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SCLERACTINIA FROM THE UPPER PORTLANDIAN OF TISBURY,
WILTSHIRE, ENGLAND

Abstract.— Four species of Scleractinia: *Pseudodiplocoenia oblonga* (Fleming), *Ellipsasteria gracilis* n. gen., n. sp., *Edwardsastraea tisburyensis* n. gen., n. sp. and *Ebrayia dightonthomasi* n. sp., from the uppermost Portlandian of Tisbury, west of Salisbury, Wiltshire, England, are here described. The histological structure of the skeleton of *Pseudodiplocoenia oblonga*, preserved in silicified colonies is presented.

INTRODUCTION

A little known coral fauna occurs in the uppermost beds of the Upper Portlandian near Tisbury (West of Salisbury, Wiltshire, England). The preservation of colonies in a completely silicified state is a peculiarity of this fauna which, containing representatives of the Recent families, *Heliastraeidae* and *Faviidae*, deviates in character from typical Jurassic faunas.

Only one of the species which occur at this locality has so far been described by H. Milne-Edwards & J. Haime (1851) in Part II of "A Monograph of the British Fossil Corals" as *Isastraea oblonga* (Fleming). This name was subsequently used to designate all corals from Tisbury in the collections of the British Museum and the Geological Survey Museum, including the representatives of the three new species described here. A fairly considerable specific differentiation of the collection under study, which is an accidental collection, suggests that the fauna of corals from Tisbury might be much richer.

As a result of a complete silification of the colonies, macroscopic characters of the skeleton are clearly visible. In addition, the histological structure of the skeleton is preserved in specimens of *P. oblonga*.

The specimens come from the collections of the British Museum (Natural History) (B. M. Palaeont. Dept.) and were made available to me by courtesy of the late Dr. H. Dighton Thomas and, later, of Dr. C. T. Scrutton (both then of the Department of Palaeontology, British Museum (Natural

History)) and from the collections of the Geological Survey Museum in London (GSa; Geol. Soc. Colln.; GSM) by courtesy of Dr H. Ivimey-Cook (Geological Survey and Museum, Institute of Geological Sciences). Thin sections are housed in the Department of Palaeontology, British Museum (Natural History).

My heartfelt thanks are extended to Dr L. Beauvais (Laboratoire de Géologie, Sorbonne, Paris) for her valuable remarks concerning the genus *Pseudodiplocoenia*. I am deeply grateful to Dr. C. T. Scrutton (Department of Geology, The University, Newcastle upon Tyne) for correcting of the manuscript.

The work has been prepared at the Institute of Palaeozoology, Polish Academy of Sciences, Warsaw. My thanks are also due to Miss D. Kościńska for making thin sections and to Miss M. Czarnocka (both Institute of Palaeozoology) for taking photographs. The photograph of *Ellipsasteria gracilis* (Pl. III, Fig. 2) was kindly sent in by Dr. H. Ivimey-Cook.

SYSTEMATIC DESCRIPTIONS

Family *Heliastreaeidae* Alloiteau, 1952

Genus *Ellipsasteria* n. gen.

Type species: Ellipsasteria gracilis n. sp.

Derivation of the name: Ellipsasteria — a name referring to the elliptical shape of the calices.

Diagnosis. — Corallum plocoid; budding extracalical; septal faces faintly ornamented; columella lamellar, undulating; endo- and exotheca dissepimental.

Remarks. — This genus is very similar to *Antiguastraea* Vaughan, 1919. *E. gracilis* has many characters similar to those of *Antiguastraea cellulosa* (Duncan), resembling in particular the specimen from the Oligocene of Mississippi, illustrated by Vaughan (1919, Pl. 101, Fig. 2). The difference between these two genera concerns the development of the wall and columella. In *Antiguastrea* the wall is only slightly separated from the peripheral part of dissepimentarium and the columella is flattened but massive, whilst in *Ellipsasteria* n. gen., the parathecal wall is conspicuously developed and the columella is a very thin, undulating lamella which sometimes divides into smaller elements.

Species assigned. — So far, this is a monotypic genus.

Occurrence. — Type locality and horizon.

Ellipsasteria gracilis n. sp.

(Pl. I, Fig. 2; Pl. II, Fig. 4)

Holotype: GMS 98 586; Pl. I, Fig. 2, Pl. II, Fig. 4.*Type horizon*: Uppermost Beds of the Portlandian.*Type locality*: Tisbury, W. of Salisbury, Wiltshire, England.*Derivation of the name*: Lat. *gracilis* = gracefully slender, a name referring to the delicate structure of skeleton in this species.*Diagnosis*. — Corallites 4 to 5 mm in diameter; about 50 thin costosepta, divided into four orders, are arranged in six systems; columella delicate; endotheca formed by fine dissepiments in the peripheral and large ones in the axial part; peritheca narrow.*Material*. — Three fragmentary colonies, seven transverse and longitudinal thin sections, GSM 98 586, B. M. Palaeont. Dept. R. 7832, 10 871.

Dimensions (in mm):

d	3—4(5)
c—c	4—5
s	42—48

Description. — Corallites separated by a very narrow peritheca or contacting each other with their walls. Calices oval or round. In the areas where individuals are crowded, corallites have accidental outlines. Radial elements thin, slightly fusiform, with costal part short. S_1 and S_2 much the same in length and thickness, although in some corallites they considerably differ from each other. S_3 reaching about three quarters and S_4 about one quarter to one third of the length of S_1 . Septa in the last two orders are very thin. Inner margin irregularly notched, in septa S_1 , and S_2 frequently T-shaped. Septal faces nearly smooth. Columella lamellar thin, undulating or bent, sometimes divided into 2–3 parts. Septa of the first two cycles may contact the columella with their thin trabecular processes. In the peripheral part, endotheca composed of numerous small, convex dissepiments. Large, flat, oblique dissepiments occur in the centre. Elements of peritheca are of the same size as the peripheral dissepiments of endotheca. Wall thin, but well developed, parathecal. Perithecal budding observed in the places where the peritheca is the widest, that is, in the corners between 3–4 individuals.*Occurrence*. — Type locality and horizon.Family **Faviidae** Gregory, 1900Genus *Edwardsastraea* n. gen.*Type species*: *E. tisburyensis* n. sp.*Derivation of the name*. — A genus dedicated to H. Milne-Edwards (1800–1885), a French zoologist and palaeontologist who studied the Hexacoralla.

