

XXXIX.—A Revision of the British Jurassic Bryozoa.—  
Part VI. The Fascigeridæ, Theconoidæ, Dactylethrata, and  
Trepotomata. By J. W. GREGORY, D.Sc., F.G.S.

[Concluded from p. 201.]

Family Fascigeridæ, d'Orbigny.

*Diagnosis.*—Cyclotomata Tubulata in which the zoecia are simple open tubes. These arise from a small cupuliform or discoid base (the *Pelagia* or *Defrancia* stage). The zoecia are monomorphic and greatly elongate. The zoarium consists of tufts, and the apertures all occur at the ends of the tufts.

Genus 1. FASCICULIPORA, d'Orbigny, 1846.

*Fasciculipora*, d'Orbigny, Voyage dans l'Amérique méridionale, t. v. pt. 4, Zooph., plates 18:39, text 18:46, p. 20.

*Diagnosis.*—Fascigeridæ in which the zoarium consists of long tubular zoecia grouped into bundles which branch irregularly; these form a loose, open, tufted zoarium, for the bundles are not connected by platforms nor do they anastomose. The apertures are at the ends of the branches, and never on the sides, and occur in isolated groups.

Type species: *F. ramosa*, d'Orbigny, 1839 and 1846.

1. *Fasciculipora Waltoni*, Haime.

*Fasciculipora Waltoni*, Haime, 1854, Bry. Jur., Mém. Soc. géol. France, sér. 2, t. v. p. 200, pl. x. fig. 4.

*Diagnosis.*—The branches of the zoarium each contain about thirty zoecia; the branches are marked externally by longitudinal ridges; the branching is irregular.

*Distribution.*—Great Oolite, Hampton, near Bath.

Genus 2. APSENDESIA, Lamouroux, 1821\*.

*Diagnosis.*—Fascigeridæ in which the zoarium rises from a cup-shaped disk. The bundles of zoecia in the adult are long and are grouped in long irregularly sinuous series. There are no platforms. The zoecia all open upon the

\* Lamouroux, Expos. méth. p. 81: The name is spelt *Apseudesia* by some authors.

summits of the ridges and never upon their sides. The underside of the zoarium is covered by epitheca.

Type species : *A. cristata*, Lamouroux, 1821.

1. *Apsendesia cristata*, Lamouroux, 1821.

*Apsendesia cristata*, Lamouroux, 1821, Expos. méth. p. 82, pl. lxxx. figs. 12-14.

*Discotubigera cristata*, Vine, 1888, Polyz. Caen, Journ. Northampton. Nat. Hist. Soc. vol. v. p. 19.

*Pelagia clypeata*, d'Orbigny, 1849, Prod. Pal. t. i. p. 317.

*Defrancia clypeata*, Bronn & Rømer, 1851, Leth. Geogn. ed. iii. Bd. ii. Th. 4, p. 94, pl. xvi. fig. 18.

*Apsendesia clypeata*, E. E. Deslongchamps, 1865, Jura. inf. Norm., Mém. Soc. linn. Norm. t. xiv. p. 151.

*Discotubigera clypeata*, Vine, 1888, *op. cit.* p. 19.

*Diagnosis*.—*Zoarium* small, dense, and hemispherical; it grows from a low funnel-shaped central disk; from this arise the radiating bundles which unite into irregular twisted laminae. The apertures occur in series or in isolated teeth.

*Distribution*.—England: Inferior Oolite—Forest Marble. Foreign: Bajocian, Germany; Bathonian, France.

Family Theonoidæ, Busk.

*Diagnosis*.—Cyclostomata Tubulata in which the zoecia are simple, short, open tubes; they pass through a *Defrancia* stage (? always). The zoecia are monomorphic.

The apertures occur along raised ridges.

Genus 1. ACTINOPORA, d'Orbigny, 1852.

*Diagnosis*.—Theonoidæ in which the zoarium is a flat, simple, adnate disk. The zoarium consists of a central depression, of a rim crossed by radiating ridges, and usually also of a flat peripheral selvage.

Type species : *A. regularis*, d'Orbigny, 1852.

1. *Actinopora Phillipsi* (Haime).

*Lichenopora Phillipsi*, Haime, 1854, Bry. Jur., Mém. Soc. géol. France, sér. 2, t. v. p. 206, pl. x. fig. 10.

*Diagnosis*.—*Zoarium* regular, circular; radial ridges about 22 in number, straight, regular, unbranched. The apertures are biserial. New ridges arise from the interrarial valleys. A broad expansion surrounds the zoarium; this is low and flat, and is not crossed by the radial ridges.

*Distribution*.—Great Oolite, Hampton, near Bath, and Richmond boring.

2. *Actinopora diplopora* (Branco), 1879.

*Defrancia diplopora*, Branco, 1879, Unt. Dogg. deut. Lothr., Abh. geol. Specialk. Els.-Lothr. Bd. ii. Heft i. p. 131, pl. vi. fig. 9.

