

A Revision of the Australian Species of the Coral Genera *Spongophyllum* E. & H. and *Endophyllum* E. & H. with a Note on *Aphrophyllum* Smith.

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PLATES III. AND IV. and Two Text Figures.

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Till recently some confusion existed as to the structure of the genotypes of both these genera. As a result some of the descriptions of the Australian species are not as full or as clear as is desirable. The writer has recently revised the genotypes (1929)* and the following work is based upon that paper. For some of the species more and better preserved topotypes have been obtained and the descriptions have been amplified or amended.

The writer wishes to thank Dr. R. S. Allan for placing his collection at his disposal ; Dr. Stanley Smith for a specimen of *Aphrophyllum hallense* ; Prof. Wanner of Bonn University for Eifel material, and Dr. Koliha of the Narodni Museum, Prague, for specimens of *Cyathophyllum manipulatatum*.

The following records have been made :—

- 1888 *Endophyllum* (*spongophylloides*) Foerste, from the Upper Silurian† of Bowring. This species was referred to *Spongophyllum* by Chapman in 1925. See p. 52.
- 1889 *Lonsdaleia*? (*Spongophyllum*) *bipartita* Eth. fil. Examination of Foerste's material has shown this to be identical with the foregoing species. See p. 52.
- 1898 *Endophyllum schluteri* Eth. fil., Middle Devonian, Isis River. See p. 59.
- 1899 *Spongophyllum giganteum* Eth. fil., Middle Devonian, Moore Creek. See p. 54.
- 1911 *Spongophyllum cyathophylloides* Eth. fil., Devonian, Clermont. See p. 55.
- 1911 *Spongophyllum* sp. Eth. fil., Silurian, Chillagoe. See p. 54.
- 1913 *Spongophyllum enorme* Eth. fil., Upper Silurian, Yass. See p. 61.

* See bibliography p. 62.

† Silurian is used in the sense of Gothlandian, so that Upper Silurian = Wenlock and Ludlow.

- 1918 *Spongophyllum halysitoides* Eth. fil., Middle Devonian, Nemingha. See p. 56.
- 1918 *Spongophyllum* sp. Dun and Benson, Middle Devonian, Loomberah. See p. 57.
- 1920 *Endophyllum schluteri* var. *colligatum* Eth. fil., Middle Devonian, Moore Creek. See p. 59.
- 1920 *Aphrophyllum hallense* Smith, Carboniferous, near Bingara. See p. 60.
- 1924 *Spongophyllum* cf. *halysitoides* Eth. fil., Richards and Bryan, Devonian, Silverwood. See p. 56.
- 1925 *Spongophyllum stevensi* Chapman, Yeringian (—Upper Silurian), Lilydale. See p. 52.
- 1925 *Spongophyllum shearsbii* Chapman, Upper Silurian, Yass. See p. 51.
- 1928 F. W. Whitehouse recorded *Spongophyllum halysitoides* Eth. fil., in rolled Devonian pebbles from the Lower Limestone in the Carboniferous beds near Mt. Lion. See p. 57.

In 1922 W. N. Benson catalogued the Devonian species noted above, and added some new localities.

SPONGOPHYLLUM SHEARSBII CHAPMAN.

Plate III. ; Figures 1 and 2. Plate IV. ; Figure 1.

- 1925 *Spongophyllum shearsbii* ; F. Chapman, p. 113, pl. xiv., figs. 18a, b ; pl. xv., figs. 25, 26.

Holotype.—The specimen described and figured by Chapman (1925, p. 113-114, pl. xiv., figs. 18a, b ; pl. xv., figs. 25, 26), now in the National Museum, Melbourne ; Hatton's Corner, Yass ; Silurian.

Description.—Corallum compound, cerioid, reaching a diameter of 15 cms. or more. Corallites polygonal, variable in size, average diameter about 5 mm. Epitheca thick. Septa very variable in number, average 20-30.* Major septa arising from the epitheca, stout at their bases, but rapidly becoming thin, reaching or almost reaching the centre of the corallites. Minor septa very variable in development, sometimes arising directly from the epitheca, more often starting as spines and crests on the first or second cycle of dissepiments, in which case the dissociated peripheral ends appear as septal ridges on the epitheca. Dissepiments large, in two or three cycles, strongly curved, steeply inclined, almost vertical at the theca. Tabulate area narrow, about one-third the diameter of the corallites. Tabulae nearly all complete, about 2 per mm.

* The large corallite shown in Pl. III., figs. 1 and 2, has 60 septa.

Remarks.—The great variation in the number of septa is in part due to the variable development of the minor septa, but the number of septa also increases rapidly with the increase in size of the corallites.

S. shearsbii differs from the genotype in having much thicker walls, both major and minor septa, the former of which are stout basally and are always attached to the epitheca. Such differences are, perhaps, to be expected in an early form, and may give some indication of the characters of the ancestral stock.