Diagnosis. — Corallum cerioid; inner septal margin strongly thickened (pali?), provided additionally with thin trabecular lobes; septal faces covered with thick granulation; columella parietal, fascicular; wall septothecal; endotheca dissepimental; budding intratentacular.

Species assigned. — So far, it is a monotypic genus.

Remarks. — *Edwardsastraea* n. gen. is a genus most similar to *Favites* and *Goniastraea*. It differs from *Favites* in the development of the periaxial parts of the septa which, in contradistinction to those of *Favites*, are strongly thickened. This character relates it in turn to *Goniastraea* from which it differs in a clearly dissepimental endotheca. The comparisons made here are limited by the state of preservation of the type specimen which prevents the writer from comparing the ornamentation and microstructure of the septa.

Occurrence. — Type locality and horizon.

Edwardsastraea tisburyensis n. sp.

(Pl. I, Fig. 1; Text-fig. 1)

Holotype: B. M. Palaeont. Dept. R. 7839; Pl. I, Fig. 1; Text-fig. 1.

Type horizon: Uppermost beds of the Portlandian.

Type locality: Tisbury, W. of Salisbury, Wiltshire, England.

Derivation of the name: *tisburyensis*, after the name of type locality.

Diagnosis. — Corallites about 8 mm in diameter; septal apparatus consisting of 35–45 septa differentiated into three orders; septa of the first two orders strongly rhopaloid.

Material. — A fragmentary colony; one transverse thin section.

Dimensions (in mm):

s (33) 36–45; 8–10/ in the wall

d 7–9, 8 × 10

Description. — Corallites mostly pentagonal, subcircular or slightly elongate in outline. Radial elements nonconfluent or subconfluent, with a short costal part embedded in a thickened wall. Septal apparatus differentiated into three orders, arranged in more or less regular systems. S_1 strongly rhopaloid are swollen halfway the length or at one third of the periaxial part. S_2 , approximately the same in length, slightly less thickened in the periaxial part than S_1 . S_3 well developed, non rhopaloid here and there fused with septal faces of S_2 . Thin, widely spaced trabecular processes which in the centre form a rudimentary parietal columella, deviate from the inner margin of septa. Septal faces ornamented with strongly projecting granules. Dissepiments vesicular, slightly finer in the parietal than in the periaxial part. Wall complete, composed of the extended, peri-

pheral parts of radial elements and thickened by stereome. Budding intratentacular, di- and tri-stomodaeal with lamellar linkages.

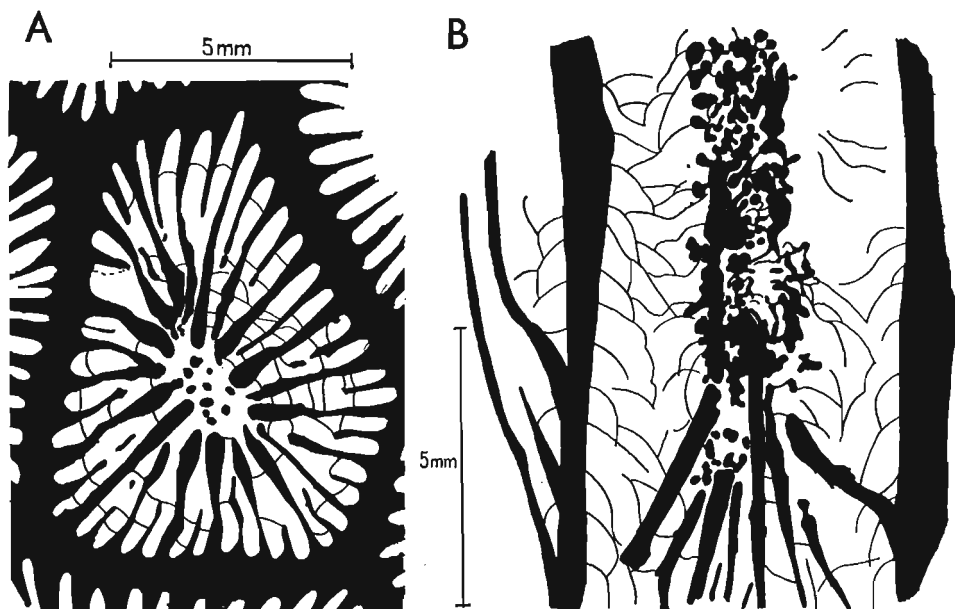


Fig. 1. *Edwardsastraea tisburyensis* n. gen. n. sp. A, transverse section showing periaxial rhopaloid septa and the loosely structured columella; B, longitudinal section, (B. M. Palaeont. Dept. R. 7839).

Microstructure. — Septa probably composed of two fan systems. A dark line here and there dividing into particular trabeculae, runs through the middle of a septum. Trabeculae thick. The rhopaloid thickenings of the septa have their own trabecular system, for the dark line occurring in them is isolated from the rest of septum. This allows one to suppose that periaxial parts of the septa might detach themselves in the form of pali proper, from which thin trabecular processes, forming rudimentary columella, deviate in turn, running towards the centre.

Occurrence. — Type locality and horizon.

Family **Latomeandriidae** Alloiteau, 1952

Genus *Ebrayia* de Ferry, 1870

On the basis of a supplemented diagnosis of the genus given by Alloiteau (1957), the present writer assigns the English species, described below, to *Ebrayia* de Ferry. However, due to the fact that the description of *Ebrayia* is based only on the characters observed on the surface of a colony and that it is unknown to what degree this diagnosis is exhaustive, it is not unlikely that the similarities between the type species and *E. dightonthomasi* n. sp. will turn out to be apparent only.

Due to the presence of synapticalae and an irregularly porose septa, the present author assigns this genus to the family Latomeandriidae rather than to the Andemantatraeidae as was suggested by Alloiteau (1957), since the last named family lacks porous septa. In its external characters, this genus most closely resembles the genus *Ovalastra* d'Orbigny (cf. Beauvais, 1964), from which it differs in the columnar structure of the perithecium, extracalicular budding and nonanastomosing septa. The differences mentioned above remove this genus from the family Latomeandriidae, to which it is here assigned due to the lack of a more appropriate place within the range of the Fungiida.

Ebrayia dightonthomasi n. sp.

(Pl. I, Fig. 3; Pl. II, Fig. 5; Text-fig. 2)

Holotype: B. M. Palaeont. Dept. R. 7819; Pl. I, Fig. 3; Pl. II, Fig. 5; Text-fig. 2.

Type horizon: Uppermost beds of the Portlandian.

Type locality: Tisbury, W. of Salisbury, Wiltshire, England.

