diameter and about one-half millimeter or less in the long diameter. Epitheca very thick, due to

* The numbers with asterisk are obtained from the original descriptions and the rest are taken after Nicholson's figures.

stereoplastic deposit. It is about one-sixth a millimeter thick or sometimes equals one-half the diameter of the thecarium. The thick epitheca and the irregular and generally elongate outline of the corallites in transverse sections make the appearance of this species much more nearly like that of the typical *C. radians* than that of *C. penchiensis*. Tabulae rather uniform in arrangement, about one-fourth millimeter apart and much denser than those in *C. penchiensis*. They are sometimes also thickened but never so pronounced as the epitheca. The inner surface of the epitheca is very rough so that transverse sections are not always clear, especially when they are examined by transparent light but all the features of the corallites may be distinguished in longitudinal sections and with reflected light in transverse sections.

The present form shows a close resemblance to *C. radians* Fischer, as mentioned above, but is distinguished from it by the smaller size, thinner epitheca, denser tabulae, and less number of inward projections of the corallites. From *C. penchiensis*, the species differs in the more elongate and irregular corallites, thicker epithecae, more numerous and denser tabulae, etc. The following table shows the dimensions of the species under consideration and the Russian *C. radians* (The numbers with asterisk are obtained from original descriptions and the rest are taken after Nicholson's figures).

	<i>C. radians</i> Fisch	<i>C. tangshanensis</i>
Diameter { rounded form	0.5* mm	0.17-0.25 mm
{ elongate from { short	0.4* "	0.1 -0.25 "
{ long	0.7* "	0.3 -0.45 "
Thickness of epitheca	0.2-0.25 "	0.1 -0.15 "
Distance between tabulae	0.52-0.55* "	0.15-0.35 "
Length of projection	0.1-0.2 "	0.07-0.17 "
Percentage of elongate forms	70-80	60-70
" " rounded "	30-20	40-30
Percentage of corallites with projection	40	20-30

Horizon and Locality:—Moscovian Penchi series. In the Tangshan Limestone, Tangshan, Chihli. The species is associated with *Choristites mosquensis*, *Girtyina honnoi*, *Girtyina cylindrica*, *Neofusunilla bocki*, etc.

Explanation of Plate I.

PLATE I.

(Photographs by K. H. Hsü)

- Fig. 1a-c. *Chæteles penchiensis* Chu (sp. nov.)
1a. Transverse section (enlarged 10 times)
1b. Longitudinal section (enlarged 10 times)
1c. Longitudinal section showing the radial growth (enlarged 3 times).
- Fig. 2a-c. *Chæteles langshanensis* (Grabau) Chu.
2a. Transverse section (enlarged 10 times)
2b. Transverse section more or less diagrammatically represented (enlarged 10 times).
2c. Longitudinal section (enlarged 10 times).

