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A NEW SILURIAN RUGOSE CORAL FROM BRITAIN

by

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(with 1 Text-Figure and 1 Plate)

Contribution from the Department of Geology and Mineralogy,
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In July 1960 the writer collected a colony of rugose coral from the Wenlock limestone of Wenlock Edge, in Welsh Border, Britain.

Although corals are in general abundantly found in the Wenlock limestone, curiously they have long been left undescribed faunistically in terms of modern classification. No doubt there must be a number of hitherto unknown corals within the Wenlockian fauna, which ought to be described in detail in future.

A coral now brought into consideration is one of such cases, showing intermediate nature between streptelasmids and tryplasmids. It is the purpose of this short note to describe the coral which the writer believes to be new to science.

Before going further with description the writer acknowledges with many thanks the encouragement and guidance of Professor M. MINATO of the Hokkaido University and Dr. H. DIGHTON THOMAS of the British Museum of Natural History, during the preparation of this article. Acknowledgement is also due to the British Council for a scholarship 1959/61, during the tenure of which a part of the present study was carried out in Britain.

Phylum Coelenterata FREY & LEUCKART, 1847
Class Anthozoa EHRENBERG, 1834
Order Rugosa MILNE-EDWARDS & HAIME, 1850
Suborder Cystiphyllina NICHOLSON, 1889
Family Tryplasmataceae ETHERIDGE, 1907
Genus *Wenlockia* nov.

Type species: *Wenlockia thomasi*, gen et sp. nov.

Generic diagnosis: Corallum compound, fasciculate and dendritic, consists of slender corallites. Septa monacanthine, unitrabecular, denticulated and in one order. Cardinal fossula prominent. Stereozone thick. Tabulae complete and concave. Dissepiments absent.

Distribution: At present the new genus is represented by the type species only,

which is known from the Wenlock Edge, in the Wenlock limestone of middle Silurian age.

Wenlockia thomasi, gen et sp. nov.

Pl. 30, Figs. 1-5; Text-fig. 1

Holotype: UHR 18586 from the Wenlock limestone group of Silurian at a quarry on the northside of the Church Stretton—Much Wenlock road (route B 4371), about 1 1/4 miles from Much Wenlock, Stretton Westwood, Shropshire, Great Britain. Grid Ref. 599988, Ordnance Survey 1-inch Sheet 129 or 1:25,000 map SO 59. Collected by M. KATO, 31st. July, 1960.

Derivation of the specific name: After Dr. H. DIGHTON THOMAS of the British Museum of Natural History, under whose supervision a part of the present study was carried out.

Diagnosis: As for genus.

Description: Corallum compound, fasciculate, dendritic, forming a small colony of $12 \times 4.5 \times 4$ cm as far as it is preserved. Corallites are slender, flexuous, intergrowing with stromatoporoids and *Halysites*. Lithologic nature of matrix of the corallum is marly limestone of yellowish gray in colour. On the surface of corallite faint septal grooves are developed. Calyx is not directly observed on weathered surface, but is judged as moderately deep from the appearance in both transverse and longitudinal sections. Maximum diameter of a corallite reaches up to 4.5 mm, but commonly it measures 3 to 4 mm. In transverse section a

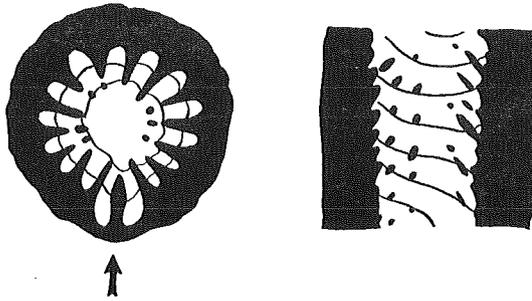


Fig. 1

Idealized figures showing characteristic features in *Wenlockia thomasi*, gen. et sp. nov. Left hand figure: Transverse section of a corallite. Arrow indicates the position of cardinal fossula. Righthand figure: Longitudinal section.