Derivation of the name: A species dedicated to the late H. Dighton Thomas, a British palaeontologist.

Diagnosis. — Perithecium narrow, columnar; budding perithecal; corallites about 8 mm in diameter, septa irregularly porous, provided with paliform lobes; columella parietal; wall synapticulothecal; endotheca composed of large dissepiments.

Material. — A fragmentary colony, three transverse and longitudinal thin sections.

Dimensions (in mm):

d	7—8
c—c	3—10
s	44—48, in the wall 7/3

Description. — Corallum massive. Corallites round to elliptical in outline separated by an ambulacrum. Radial elements fusiform. Costal part short, dividing, at a short distance from the wall, into trabeculae which form vertical elements of perithecium. Septal part, irregularly porous, thinner than the costal part. Septa differentiated into three cycles; septa of the second cycle only slightly differ in thickness from those of the first cycle and approach the columella. Septa of the third cycle occur regularly and reach a quarter of the radius. No tendency to anastomosis observed. Inner margin of septa provided with paliform lobes arranged in two more or less distinct crowns. These lobes partly fuse with each other, forming columella with a papillary or spongy appearance. The diameter of columella makes up one third or a quarter of that of corallite. Wall, composed of

a single ring of simple synapticalae, porous. Endotheca abundant, composed of large dissepiments, forming pseudotabulae. The peritheca composed of vesiculate dissepiments and trabeculae formed from the disintegration of costae, has a vesicular-columnar structure. Perithecal budding seems to be the only manner of colony increase.

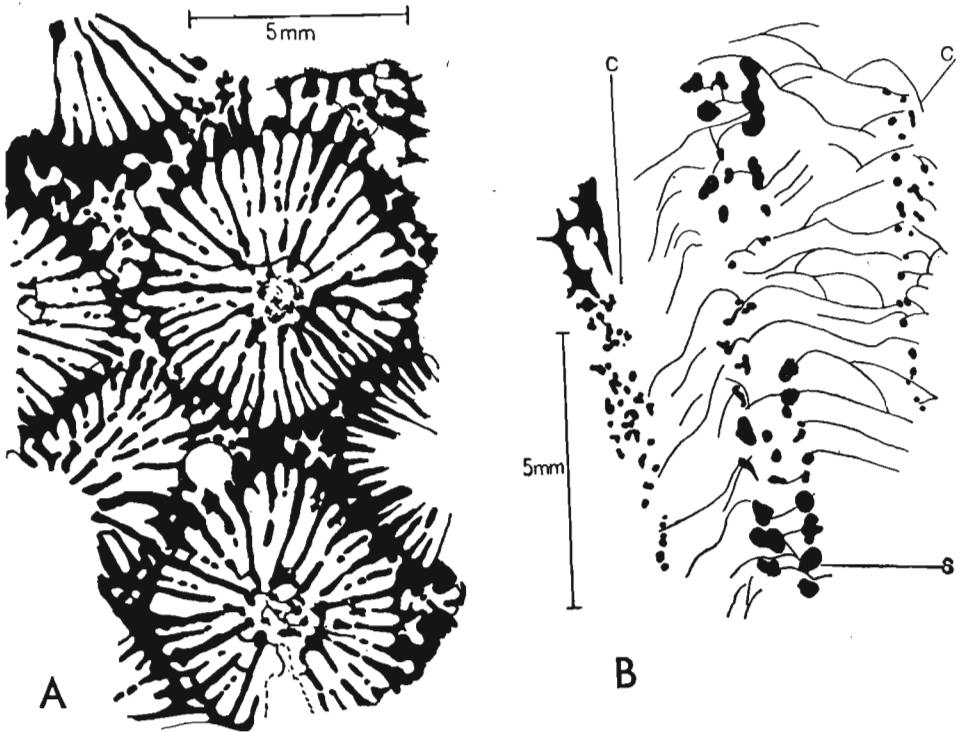


Fig. 2. *Ebrayia dightonthomasi* n. sp. A, transverse section showing costae disintegrating into trabeculae in the peritheca; B, longitudinal section; s, wall synapticalae, c — columella (B. M. Palaeont. Dept. R. 7819).

Remarks. — This species differs from *E. fromenteli* de Ferry in twice as large diameters of corallites.

Occurrence. — Type locality and horizon.

INCERTAE SEDIS

Genus *Pseudodiplocoenia* Alloiteau, 1958

The supplemented diagnosis of the genus *Pseudodiplocoenia* Alloiteau, 1958: Corallum cerioid; calices with margins sharp or separated by a more or less strongly developed furrow formed in the place in which a wall occurs. Septa lamellar, composed of a single series of trabeculae; faces minutely granulated; inner margin regularly dentate. Septa arranged ra-

dially with a superposed bilateral symmetry. Columella styliiform, flattened to a varying degree fused with the septa. Endotheca consisting of obliquely arranged, large, peripheral dissepiments and extensive dissepiments forming pseudotabulae in the axial zone. Wall composed of mural spines, sometimes thickened by oblique peripheral dissepiments. Budding intratentacular during which the septal apparatus of a parent individual divides into 2–4 approximately equal daughter individuals.

Remarks. — This rare genus was first described from the Callovian of Madagascar on the basis of the species *P. lazarivensis* Alloiteau, 1958 (Alloiteau, 1958). *P. soltanensis* Beauvais, 1966, found in the Jurassic of the Tunesian Sahara and *P. oblonga* from the Portlandian of England, are the only other species of this genus known thus far.

The most characteristic features common to the three species are as follows:

- a radial-bilateral symmetry (cf. Alloiteau, 1958, pp. 74 and 75 and Beauvais, 1966, p. 19);
- the manner of budding, during which two, three and four polygonal daughter individuals, sharing the septal apparatus of a parent individual (cf. Alloiteau, l.c., Pl. 8, Fig. 9), are formed within a polygonal parent individual;
- uniserial septa without an axis of divergence.

The differences between *P. oblonga* and the other two species concern the morphology of the calicinal surface of the corallum. Colonies of *P. oblonga* retain a cerioid appearance because of a very weak development of the furrow between calices, which is clearly visible only on slightly abraded surfaces. The other two species, in particular *P. lazarivensis*, have a broad furrow giving the colony the semblance of a plocoid structure. This furrow is not, however, ambulacral in character, but it is a groove formed on the surface of a cerioid corallum along the line of the wall which divides corallites closely adhering to each other (Beauvais, 1966). The differences in the appearance of the calicinal surface may be considered, therefore, as interspecific differences which are contained within the same pattern of structure and modified by weathering.

