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TWO REMARKABLE CORALS FROM THE DEVONIAN OF
NEW SOUTH WALES

(*Spongophyllum halysitoides*, and *Columnaria neminghensis*.)

BY

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(Plates vii.-ix.)

I.—A MONSEPTATE SPONGOPHYLLUM (*Spongophyllum halysitoides*.)

A peculiar and abnormal *Spongophyllum* of remarkably simple structure and septaless.

The specimen consists of a small corallum two and a quarter inches by one inch, evidently only a portion of a larger mass, and with the upper surface beautifully weathered. The corallites are polygonal and vary much in size, the average diameter being from four to six millimetres; they are firmly amalgamated laterally. The walls of the respective corallites, well defined and strong, are the striking feature of this coral.

In a transverse view each corallite looks as if its polygonal outline was composed of a string of minute shuttle-like figures, swelling and contracting alternately. Within each calice, and continuously throughout the successive visceral chambers in descending order, this structure is actually caused by the deep and regular fluting of the walls. Looking down on these walls from above, and shutting one's eyes to the interior vesicular structure, the resemblance to the meandering corallite lines in *Halysites* is truly astonishing, hence the specific name I have applied to this coral.

There is the usual tripartite structure, although the demarcation is ill-defined. Immediately within the fluted walls is (by comparison) a broad peripheral zone of variously shaped vesicles, some large, others small. This is followed by the intermediate zone, or cycle, which by rights should be septate. It is extremely narrow, not always present even, but when so, of a peculiar structure, to be referred to later. In some corallites certainly, a few rudimentary short septa do occur, slightly projecting into the central, and what in an ordinary Rugose coral would be the tabulate area; here, however, it is purely vesicular.

In a longitudinal section all that is necessary to notice particularly is the structure of what would be the septate zone and the central area; in passing, attention may be called to the very varied form of the peripheral vesicles. From Pl. viii., fig. 3, it will be seen that the intermediate zone is really a tabulate area, without any mural investment, but depending for its demarcation on the convex surfaces of the distal peripheral vesicles and the lateral surfaces of those of the central area. It is transversely divided by floors, mostly horizontal, but as they are parts of an area at times slightly septate, may be spoken of as dissepimental vesicles. Finally, the central area of each corallite of one or more ranges of egg-shaped vesicles, their longitudinal diameters being the greater.

I know of no Australian *Spongophyllum* with a structure at all approaching that of this coral, viz., the fluted condition of the corallite walls, and practically the lack of septa.

Loc.—Road near Beedle's Farm, Moonbi, Co. Inglis, New South Wales.

Hor.—Middle Devonian?

II.—A SPECIES OF *Columnaria* FROM THE NEW SOUTH WALES DEVONIAN.

The corallum in this coral is, in accordance with the more typical structure of *Columnaria*, composite and massive, in this instance boliti-form in shape, measuring six and a half inches by five. The straight prismatic polygonal corallites, firmly united to one another laterally have an average diameter of 3 mm., sometimes increasing to 4 mm. The corallite walls are well developed, unthickened with stereoplasma, and the primordial walls constantly visible in the structural sclerenchyma.

The septa are plain and non-denticulate, primary and secondary, but irregular in development. The normal number appears to be twenty, the average fifteen inclusive, whilst twelve is not an uncommon number. The full number of twenty is much less than that seen in the type species, *C. alveolata*, in which there are from twelve to fifteen in both series, primary and secondary.

The irregularity in the septal development is remarkable. The primary septa (1) may, or may not, reach the calicinal centre; (2) are rarely straight, but usually more or less curved; (3) two or three contiguous lamellæ may unite near the centre, or at half the distance between the latter and the corallite wall and there stop short, thus forming fasciculate bundles more or less; (4) those that arrive at the calicinal centre appear to become confused with one another, hardly an intermingling, and certainly no revolution; (5) exceptionally several may unite at the centre, as many as six have been counted, but there is no appearance whatever of a St. George cross as in the genus *Stauria*. The secondary septa (1) may be about half the length of contiguous primaries; (2) reduced to mere tooth-like projections; (3) often not developed at all between any two primaries; (4) two instead of one may occupy such a position.