At first glance this species is very like the Devonian *Cyathophyllum manipulatum* Pocta (1902, p. 103, pl. 64; pl. 103, fig. 3; pl. 104, figs. 6, 7; pl. 112, figs. 1-3) from Bohemia. Examination of thin sections of the latter has shown it to differ in several respects; its corallites are slightly larger and septa more numerous, and it has a narrow stereozone extending about 1 mm. inside the epitheca. Apart from the stereozone in *C. manipulatum* the longitudinal sections are very similar.

Locality.—Bowspring Limestone, Hatton's Corner, Yass, N.S.W.

Age.—Upper Silurian.

SPONGOPHYLLUM STEVENSI CHAPMAN.

1925 *Spongophyllum stevensi* F. Chapman, p. 113, pl. xiv., figs. 17a, b; pl. xv., figs. 24, 27.

Holotype.—The specimen described and figured by Chapman (1925, p. 113; pl. xiv., figs. 17a, b; pl. xv., figs. 24, 27). Now in the National Museum, Melbourne. Cave Hill, Lilydale. Silurian.

Remarks.—This species was founded on a single corallum from Lilydale, and the writer has not obtained any further specimens. According to Chapman the epitheca is even thicker than in *S. shearsbii*. The important difference from the latter is that the major septa extend only about half way to the centre.

Locality.—Cave Hill, Lilydale, Victoria.

Age.—Upper Silurian (Yeringian).

SPONGOPHYLLUM SPONGOPHYLLOIDES (FOERSTE).

Plate III.; Figures 3, 4.

1888 *Endophyllum (spongophylloides)* A. F. Foerste, pp. 131-2, pl. xiii., figs. 16-17.

1889 *Lonsdaleia?* (*Spongophyllum*) *bipartita* R. Etheridge, junr., pp. 22-26; pl. III., figs. 1-5.

1925 *Spongophyllum bipartita* (Eth. fil.) F. Chapman, pp. 114-5.

Holotype.—The specimen figured by A. F. Foerste, 1888, pl. xiii., figs. 16, 17, now in the British Museum (Natural History).

Description.—Corallum massive, forming large, probably hemispherical masses, with a "thin and pellicle like (basal) epitheca, bearing broad longitudinal subangular ribblets, and distant secretion ridges."* Corallites variable in size both in the same specimen and from specimen to specimen, 10 to 16 mm. in diameter. Epitheca well developed but thin, bearing pronounced septal ridges.† Septa thin; very variable in development, some younger corallites having very few indeed. Major septa 18-20, often meeting at the middle of the corallites, but seldom reaching the epitheca, usually ending as crests on the dissepiments. Minor septa poorly developed, sometimes absent or represented only by ridges on the epitheca; when fully developed, equal in number to the major.‡ Dissepimental area wide. Dissepiments large, forming several series of steeply inclined, curved plates, supplemented by a considerable number of smaller plates. Tabulate area very narrow, $1/4$ to $1/5$ of the diameter of the corallites; tabulae thin, mostly complete, fairly numerous, 10 or 12 in a space of 3 mm.

Remarks.—The writer has had the opportunity of examining Foerste's own material, now at the British Museum, and there is no doubt of the identity of *S. bipartita* with the coral which Foerste called "*Endophyllum spongophylloides*." Neither Foerste's description nor his figure is accurate, which led to Chapman (1925, p. 115) regarding them as distinct species.

This species differs from the genotype, *S. sedgwicki*§ in several respects. In *S. spongophylloides* the corallites are nearly twice as large and the septa, tabulae and dissepiments are more numerous. There can, however, be no doubt concerning its reference to *Spongophyllum*—the septa being weak, the dissepiments large and the tabulate area narrow.

Etheridge thought he detected the presence of a rudimentary columnella, and so doubtfully referred it to the genus *Lonsdaleia*, but the writer, dealing with a considerable quantity of excellently preserved material, has found no trace of one.

This species is similar to *S. inficetum* Pocta (1902, p. 153, pl. 102, fig. 1), but the latter has smaller corallites—5 to 7 mm. in diameter, and the septa, which cannot be divided into major and minor are 30 to 34 in number. *S. inficetum* is from stage E² of the Bohemian deposits, which, according to Kayser (1923, p. 130), is near the top of the Upper Silurian.

* The basal epitheca is not preserved on any of the specimens which the writer has examined; the above remark is quoted from Etheridge (1889, p. 24).

† The septal ridges are very marked in tranverse sections of well preserved specimens, but are not always noticeable in poorly preserved examples. They are not shown in Etheridge's figure.

‡ Etheridge (loc. cit., p. 24) states that the septa are all major—"careful examination having failed to detect the presence of intermediate and smaller radii." Some of the specimens in the writer's collection show no minor septa; this is due to poor preservation, which was probably the case with Etheridge's material.