On the basis of microstructure, *Pseudodiplocoenia* was assigned by Alloiteau to the family Amphistraeidae. The holotype of *P. lazarivensis*, however, is insufficiently well preserved for the reliable observation of microstructural details and the writer considers that the familial placing was inadequately founded. In addition, neither the type species, nor the remaining ones display a proper amphistroid arrangement of the septa. For these reasons the present author excludes this genus from the family Amphistraeidae. Judging from the structure of *P. oblonga*, the genus *Pseudodiplocoenia* displays a similarity to the family Faviidae in the general morphology its skeleton. Due however to the serial structure of its

septa (lacking an axis of divergence), regularly serrate inner margin of the septa, features of budding, it cannot be assigned to this family. The characters of *Pseudodiplocoenia* are so specific that a new family, or maybe even suborder, should be erected for this genus. For the present, the writer suggests that it should be left in the group incertae sedis¹.

Pseudodiplocoenia oblonga (Fleming, 1827)

(Pl. II, Figs. 1-3; Pl. III, Figs. 1-3; Pl. IV, Figs. 1-4; Text-figs. 3-5)

1851. *Isastrea oblonga* Fleming; H. Milne-Edwards & J. Haime, A. Monograph..., p. 73, Pl. 12, Figs. 1, 1a-f.
1857. *Isastrea oblonga* Fleming; H. Milne-Edwards & J. Haime, Histoire..., t. II, p. 528.
- non 1954. *Isastrea oblonga* (Fleming); O. F. Geyer, Die oberjurassische..., p. 185, Pl. 15, Fig. 5.

Material. — Thirty-two specimens, including small fragments of a colony and 16 thin sections: B. M. Palaeont. Dept. Nos R. 2017, R. 2666, R. 5007, R. 7812-13, R. 7820, R. 7824-31, R. 7833-38, R. 7986, 10 870, R. 17 155, 23 709, 35 557, R. 36 105, 36 977, 38 564, 40 394. 41 655, R. 46 646-7; GSM. 111 892; GSa 3209-10, GSa 3214-16; Geol. Soc. Colln. 2857.

Dimensions (in mm):

d 4-7 (10); s 42-48
c-c 4-7 ; density of septa in wall 6/2

Description. — Corallum massive. Corallites mostly penta- and hexagonal. Calices depressed with margins either sharp or blunt, wide and with a narrow furrow separating individuals. Septa strong, differentiated into four cycles, arranged in rather irregular systems. Symmetry in principle radial, five-, six- and sevenfold. S_1 reaching the centre; frequently, in adult corallites, one or two opposing each other, are thicker than the rest and mark a plane of a bilateral symmetry. This bilateral symmetry shows some similarity to that in amphistraeids but without its most striking characters such as a collumellar septum proper (or group of septa) and an arrangement of septa subordinate to the plane of symmetry. S_2 thinner and usually somewhat shorter than S_1 . S_3 reaching about two thirds of S_1 and as a rule fused with their inner margin to S_2 . S_4 frequently fused with the face of S_3 , in some systems — lacking. Absolute length of septa of particular orders strongly varying within one and the same corallite. Inner margin regularly minutely dentate; faces granulated with ornamentation arranged according to the trace of trabeculae. S_1 and, partly, S_2 contact a thin, styliform or compressed columella. In flattened corallites, displaying a bilateral symmetry, the columella is flattened transversely to the

¹ Lately Beauvais (1970) placed *Pseudodiplocoenia* within the group of genera of an uncertain position.

plain of symmetry. Endotheca strongly developed, composed of large dissepiments. Near the wall, they are obliquely arranged and give, in the transverse section, the semblance of an inner wall. In the center, dissepiments

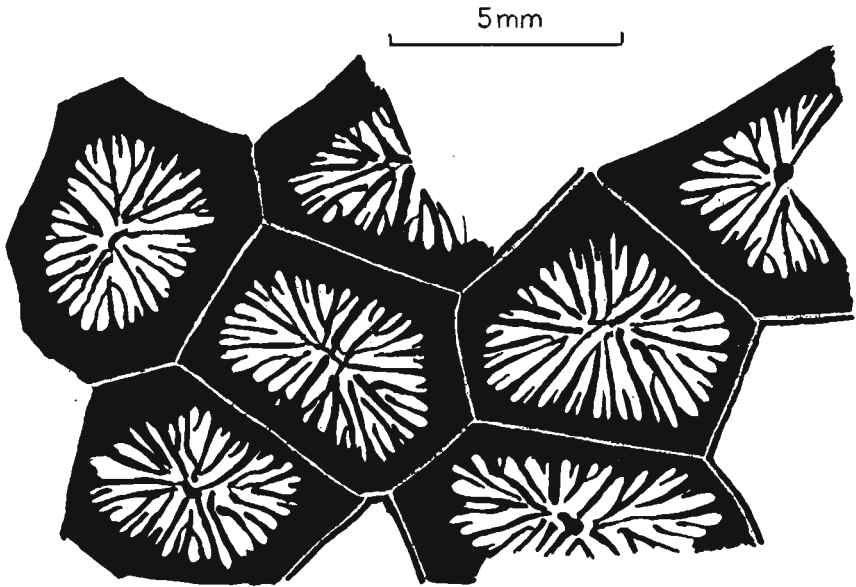


Fig. 3. *Pseudodiplocoenia oblonga* (Fleming). Transverse section showing a pseudo-amphiastraeid septal arrangement (B. M. Palaeont. Dept. R. 17155).

are thin and subhorizontal. Individuals are connected with each other by a common, complete wall. Contrary to Alloiteau's (1958) supposition, this is not an archaeotheca, but a wall with its structure similar to those in *Favites*, *Dictyoastraea* (Chevalier, 1961, Text-figs. 45d, 48c and 50) and *Leptoria* (Chevalier, 1968, p. 110, Text-fig. 6). It is formed of vertical structural elements derivatives of peripheral, dissepiments which were described by Chevalier in *Leptoria netchensis* as mural spines (épines murales). These elements, developed in the form of beams are arranged close to each other in a single row on the boundary between particular corallites. The wall may be strongly thickened as a result of the connection of peripheral dissepiments. If such is the case, no vesicles are formed but successive generations of peripheral dissepiments superpose each other in the form of thick layers. Differences in structure of particular parts of these layers are marked by changes in the intensity of their colour. This is the reason why particular layers, their trace and thickness are clearly visible. The layers do not display seasonal differences in thickness; this remains approximately the same in the entire colony and amounts to about two millimetres.