This union of two or three primary septa at or near the calicinal centre certainly occurs in the type species *C. alveolata*, Goldfuss,¹ and again in *C. calicina*, Nicholson,² but extreme irregularity, as described above, is not seen in any illustrations I have access to.

Although the primordial corallite walls are preserved those of the septa are not so. There is no trace whatever of dissepimental tissue within the interseptal loculi.

When examined in longitudinal section, the lamellar nature of the septa is at once made apparent. The tabulæ are complete and horizontal, but slightly deflected at the extreme peripheries, and on same plane in contiguous corallites; neither convex nor concave floors were observed.

The structure of this coral is obviously that of *Columnaria*, as depicted by Nicholson, and following him, by Lambe. The only valid difference I can see is the often actual extension of the septa to the centres of the visceral chambers, the confusion I previously mentioned being perhaps due to stress, of which evidence is certainly present. It is proposed to call it *Columnaria neminghensis*.

¹ Nicholson—Tab. Corals Pal. Period, 1879, pl. x., fig. 2.

² Lambe—Contrib. Canadian Pal., ii., pt. ii., 1900, pl. vi., fig. 4.

From *Columnaria alveolata*, Goldfuss, and *C. halli*, Nicholson, the present coral is distinguished by a much less number of septa, and from the latter also by the fact that the septa are plain and non-denticulate along the free edges.³ The mode of growth in another American species, *C. rugosa*, Billings, is quite different—"an aggregation of circular or rounded polygonal corallites,"⁴ and the septa amount to forty. *C. calicina*, Nicholson, is a more diminutive species, the corallites comparatively lax and discrete in their mode of growth, with an average of twenty-eight septa. *C. disjuncta*, Whiteaves, is an extreme form of the genus in which the corallites are generally free, with usually thirteen septa.⁵ Several other American species have been described, but I regret I have not access to the literature bearing on them.

In 1897 I described a small coral, for which I was indebted to the late Rev. Father Dowling, then of Bathurst, and to which I gave the name of *C. pauciseptata*.⁶ There are certain anomalous characters in this coral, but on the whole, I have not, up to the present, seen any reason to change the generic reference. A second Australian species occurs in Victorian rocks, *C. cresswelli*, Chapman, for which the author suggested the sub-generic title of *Loyolophyllum*,⁷ but the species is clearly not a typical *Columnaria*. Mr. Chapman wrote:—"The intermediate calicular pouches [interseptal loculi] are traversed in the outer zone by endothecal or vesicular tissue in the form of curved dissepiments, the latter rudely concentric." This structure so entirely departs from that typical of *Columnaria* that I would suggest to Mr. Chapman the advisability of considering his name of generic rather than sub-generic rank.

Several European species exist, such as *C. sulcata*, Lonsdale (non Goldfuss),⁸ found in Russia; *C. gothlandica*, Ed. and H.,⁹ and possibly the species referred by Dybowski to his genus *Cyathophylloides*,¹⁰—*C. fasciculus*, Kutorga, and *C. irregularis*, Dybowski. The two first-named are clearly of the type of *C. alveolata*, and therefore quite distinct from the present species.

Loc.—Portion 181, Pa. Nemingha, Co. Parry, Tamworth District, New South Wales.

Hor.—Devonian; Lower Limestone of series.

Collector.—C. Cullen, 1899.

³ Lambe—*Loc. cit.*, p. 100.

⁴ Lambe—*Loc. cit.*, p. 101.

⁵ Whiteaves—Contrib. Canadian Pal., I., pt. iv., p. 269, pl. xxxiv., figs 3-3b.

⁶ Etheridge—Rec. Austr. Mus., iii., No. 2, 1897, p. 30, pl. viii.

⁷ Chapman—Rec. Geol. Survey Vict., iii., pt. 3, 1914, p. 306, pl. li., figs. 15 and 16

⁸ Lonsdale—Murchison's Geol. Russia and Ural Mts., I., pl. A., figs. 1, 1a-c.