§ See Edwards and Haime, 1853, p. 242, pl. lvi., figs. 2-2e; O.A. Jones, 1929, p. 88.

Localities.—Bowspring Limestone, Hatton's Corner, Yass; Barrandella Limestone, Hatton's Corner, Yass; Derrengullen Creek, Yass; Limestone Creek, Yass; Humewood Lead Mine, near Yass (Etheridge); Bowning, N.S.W. (Foerste).

Age.—Upper Silurian.

SPONGOPHYLLUM sp.

1911 *Spongophyllum* sp. R. Etheridge, jun., p. 8, pl. B., figs. 3, 4.

Remarks.—Etheridge's material was very poorly preserved and as no further specimens have been obtained, a new name is not justified. It probably does represent a new species which is most nearly related to *S. spongophylloides*. It is distinguished from the latter by its few and very weak septa, and the smaller size of its corallites.

Locality.—Chillagoe, Queensland.

Age.—Upper Silurian.

SPONGOPHYLLUM GIGANTEUM ETH. FIL.

1899 *Spongophyllum giganteum* R. Etheridge, jun., pp. 158-9, pl. xx., figs. 1-3; pl. xxxviii., fig. 3.

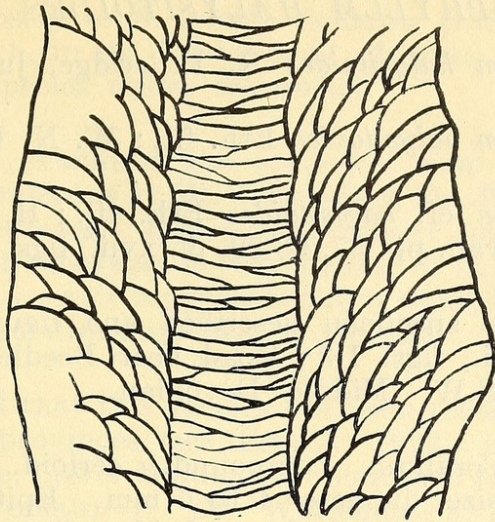
1922 *Spongophyllum giganteum* Eth. fil.; W. N. Benson, p. 66.

Lectotype (here chosen).—The specimen figured by Etheridge, 1899, pl. xx., fig. 2; it is preserved in the Australian Museum—registered number F. 4294. Other specimens figured by Etheridge—pl. xxxviii., fig. 3 (F. 4315), pl. xx., fig. 1 (F. 4293)—are also in the Australian Museum. The original of pl. xx., fig. 3, cannot be traced.

Description.—Corallum compound, cerioid. Corallites prismatic, polygonal, large—20 mm. or more in diameter. Epithea well developed, moderately thin. Septa, very variable in development, 40 to 50 in number, all of about the same length, extending nearly to the centre, but only occasionally reaching the epithea, usually breaking up into crests on the peripheral dissepiments. Dissepiments large, steeply inclined, becoming nearly vertical to form a well marked theca at their junction with the tabulae. Tabulate area narrow, about one-third of the diameter of the corallite. Tabulae very numerous, complete and incomplete, concave upwards, ending abruptly at the theca.

Remarks.—Etheridge stated that the tabulae are rarely complete; their apparent incompleteness is due to their crowded nature and the difficulty in obtaining a longitudinal section in which they are not broken up by the septa.

This species differs from the genotype in being much larger, having nearly three times as many septa, and more numerous tabulae. The weak septa, narrow intrathecal area, well marked theca, and large dissepiments at once place it in this genus.



TEXT FIGURE 1.

Diagram of longitudinal section of a specimen of *S. giganteum*, from Moore Creek.
 × 5. The dissepiments are in part obscured.

Of the Australian species it is most like *S. spongophylloides* (Foerste), but it has more septa and is larger.

Locality.—Moore Creek Limestone, Moore Creek, near Tamworth, N.S.W.

Age.—Middle Devonian.

SPONGOPHYLLUM CYATHOPHYLLOIDES ETH. FIL.

1911 *Spongophyllum cyathophylloides* R. Etheridge, jun., pp. 7, 8;
 pl. A., fig. 3; pl. C.

1922 *Spongophyllum cyathophylloides* Eth. fil.; W. N. Benson, p. 66.

Lectotype (here chosen).—The specimen figured by Etheridge, 1911, pl. A, fig. 3; pl. C, fig. 2. The specimen (four pieces) is in the Australian Museum—registered numbers F. 9494-7. The other figured specimen—pl. C, fig. 1, is also in the Australian Museum—registered numbers F. 9717-8.

Remarks.—No new material of this species has been examined and Etheridge's description and figures are quite adequate. The epithecal walls are the thickest of any of the Australian species. As in the genotype the septa sometimes reach the epitheca, but usually do not; they are more numerous than in the latter; also the dissepiments are more numerous, but the narrow tabulate area is a feature common to both.