Budding intratentacular, of two types. The most frequent is the budding in which a parent corallite is divided into two, three and four more or less

identical daughter corallites. Walls between them are founded upon particular septa of the parent corallite as in *Bussonastraea* Beauvais (Beauvais, 1965). Intratentacular budding with lamellar linkages between a parent and daughter corallite is met with less frequently.

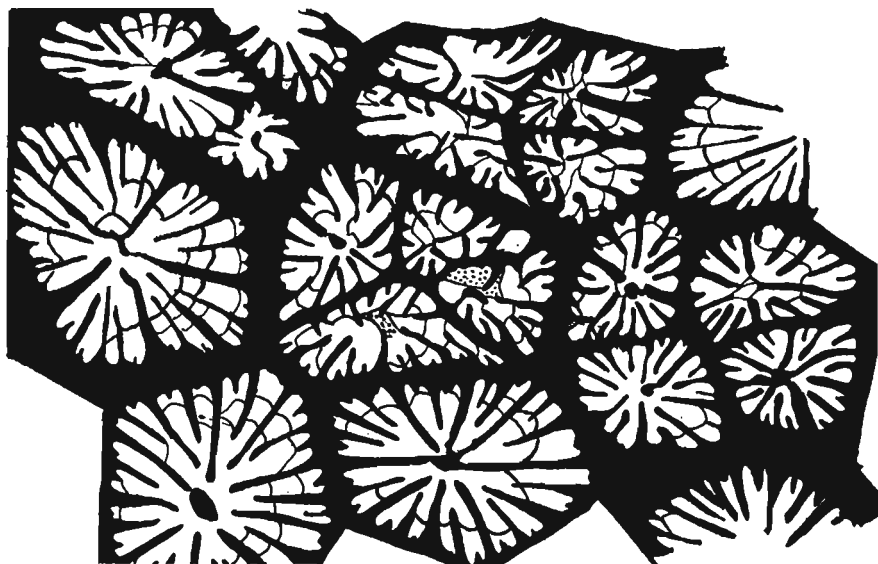


Fig. 4. *Pseudodiplocoenia oblonga* (Fleming): Intratentacular budding with the division of the parental septa between daughter corallites; intratentacular budding with lamellar linkages is visible in the top left corner of the figure, $\times 6$ (B. M. Palaeont. Dept. 23709).

Microstructure and histological structure. — The skeleton of *P. oblonga* has a fibrous structure. Fibres are long. Judging from transverse section, septa are formed by a single series of simple, strongly inclined and rather thick trabeculae. The structure of mural spines, in transverse section, resembles that of trabeculae in having a distinct centre surrounded by radially diverging fibers. However, longitudinal sections reveal that mural spines consist of the extensions of dissepiments from the two neighbouring corallites (Fig. 5A). Bundles of fibres detach themselves from the wall and run towards the axis of corallite as septal trabeculae. In the part composed of superposed dissepiments, the wall has a fibrous structure. Fibres are arranged perpendicularly to the surface of growth layers. Centres of mural spines and intervening zones were, in particular layers, subject to a partial resorption with the growth of a colony, which caused the formation of a more or less continuous fissure between individuals characteristic of this genus.

Remarks. — The specimens of *P. oblonga* studied show all the specific characters illustrated by Milne-Edwards & Haime (1851) and thus, in the

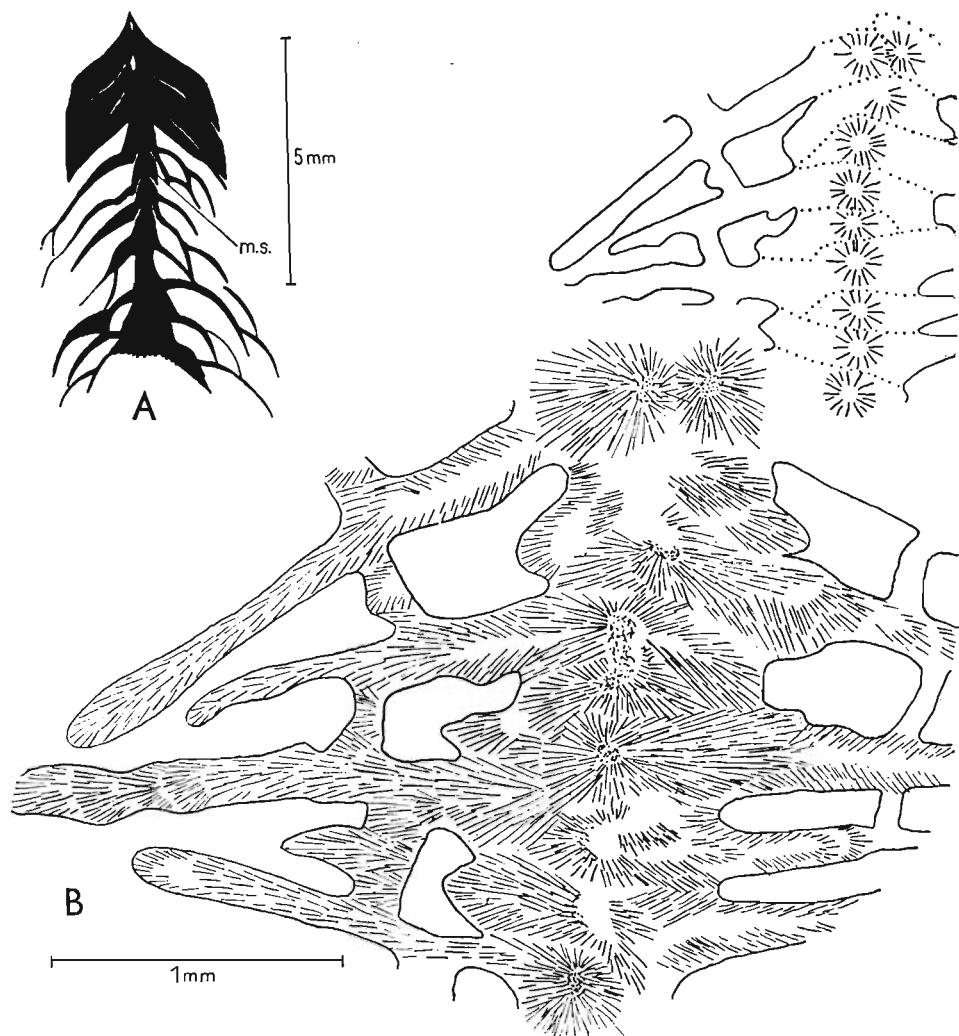


Fig. 5. *Pseudodiplocoenia oblonga* (Fleming). A, longitudinal section through a wall, m. s., mural spines (B. M. Palaeont. Dept. R. 39564). B, transverse section showing the structure of the wall: diagram illustrates the relations between septa and respective mural spines (B. M. Palaeont. Dept. R. 7830).

absence of the holotype, were used as the basis of this revision of the species' taxonomic status.