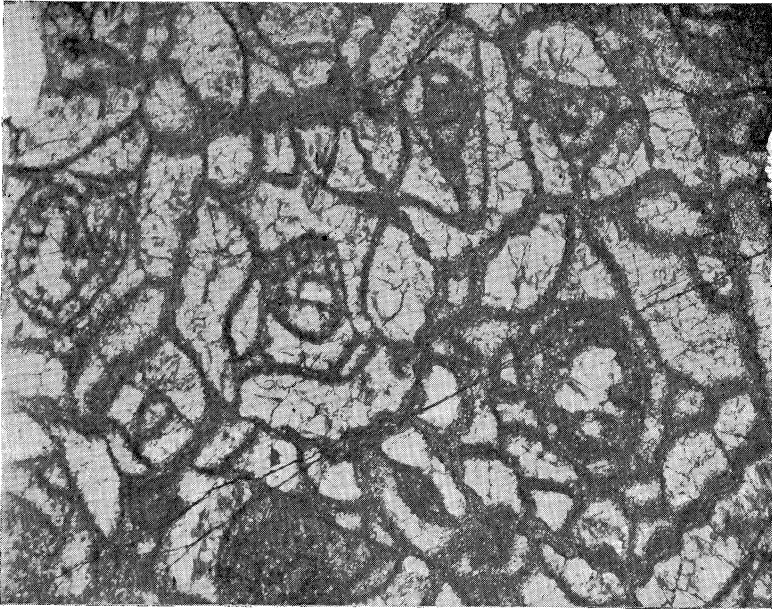
⁹ Edwards & Haime—Polyp. Foss. Terr. Pal., 1850, p. 309, pl. xiv., figs. 2 and 2a

¹⁰ Dybowski—Archiv. Liv.-Ehst.-Kurlands, v., lief. 3, 1873, p.p. 380-81.

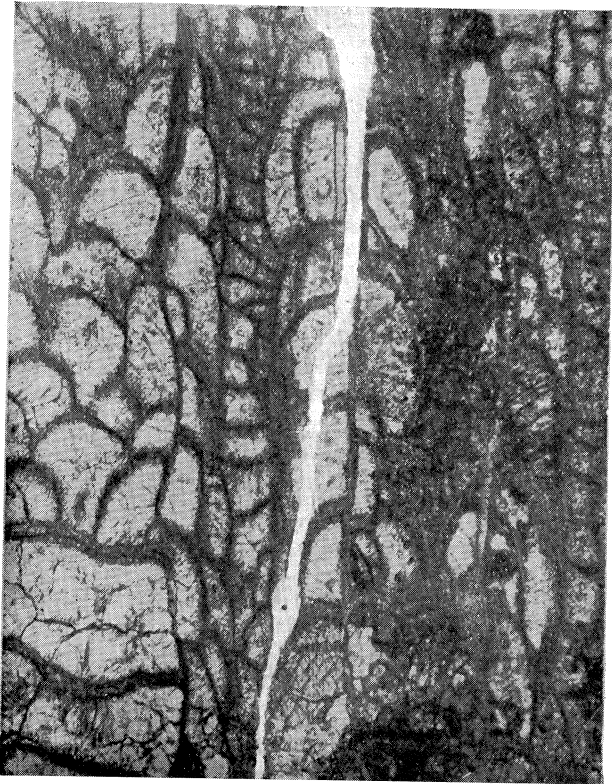
EXPLANATION OF PLATE VII.

Spongophyllum halysitoides, *Eth. fil.*

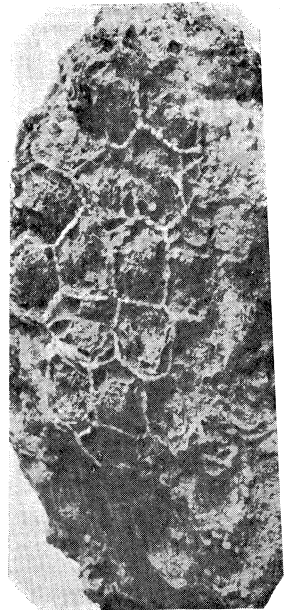
- Fig. 1. Weathered surface of portion of a corallum. With the aid of a pocket lens, and in some of the corallites even without, the fluctuating walls of the latter, resembling the structure of the corallites in *Halysites*, are distinctly visible.
2. Transverse section prepared for the microscope exhibiting the same features as in Fig. 1, especially at the left hand corner of the section. Also the peripheral vesicular zone of each corallite, the non-septate intermediate area, and the central vesicular space—x 8 diam.
 3. Similar longitudinal section. It will be noticed that what should be the intermediate septal area zone is really a tabulate area supported without and within by convex surfaces of the peripheral and central vesicles respectively—x 8 diam.