Locality.—Clermont, Queensland.

Age.—Devonian.

SPONGOPHYLLUM HALYSITOIDES ETH. FIL.

1918 *Spongophyllum halysitoides* R. Etheridge, jun., p. 49, pl. vii.

1922 *Spongophyllum halysitoides* Eth. fil.; W. N. Benson, p. 67.

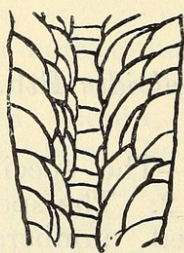
1924 *Spongophyllum* cf. *halysitoides* Eth. fil.; H. C. Richards and W. H. Bryan, pp. 97, 98-99, pl. xvii., figs. 1, 2.

Holotype.—The specimen described and figured by Etheridge, 1918, p. 49, pl. vii., figs. 1-3; Road near Beedles' Farm, Moonbi, County Inglis, N.S.W. Middle Devonian.

Description.—Corallum compound, cerioid. Corallites polygonal, variable in size, diameter 4 to 6 mm. Epithecæ well defined, moderately thin, bearing marked septal ridges.*

Septa absent or represented by a few short lamellæ or crests about the theca. Dissepiments very large, forming a single series of steeply inclined convex plates, supplemented by a few smaller plates. Tabulate area very narrow, about one-fourth of the diameter of the corallite. Tabulæ complete, horizontal, four or five in a space of 3 mm., ending abruptly against the vertical dissepiments, thus forming a well marked theca.

Remarks.—For some reason Etheridge quite misinterpreted the structure of this coral. It is clear that when he described, in longitudinal section, a tabulate zone with "egg shaped vesicles" surrounded by a narrow zone of complete horizontal tabulæ, he described two corallites as if they were one,† the large convex dissepiments of the two corallites giving his zone of egg shaped vesicles.



TEXT FIGURE 2.

Diagram of longitudinal section of a specimen of *S. halysitoides*, from Silverwood. $\times 4$.

The longitudinal section is strikingly like that of the genotype in its marked theca, large dissepiments and narrow tabulate area, with few and complete tabulæ. The almost complete absence of septa at once separates it from the latter, and in this respect it

* The thick, short, septal ridges give rise to that appearance in transverse section which Etheridge described as like a "string of minute shuttle-like figures, swelling and contracting alternately," and from which he derived the trivial name.

† In the thin section from which his figure was taken (pl. vii., fig. 3) the two centre corallites have parted, causing the destruction of the wall, and this may have led to his overlooking the fact that they are two corallites.

approaches more closely to *S. kunthi* Schluter (1881, pp. 96-99, pl. xii., figs. 1, 2), which, in its development of septa, lies between the genotype and the species under discussion.

The writer has examined the specimen from rolled Devonian pebbles in the Carboniferous at Mt. Lion which Dr. Whitehouse (1928) recorded as *S. halysitoides*. This coral is about four times as large as *S. halysitoides*, but otherwise is very similar to it. The only specimen is very crystalline, and more material is needed before a definite conclusion as to its relationships can be reached.

It may be noted that this species has been recorded from two of Benson's Devonian provinces (see Benson, 1922), viz.: the Eastern (Nemingha Limestone, Lower Middle Devonian) and the North Eastern (Upper Middle Devonian)—if Dr. Whitehouse's identification be accepted—and also from Silverwood, which area Richards and Bryan (1924, pp. 59, 98-99) regarded as intermediate between the above two provinces, but more closely related to the former.

Localities.—Road near Beedles' Farm, Moonbi, Co. Inglis, N.S.W. (Nemingha Limestone, Lower Middle Devonian); Limestone Siding, near Silverwood; Lomas North, near Silverwood; (Lower? Middle Devonian).

? *SPONGOPHYLLUM* sp.

1918 *Spongophyllum* sp. nov., W. S. Dun and W. N. Benson, pp. 377-8, pl. xxxiv., figs. 2, 3; text fig. 5 on page 378.

1922 *Spongophyllum* sp., W. S. Dun; W. N. Benson, p. 67.

Remarks.—The writer has not been able to examine the material which Dun and Benson described as *Spongophyllum* sp. nov. The material appears to have been badly preserved and the figs. 2 and 3, pl. xxxiv., are obscure. From the text fig. 5 (a drawing of the transverse section) the form appears more likely to be related to *Endophyllum* than to *Spongophyllum*.

Locality.—Loomberah Limestone, N.S.W.

Age.—Middle Devonian.

SUMMARY OF THE CHARACTERS AND RELATIONSHIPS OF THE AUSTRALIAN SPECIES OF *SPONGOPHYLLUM*.