Judging by illustrations, the specimen described by Geyer (1954) as *Isastrea oblonga* belongs indeed to the genus *Isastrea*, having nothing in common with the specimens here described.

Occurrence. — England, Wiltshire, Tisbury, Upper Portlandian.

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 May, 1970

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EWA RONIEWICZ

SCLERACTINA Z GÓRNEGO PORTLANDU TISBURY (WILTSHIRE, ANGLIA)

Streszczenie

Opisano 4 gatunki koralu sześciopromiennych z górnego portlandu miejscowości Tisbury na podstawie materiałów otrzymanych z British Museum, Department of Palaeontology i Geological Survey and Museum. Są to przedstawiciele dwóch znanych rodzajów, *Pseudodiplocoenia* Alloiteau, 1958 i *Ebrayia* de Ferry, 1870, każdy z nowym gatunkiem, oraz dwóch rodzajów wyodrębnianych jako nowe i opartych na nowych gatunkach: *Ellipsasteria* n. gen. i *Edwardsastraea* n. gen. Dotychczas znany był z tej miejscowości tylko jeden gatunek, opisany przez H. Milne-Edwards & J. Haime (1851) jako *Isastrea oblonga* (Fleming).

Opracowana fauna wyróżnia się spośród znanych koralowych faun jurajskich nowoczesnym charakterem, gdyż zawiera przedstawicieli rodzin Faviidae i Heliastreaeidae. Wskutek skrzemionkowania dobrze są zachowane cechy makroskopowe, a u *Pseudodiplocoenia oblonga* (Fleming) nawet budowa histologiczna szkieletu.

ЭВА РОНЕВИЧ

SCLERACTINIA ИЗ ВЕРХНЕГО ПОРТЛАНДА ТИСБЕРИ
(ГРАФСТВО WILTSHIRE, АНГЛИЯ)

Резюме

На основе материала, полученного из Великобритании (British Museum, Department of Palaeontology и Geological Survey and Museum), описаны 4 вида шестилучевых кораллов верхнего портланда местности Тисбери (Tisbury). Они являются представителями двух известных родов: *Pseudodiplocoenia* Alloiteau, 1958 и *Ebrayia* de Ferry, 1870 оба с одним новым видом, и двух новых родов: *Ellipsasteria* n. gen. и *Edwardsastraea* n. gen., выделенных на новых видах. До сих пор из Тисбери был известен только один вид, описанный Эдвардсом и Геймом (Milne-Edwards & Haime, 1851) как *Isastrea oblonga* (Fleming).

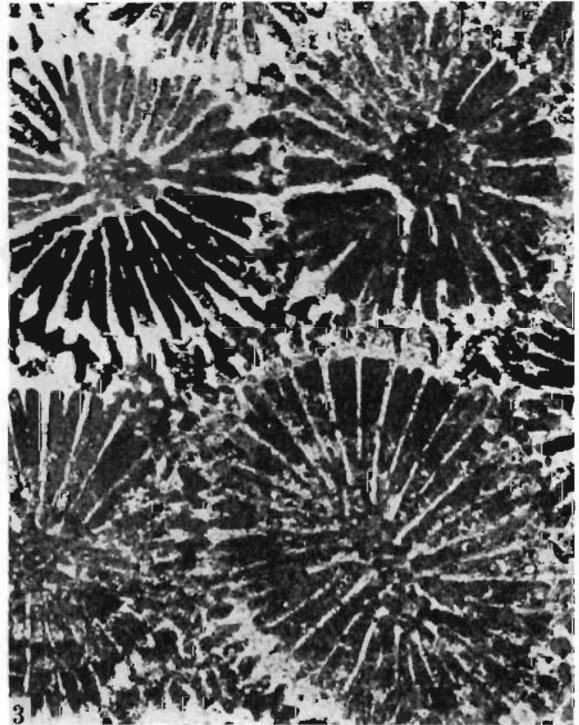
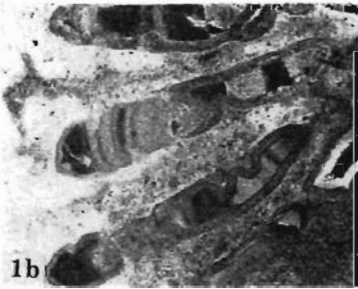
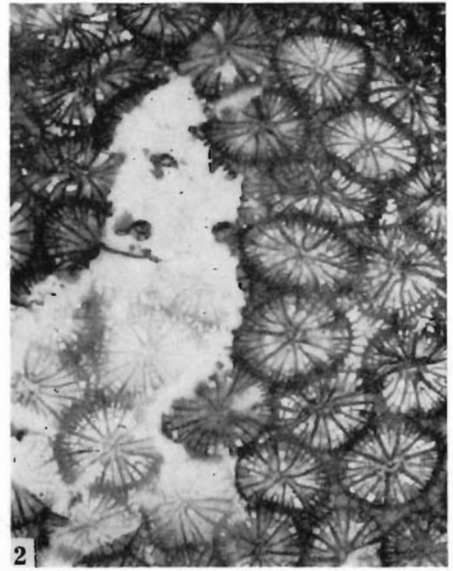
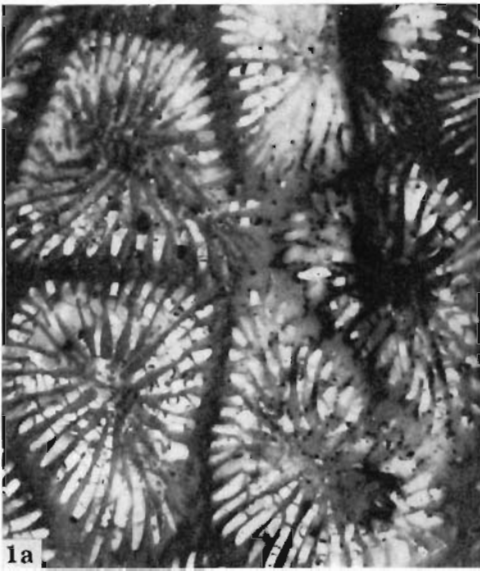
Обработанная фауна выделяется среди известных юрских коралловых фаун современным характером, потому что содержит представителей семейств Faviidae и Heliastreaeidae. Благодаря окремнению хорошо сохранились макроскопические признаки, а у *Pseudodiplocoenia oblonga* (Fleming) даже гистологическое строение скелета.