2



3



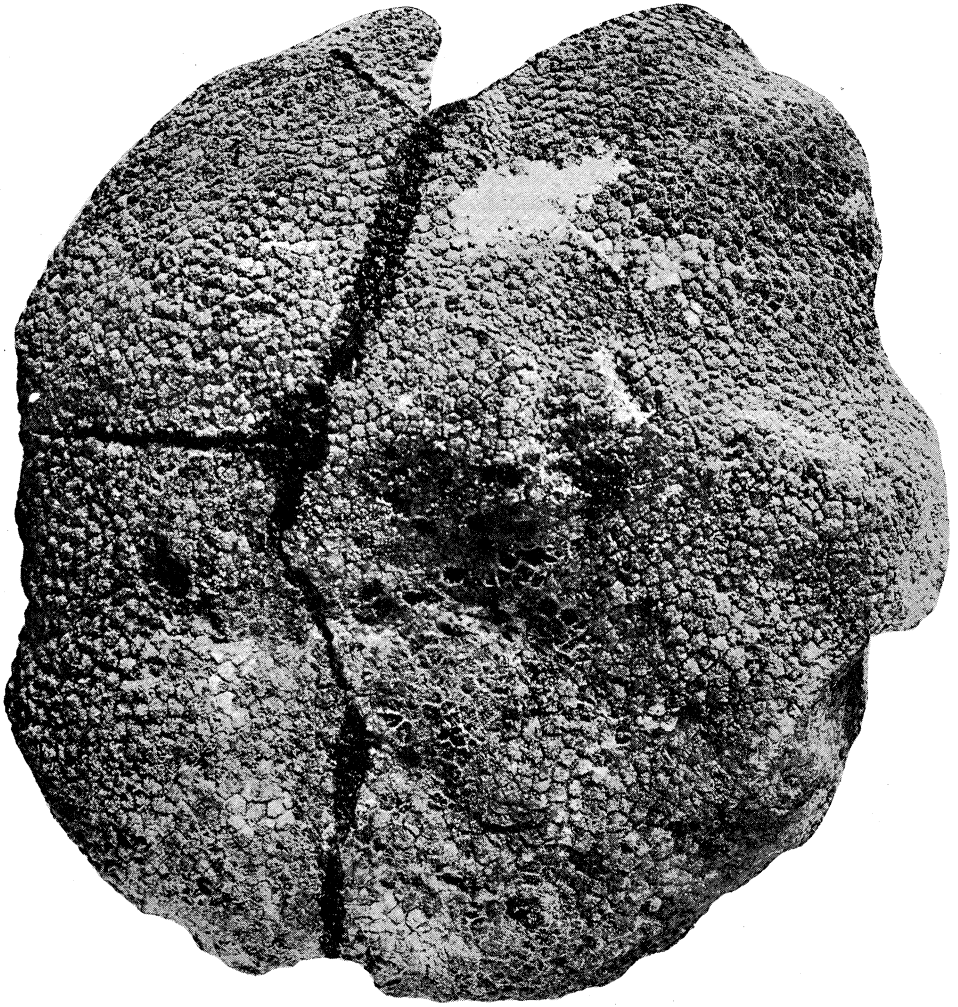
1

Messrs. E. A. BRIGGS and H. G. GOOCH, photos.

EXPLANATION OF PLATE VIII.

Columnaria neminghensis, *Eth. fil.*

The corallum seen from above.