These species fall into three well defined groups—(1) *S. shearsb i* and *S. stevensi*; (2) *S. spongophylloides*, *S. sp.* Eth. fil., *S. giganteum*, and *S. cyathophylloides*; (3) *S. halysitoides*. The first group may be again divided on the presence or absence of the *amplexoid* trend. The following table (p. 58) sets out these groups with their distinguishing characters and also serves to indicate a possible evolution of the species. It must be stressed, however, that, owing to the gap between the Upper Silurian and the Middle Devonian, the evolutionary scheme is extremely hypothetical.

	Narrow tabulate area; few and large dissepiments.			Narrow tabulate area; numerous tabulae; increase in number of dissepiments; Lonsdaloid trend.
	Loss of septa	Amplexoid trend	Strong major septa, start of Lonsdaloid trend in minor septa	
Upper Devonian				
Middle Devonian	<u>halysitoides</u>			<u>giganteum</u> <u>cyathophylloides</u>
Lower Devonian				or
Upper Silurian		<u>stevensi</u>	<u>shearsbii</u>	<u>spongophylloides</u> <u>S. sp.</u> <u>Eth. fil.</u>
Lower Silurian				

S. halysitoides approaches most closely to the genotype, but differs in the absence of septa. *S. shearsbii* and *S. stevensi* are very like the genotype in longitudinal sections but transverse sections show them to possess strong septa and epitheca; but this perhaps is not surprising in forms earlier in age than the genotype. The *S. spongophylloides*, *S. giganteum* group shows a more complex structure; the septa are more numerous and are differentiated into major and minor; dissepiments are more numerous but still large; and tabulae are more numerous and sometimes incomplete.

Probably the ancestral form was a species with strong epitheca and septa, few and large dissepiments and a narrow tabulate area. Development perhaps proceeded along two main lines—(1) loss of septa by retreat both from the centre (*S. stevensi*) and from the walls (*S. halysitoides*); (2) increase of all the coral tissue except the septa which retreated from the walls (*S. spongophylloides*, *S. giganteum* group).

ENDOPHYLLUM SCHLUTERI ETHERIDGE FIL.

1898 *Endophyllum schluteri*, R. Etheridge, jun., pp. 43-46, pls. IV., V.

1922 *Endophyllum schluteri*, Eth. fil.; W. N. Benson, p. 67.

Lectotype (here selected).—The specimen from which the slides (M. 233 (2)) figured by Etheridge, 1898, pl. V., figs. 1, 2, were cut. Now in the collection of the Geological Survey of New South Wales.

Remarks.—The writer has examined the material described by Etheridge, 1898. Etheridge's figures as well as this material show clearly that this species is closely related to the *Endophyllum bowerbanki* end of the *bowerbanki-abditum* series (see O. A. Jones, 1929, p. 85); his description may be supplemented in a few points. The major septa are very strong at the base, but rapidly become very thin and somewhat flexuous. As in *E. bowerbanki* E. and H., the minor septa are very short, and both major and minor septa break up peripherally into a vertical series of crests resting on the successive dissepimental platforms. There are two series of tabulae, a central flat series and an outer series inclined downwards to the well marked theca, very similar to those in the lectotype, (see Etheridge, 1898, pl. V., fig 4). The species agrees also in size with *E. bowerbanki*, but the dissepiments are even larger and much thicker, numbers uniting to form thick floor like expansions, with thinner ones in between. There are about 28 major septa in *E. schluteri* and 30 to 35 in *E. bowerbanki*.

Localities.—Isis River, Parish of Crawney, Co. Brisbane, N.S.W. (M. Devonian); Moore Creek, near Tamworth, N.S.W. (M. Devonian).

ENDOPHYLLUM SCHLUTERI ETH FIL. VAR. *COLLIGATUM* ETH. FIL.

1920 *Endophyllum schluteri* Eth. fil, var. *colligatum*, R. Etheridge, jun. p. 55, pl. xiii; pl. xiv., fig. 1.

1922 *Endophyllum schluteri* Eth. fil, var. *colligatum*, Eth. fil.; W. N. Benson, p. 67.

Lectotype.—The author has not been able to trace the specimens figured by Etheridge, but has examined some of his material. Specimen F. 9228 (2 sections cut) is here chosen tentatively as lectotype.

Remarks.—Etheridge's description of this variety is not very clear, but his figures show it to be a form corresponding to about the middle part of the *bowerbanki-abditum* series. Thus, in parts, it is cerioid or sub-phaceloid instead of astraecoid, and a weak epitheca is then developed. The septa frequently reach the epitheca and are not modified peripherally to as great an extent as in *E. schluteri*. The corallites and intrathecal areas are about the same size in the species and the variety.* In the astraecoid parts of the coralla the structure is indistinguishable from that of the species.

* Etheridge, p. 55, stated that the corallites in the variety are larger, but he compared the diameter of the corallites of the variety with the diameter of the intrathecal areas of the species.