corallite shows subround outline with somewhat wavy epitheca. Stereowall is very thick, as thick as 1 mm, and consists of peripheral portions of septa and concentric lamellae. Septa are only in one order, minor septa being absent. Septa

are comparatively thick, tapering axially. In younger corallites they extend long towards the centre of corallite. In mature corallites the length of major septa is usually $3/4$ of the half diameter of corallite. Thus the centre of corallite in mature stage shows a space free from any kind of skeletal elements. The lengths of neighbouring septa are not always equal with each other, and the axial portion of a septum is often separated from the main body as small, round spots, which are in fact internal or axial ends of trabeculae of the acanthine or denticulated septum. Cardinal fossula is prominent, but no other fossula is observed. Cardinal septum is situated in the middle of the cardinal fossula, and is slightly shorter but thicker than the other major septa. Two major septa which are both next to the cardinal one are showing gentle curve towards the cardinal septum as if they are encircling the cardinal one. Stereowall is also constricted as narrow at the position of the cardinal fossula. The number of major septa are as many as 23 in a corallite, but it is about 20 in most mature corallites. Fine structure of septa is typical monacanthine, and unitrabecular. There are several concentric cut edges of tabulae observable in transverse section. In longitudinal section, straight upwardly growing trabeculae (KATO, 1963) can be clearly seen. The angle between the wall and trabeculae is 45 to 60 degrees. Lamellae consisting the wall are reverse sigmoidal in arrangement. Dissepiments absent. Tabulae are complete, concave upward, and in deep saucer shape. In one section steeply inclined tabulae from one side of the corallite towards the other side are observed. These tabulae may be cut at the position of fossular depression. Complete tabulae are counted 7 to 8 in a vertical distance of 2 mm. Inner and axial ends of acanthine septa are sometimes observable near the centre of tabulae.

Comparison and remarks: At a glance the present coral looks quite similar to fasciculate tryplasmids. From the British Silurian the following five species of *Tryplasma* have been known.

- Tryplasma rugosum* (EDWARDS et HAIME)
- T. flexuosum* (LINNAEUS)
- T. loveni* (EDWARDS et HAIME)
- T. malvernensis* HILL
- T. primum* HILL

Amongst these five species the first two are fasciculate corals, but non of which is comparable with the present coral as to its internal skeletal construction, though they resemble the latter externally in the mode of growth habits, and in the size of corallites. Internally both British fasciculate *Tryplasma* have short acanthine septa, narrow stereozone, distant and flat tabulae, and no fossula. Therefore they are readily distinguishable, and might be phylogenetically rather distant from the present new form.

As is described above, the present coral is unique in possessing acanthine septa and a large fossula. The former nature falls in the category of cystiphyllids,

within which the coral is provisionally classed under the family Tryplasmataidae, since it has no dissepimentarium. Yet the coral in reality is difficult to accommodate in any hitherto established family, because of its possession of a large cardinal fossula in which thick and short cardinal septum is situated. Thus the feature characterizes the affinity of this coral to streptelasmids, rather than to common tryplasmids. Sagging tabulae and cardinal fossula of *Wenlockia thomasi* reminds the similar features in hapsiphyllids, yet the former has distinct acanthine septa.

Appendix: The type locality of *Wenlockia thomasi* appears to be the same with the one from where *Cystihalysites blakewayensis* was recently described by SUTTON (1964). Although *Wenlockia* was found in association with *Halysites*, which seems to be not a *Cystihalysites*. During the course of study on British Palaeozoic corals the writer provisionally discriminated five forms of halysitids amongst British Silurian corals. To my knowledge a form referable to *Cystihalysites* also occurs in the Aymestry limestone in the east of Cravenarms. The specimen is now kept at the Sedgwick Museum, Cambridge. Thus, at present, the geological range of the genus *Cystihalysites* is extended from Wenlockian to Ludlovian.

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PLATE AND EXPLANATION 30

Explanation of Plate 30

(All figures four times natural size).

Figs. 1-5. *Wenlockia thomasi* KATO, gen. et sp. nov.

UHR 18586, Wenlock limestone, a quarry near Stretton Westwood, Shropshire, Great Britain.

1. Oblique section of holotype. A small, young corallite on the left margin of the figure with its calyx filled with limy matrix much resembles such primitive streptelasmid as *Primitophyllum* KALJO.

A tangential section of a mature corallite on right shows acanthine and denticulated structure in the axial portions of septa. Tabulae are nearly complete and concave, and lamellae constructing thick stereo-wall are directing upwards and inwards. The corallite is intergrowing with a stromatoporoid.

2. Transverse section. A corallite on the left shows clearly acanthine septa and calyx.

3. Oblique section showing tabular depression on the right.

4. Transverse section of holotype, showing fossular depression.

5. Transverse section of holotype, showing well developed cardinal fossula, thick stereowall and major septa which are sometimes long, and sometimes short. The corallum is intergrowing with a *Halysites*.

Plate 30