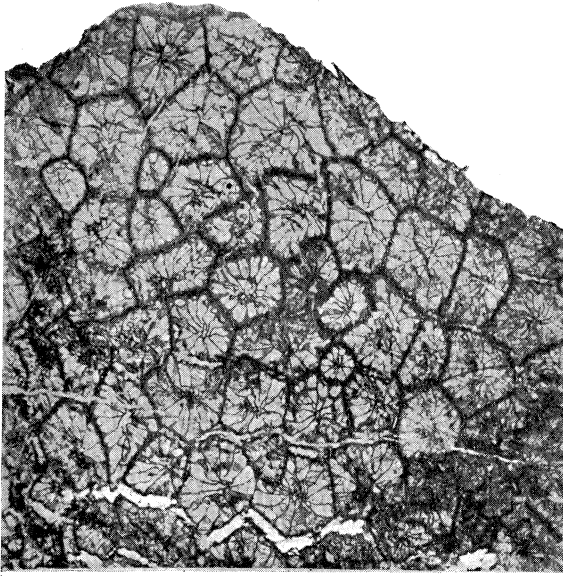


C. CLUTTON, Austr. Mus., photo.

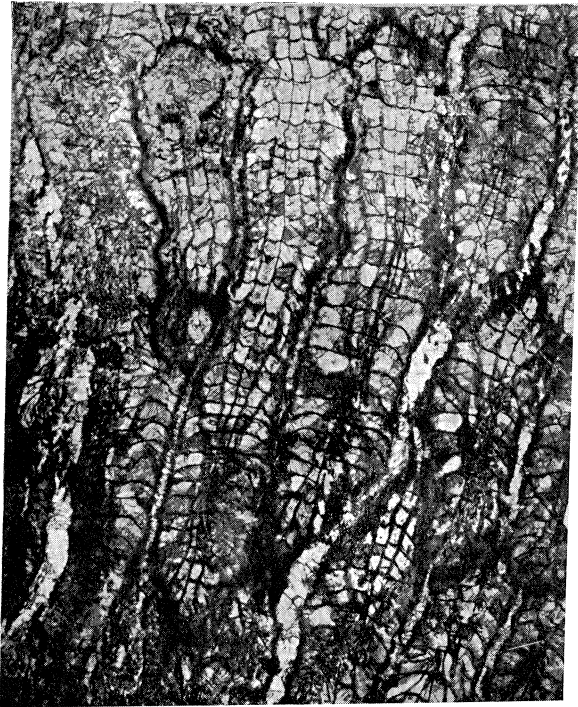
EXPLANATION OF PLATE IX.

Columnaria neminghensis, *Eth. fil.*

- Fig. 1. Transverse section, prepared for the microscope, exhibiting the variability in the arrangement of the septa—x $3\frac{1}{2}$ diam.
2. Longitudinal section displaying the lamellar septa and tabulæ—x $3\frac{1}{2}$ diam.



1



2

H. G. GOOCH, micro-photo.

ERRATUM.

Records of the Australian Museum, Vol. xii, No. 4, p. 49, line 7,
should read—

I.—A NONSEPTATE SPONGOPHYLLUM (*Spongophyllum halysitoides*).

[The following corrections were printed in the Table of Contents
for Volume 12, Vol.12 No.13, in 1921, and are here inserted.—

Sub-Editor, September, 2009.]

CORRIGENDA.

- Page 49, line 7—for “ Monseptate ” read “ Nonseptate.”
- „ 304, „ 33—for “ *Buchannania* ” read “ *Buchanania*.”
- „ 306, „ 23—for “ *Buchannania* ” read “ *Buchanania*.”
- „ 316, „ 46—for “ Martyn ” read “ von Martens.”
- „ 345, footnote 36—for “ Raymond’s ” read “ Stephens and Stokes.”
- „ 355, „ 64—before 1835 and 1836 insert “ Stephens and Stokes.”
- „ 355, „ 65—before 1837 insert “ Stephens and Stokes.”
- „ 364, line 4—for “ William John Macleay, Esq.” read “ William Sharp
Macleay, Esq.”
- „ 399, „ 15—for “ Mr. Fisher ” read “ Mr. Fraser.”