Locality.—Moore Creek, near Tamworth, N.S.W. (Upper Middle Devonian).

ENDOPHYLLUM sp.

This form collected by Mr. L. C. Ball from Kroombit Creek, about 50 miles south south-west of Gladstone, differs from both the previous forms. The material is very poorly preserved—too poorly to warrant a trivial name or to give figures.

The most marked difference between this and the other Australian forms is that the former possesses a definite epitheca which appears to be somewhat thickened by stereoplasm. The form is, therefore, related to the *E. abditum* end of the *E. abditum*-*E. bowerbanki* series.* The corallum is cerioid or sub-phaceoid; the corallites are about 12 mm. in diameter; the septa, which are confined to the intrathecal area, are of two orders. The major vary greatly in length, sometimes reaching almost to the centre, sometimes but a short distance into the intrathecal area; the minor are one-third to half the length of the major. The tabulae are divided into two series and are crowded as in the genotype. The dissepiments are so crushed and broken in the available material that their disposition cannot be determined.

Locality.—Kroombit Creek, 50 miles s.s.w. of Gladstone.

Age.—Devonian.

APHROPHYLLUM HALLENSE SMITH.

1920 *Aphrophyllum hallense* S. Smith, p. 53, pl. 11, figs. 1-5.

Remarks.—Dr. Stanley Smith noted (p. 55) the close resemblance in transverse section, of *A. hallense* and *Endophyllum abditum* Edwards and Haime (1851, p. 394; 1853, p. 233, pl. liii., fig. 6). See also Jones (1929, p. 87, pl. x., figs. 3, 4). Examination of longitudinal sections of *E. abditum* has brought to light further characters in common. As in *Endophyllum* the tabulae of *Aphrophyllum* are divided into two series—an inner flat or slightly arched series the members of which are frequently incomplete and an outer series which curve sharply down to the theca in *Aphrophyllum* but sharply down and then up again to the theca in *Endophyllum*. Further, the dissepiments in both are very large and steeply inclined.

The points of agreement of the two genera may be summarised as follows:—

- (1) The septa frequently do not reach the epitheca.
- (2) The dissepiments are large and steeply inclined.
- (3) The tabulae are in two series.

* See O. A. Jones, 1929, p. 85.

Now these are the generic characters of *Endophyllum*, but it is perhaps inadvisable to merge the two genera at present, as they are probably an example of heterogeneous homeomorphy.

Locality.—Carboniferous Rocks, Parish of Hall, 16 miles south of Bingara, N.S.W.

CRINOPHYLLUM gen. nov.*

Genotype.—*Spongophyllum enorme* R. Etheridge, jun. (1913, p. 35, pls. IV.-VII.). Escarpment north east of Boonoo Ponds Creek, Hatton's Corner, Yass River, near Yass; Upper Silurian.

Diagnosis.—Cerioid rugose corals with septa developed only as crests on the dissepiments and tabulae. Tabulate area moderately wide. Dissepiments very large and rather flat, forming, at their junction with the tabulae, a well marked theca.

Remarks.—In vertical sections the genus shows some likeness to *Ketophyllum* Wedekind (1927, Taf. 15). The latter is, however, a simple coral, has smaller dissepiments and a stronger development of septa.

The genus differs from *Spongophyllum* E. and H. in having less well developed septa, much flatter dissepiments and a wider tabulate area.

CRINOPHYLLUM ENORME (ETH. FIL.).

Plate IV. Figures 2 and 3.†

1913 *Spongophyllum enorme* R. Etheridge, jun., pp. 35-37, pls. iv., vii.

Description.—Corallum compound, cerioid, forming very large spreading masses. Corallites polygonal, very large, 2 to 4 cms. in diameter. Calices funnel shaped, moderately deep, somewhat flattened at the peripheries, flat bottomed. Septa numerous but very weak, developed only as crests on the dissepiments, passing a short distance into the tabulate area; variable in strength and number from corallite to corallite. Dissepiments very large, rather flat at the periphery, curving sharply down till almost vertical at the theca, supplemented by a few smaller curved plates at the periphery. Tabulate area moderately wide. Tabulae numerous, complete and incomplete, flat in the centre, sometimes curving up and passing imperceptibly into the dissepiments, more often ending abruptly against them.

Remarks.—Etheridge stated (p. 35) that the tabulae "pass insensibly into the general body of smaller vesicles forming the peripheral mass of each corallite"; but both in his figure (pl. vii., fig. 1) which, it should be noted, is upside down, and in the sections examined by the writer, they more often end abruptly against the almost vertical dissepiments, thus forming a very marked theca.

* *Kq̃ivov* = a lily.

† For good figures of externals and further photomicrographs, see Etheridge, oc. cit., pls. iv-vii.

In very weathered specimens the corallites frequently break along the large dissepiments giving a series of invaginated cups.