PLATES

Plate I

- Fig. 1. *Edwardsastraea tisburyensis* n. gen. n. sp.: a, a polished transverse section of a colony, $\times 4$; b, a transverse section showing traces of septal microstructure, $\times 25$; c, a transverse section showing the dark axial line in the rhopaloid end of a septum, $\times 25$ (B. M. Palaeont. Dept. R. 7839).
- Fig. 2. *Ellipsasteria gracilis* n. gen. n. sp.: a polished surface of a colony with transverse sections, $\times 3$ (G. S. M. 98586).
- Fig. 3. *Ebrayia dightonthomasi* n. sp.: transverse section, $\times 6$ (B. M. Palaeont. Dept. R. 7819).

Upper Portlandian, Tisbury



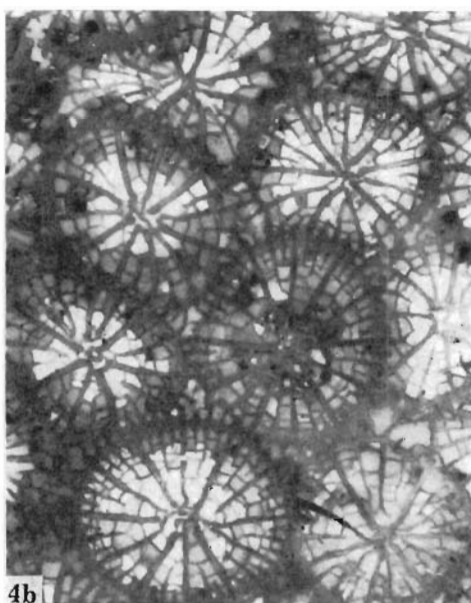
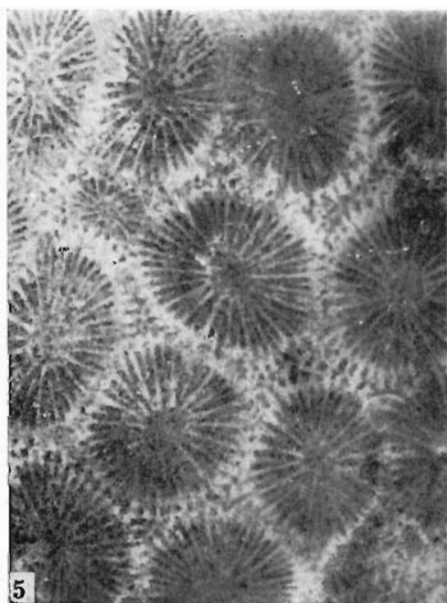
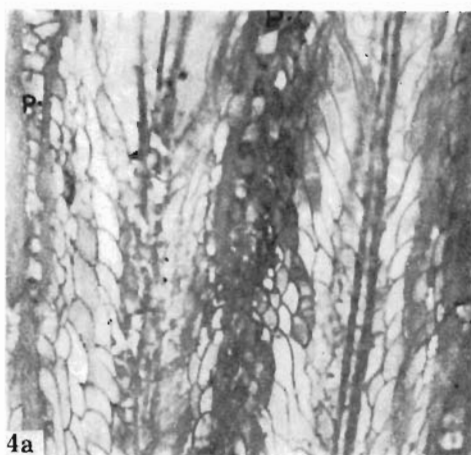
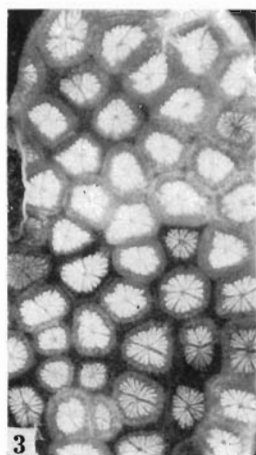
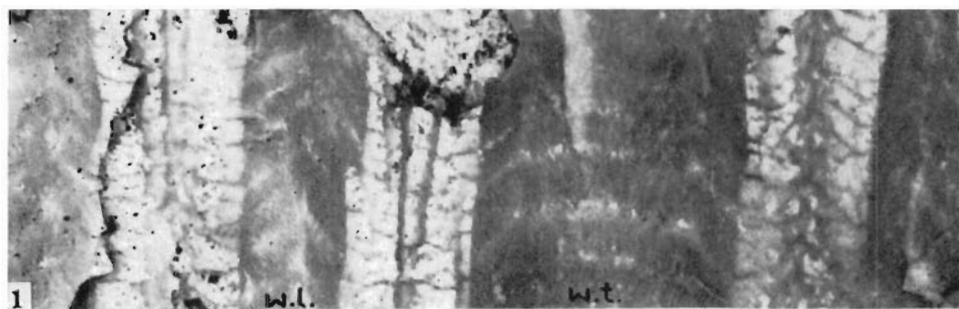


Plate II

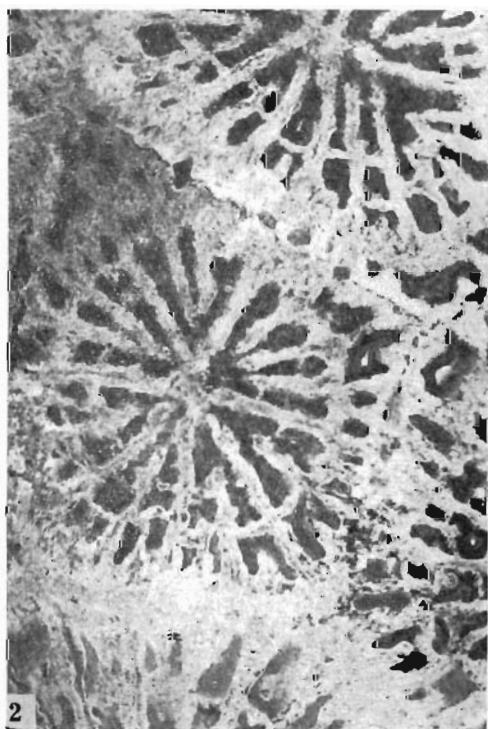
- Fig. 1.** *Pseudodiplocoenia oblonga* (Fleming): lateral view of a colony fragment with longitudinal (w. l.) and tangential (w. t.) sections of the walls; $\times 6$ (GSa 3216).
- Fig. 2.** The same species: longitudinal section through a wall with mural spines; $\times 10$ (B. M. Palaeont. Dept. R. 2017).
- Fig. 3.** The same species: a polished fragment of a colony showing a pseudo-amphiastroid septal arrangement; wall zone strongly thickened, partly devoid of structure by a severe diagenesis; nat. size (B. M. Palaeont. Dept. 36911).
- Fig. 4.** *Ellipsasteria gracilis* n. gen. n. sp.: a, a polished surface of a colony in lateral view; p, peritheca, $\times 6$; b, a polished surface of a colony showing transverse sections of corallites, $\times 6.5$ (G. S. M. 98586).
- Fig. 5.** *Ebrayia dightonthomasi* n. sp.: a polished surface of a colony showing transverse sections of corallites, $\times 3$ (B. M. Palaeont. Dept. R. 7819).