Localities.—Etheridge's material was from the Boonoo Ponds Limestone, Boonoo Ponds Creek, Hatton's Corner, Yass. The writer has obtained material from the equivalent Bowspring Limestone, Hatton's Corner, Yass.

Age.—Upper Silurian.

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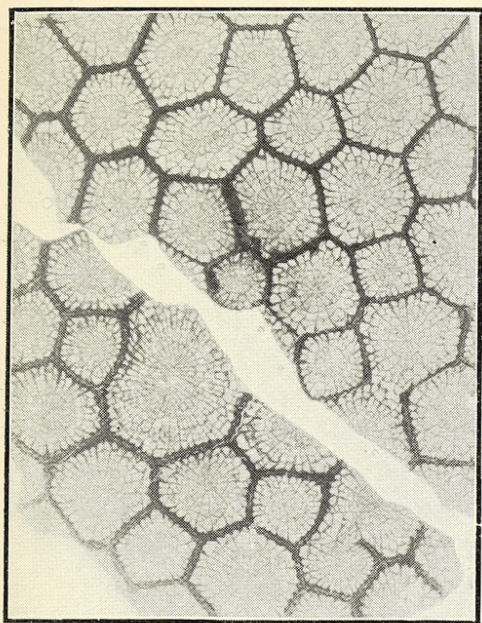


Fig. 1.

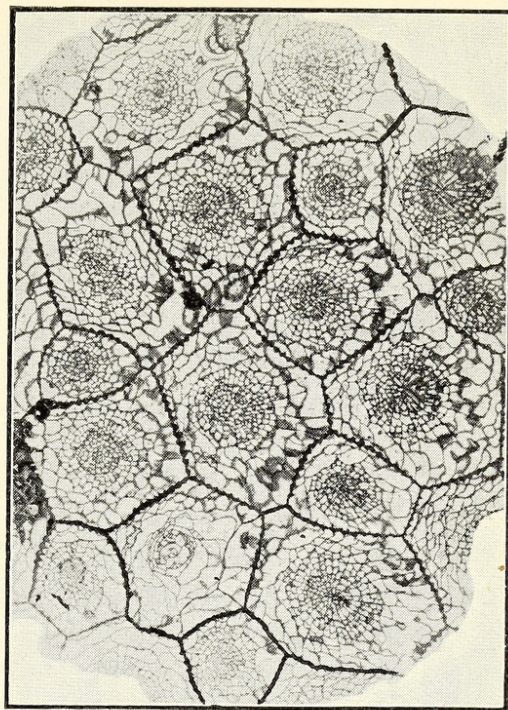


Fig. 3.

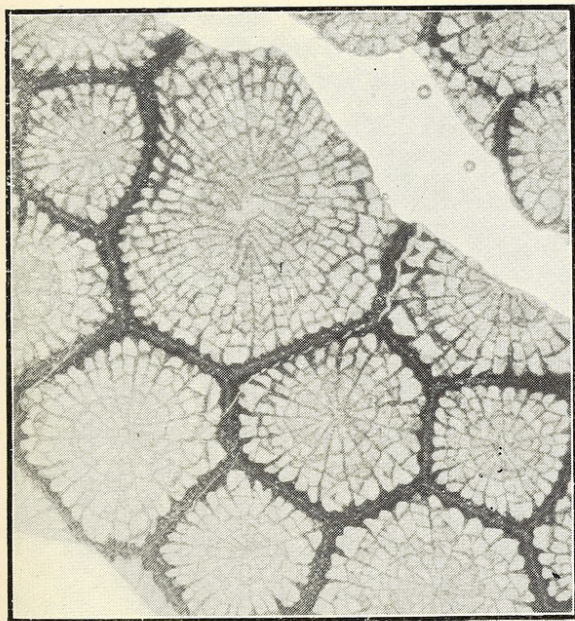


Fig. 2.

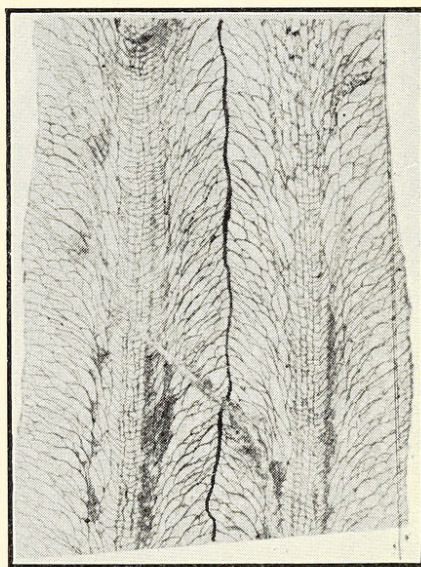


Fig. 4.

Spongophyllum shearsbii Chapman.

Fig. 1.—Transverse section of a specimen from the Bowspring Limestone, Hatton's Corner, Yass. $\times 2$.

Fig. 2.—Portion of the same section. $\times 4$. The lonsdaloid trend in the minor septa is well displayed in the large corallite.

Spongophyllum spongophylloides (Foerste).

Fig. 3.—Transverse section of a specimen from Limestone Creek, Yass. $\times 2$.

Fig. 4.—Longitudinal section of a specimen from the Barrandella Limestone, Hatton's Corner, Yass. $\times 2$.

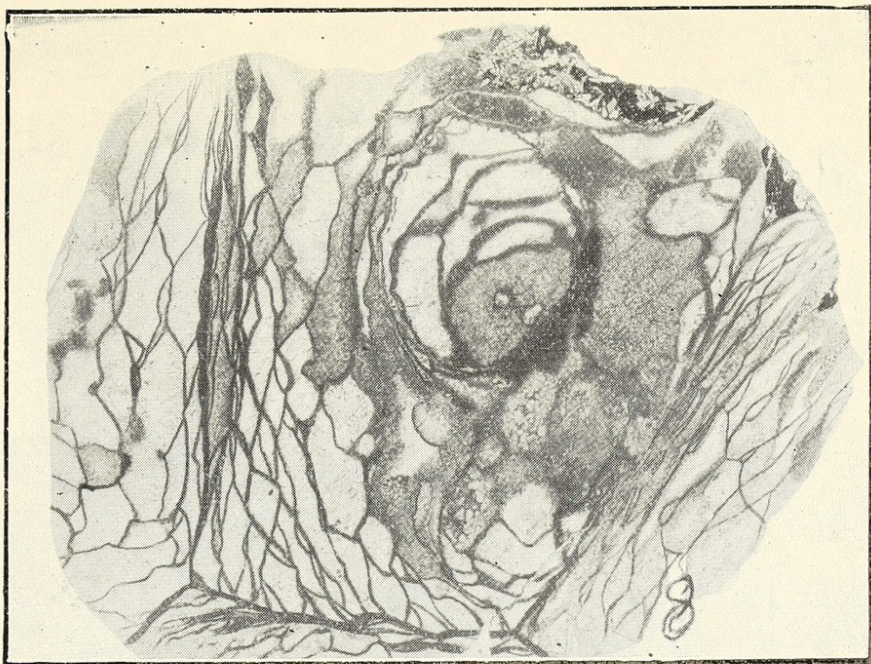


Fig. 2.

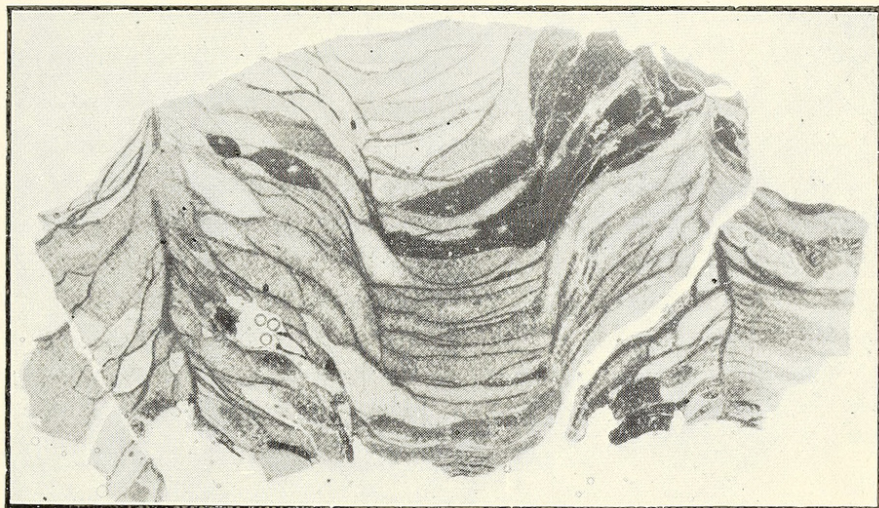


Fig. 3.

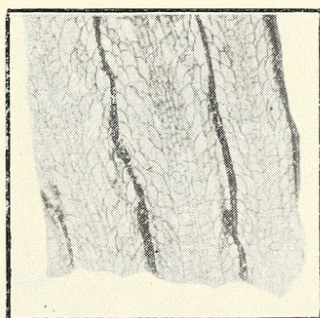


Fig. 1.

Spongophyllum shearsbii Chapman.

Fig. 1.—Longitudinal section of the same specimen as pl. III. figs. 1, 2. $\times 2$.

Crinophyllum enorme (Eth. fil.).

Fig. 2.—Transverse section of a specimen from the Bowspring Limestone, Hatton's Corner, Yass. $\times 2$.

Fig. 3.—Longitudinal section of the same. $\times 2$.

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