Upper Portlandian, Tisbury

Plate III

Pseudodiplocoenia oblonga (Fleming)
Upper Portlandian, Tisbury

- Fig. 1. Lateral view of the fragment of a colony; *a* endotheca and ornamentation of septal faces; *b* wall (mural spines) and peripheral dissepiments of corallites in contact with each other. $\times 6$ (B. M. Palaeont. Dept. R. 17155).
- Fig. 2. Transverse section with a furrow visible between corallites, and with a pseudowall formed by peripheral dissepiment; $\times 12$ (B. M. Palaeont. Dept. R. 7830).
- Fig. 3. A fragment of the calicinal surface with a furrow between corallites; $\times 2.5$ (G. S. M. 11892).



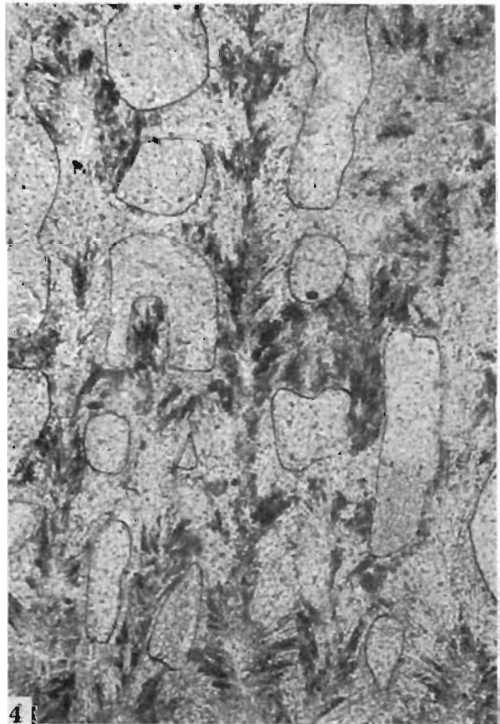
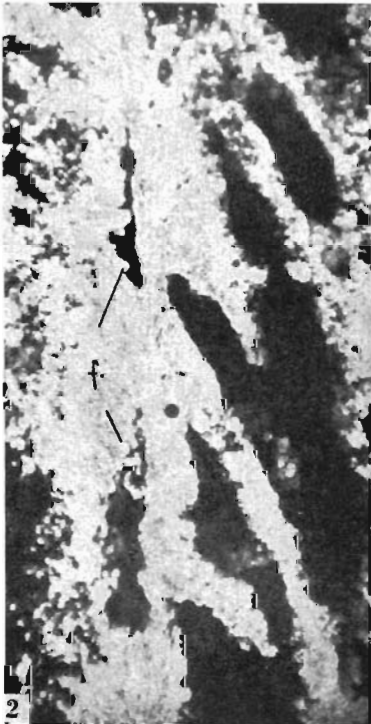
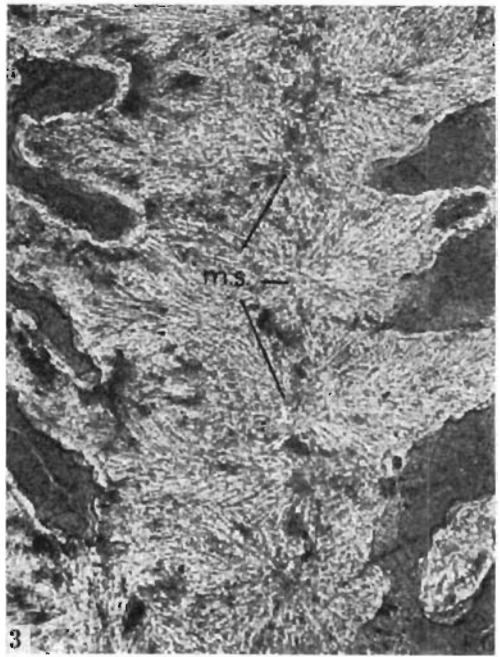
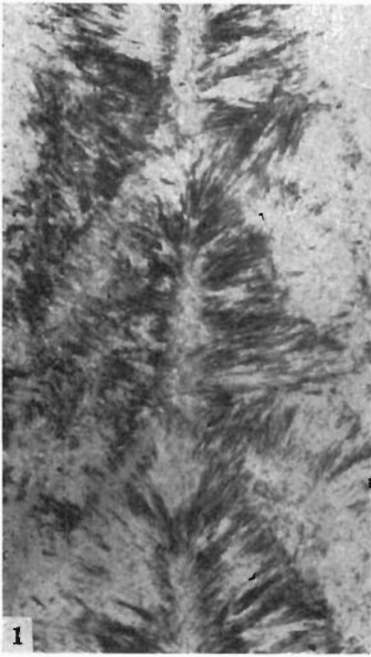


Plate IV

Pseudodiplocoenia oblonga (Fleming)
Upper Portlandian, Tisbury

- Fig. 1. Longitudinal section through a wall showing the fibrous structure of the mural spines, $\times 38$ (B. M. Palaeont. Dept. R. 2017).
- Fig. 2. Longitudinal section through a wall with fissures (*f.*) in the axes of particular mural spines, $\times 38$ (B. M. Palaeont. Dept. 35557).
- Fig. 3. Transverse section through a wall, *m. s.* centres of mural spines, $\times 60$ (B. M. Palaeont. Dept. R. 7830).
- Fig. 4. Transverse section of septa showing the trace of skeletal fibres; septa and dissepiments are contoured, $\times 60$ (B. M. Palaeont. Dept. R. 7836).