*Actinopora diplopora*, Friren, 1893, Bry. ool. inf. Metz, Bull. Soc. hist. nat. Metz, sér. 2, t. vi. p. 57.

*Diagnosis*.—*Zoarium* large and thin; several zoaria often grow together into a semiconfluent incrustation: the ridges are from 35 to 50 in number; they are very thin, irregular, and high, and extend to the margin of the zoarium; they sometimes branch. No peripheral selvage. In some zoaria (var. *alta*) the ridges are almost as high as the zoarium is broad, and the central depressions are accordingly very deep.

*Distribution*.—England: Inferior Oolite—Great Oolite. Foreign: Bajocian, Germany.

## Genus 2. KOLOLOPHOS, gen. nov.

*Constellaria*, Haime, 1854 (non Dana, 1848).

*Radiopora*, pars, Pictet, 1857 (non d'Orbigny, 1852).

*Diagnosis*.—Theonoidæ in which the zoarium consists of flat encrusting sheets formed of numerous radial groups of zoecia. The radial ridges are broken up into groups, the arrangement of which is irregularly linear.

Type species: *Kololophos Terquemi* (Haime).

*Affinities*.—The type species of this genus was referred by Haime to Dana's genus *Constellaria*, which at that time was misunderstood. The American fossil has recently been redescribed by Ulrich\*; it is quite different from this species. There is a certain superficial resemblance, due to the prominence of radial non-poriferous lines; but in *Constellaria* these lines are solid ("maculæ" of Ulrich) and in *Kololophos* they are depressions between zoecial ridges.

The nearest ally of this genus is *Actinopora*; from this it differs by the confluence of several radial groups into one sheet and the broken interrupted character of the ridges.

1. *Kololophos Terquemi* (Haime), 1854.

*Constellaria Terquemi*, Haime, 1854, Bry. Jur., Mém. Soc. géol.

France, sér. 2, t. v. p. 207, pl. x. fig. 6.

*Radiopora Terquemi*, Pictet, 1857, Traité Pal. ed. 2, t. iv. p. 153.

*Diagnosis*.—*Zoarium* formed of several confluent disks.

\* E. O. Ulrich, "Palæont. Illinois.—Palæozoic Bryozoa," Geol. Surv. Ill. vol. viii. pt. ii. sect. vi. 1890, p. 374.

Radial ridges broad and compact, broken up into short groups or bands. The bands have from 2 to 4 zoecia in breadth.

*Distribution*.—England: Inferior Oolite. Foreign: Bajocian, Germany and France.

### Genus 3. THEONOA, Lamouroux, 1821.

*Diagnosis*.—Theonoidæ in which the zoarium is massive and consists either of dense rounded masses of thick incrustations or erect thick fronds. The surface is crossed by the broad well-marked ridges; the ridges may expand in some species into broad tubular elevations.

Type species: *T. clathrata*, Lamouroux, 1821.

#### 1. *Theonoa clathrata*, Lamouroux, 1821.

*Theonoa clathrata*, Lamouroux, 1821, Expos. méth. p. 82, pl. lxxx. figs. 17, 18.

*Diagnosis*.—*Zoarium* dense, massive, roughly spherical; the surface of the zoarium is broken into ridges, which are short, broad, and blunt; they never rise into high bilaminate sheets. Four or five apertures occur together in one width of a ridge.

*Distribution*.—England: Great Oolite (*vide* Morris). Foreign: Bajocian, France and Germany; Bathonian, France.

#### 2. *Theonoa Bowerbanki*, Haime.

*Theonoa Bowerbanki*, Haime, 1854, Bry. Jur., Mém. Soc. géol. France, sér. 2, t. v. p. 205, pl. x. fig. 3.

*Diagnosis*.—*Zoarium* composed of many erect irregular sheets; the sheets are tall, irregularly sinuous, and branched, leaving loose funnel-shaped cavities between them. The zoarium is roughly hemispherical in form.

The radial ridges are long and fairly continuous; the summits are flat and contain generally 3 or 4 apertures in the width, but in places they expand and contain 6 or 7 in the width; the ridges occur on both sides of the sheets.

*Distribution*.—Inferior Oolite, England.

#### 3. *Theonoa distorta* (Lamouroux), 1821.

*Tilesia distorta*, Lamouroux, 1821, Expos. méth. p. 42, pl. lxxiv. fig. 6 (non fig. 5).

*Theonoa distorta*, Vine, 1883, 3rd Rep. Foss. Polyz., Rep. Brit. Assoc. 1882, p. 267.

*Diagnosis.*—A thick incrustation; the surface is covered by numerous irregular ridges, the width of which usually contains two or three apertures. The depressions between the ridges are deep and usually as wide or a little wider than the ridges.

*Distribution.*—England: Inferior Oolite. Foreign: Bathonian, France.

#### Suborder DACTYLETHRATA.

*Diagnosis.*—Cyclostomata in which the normal zoecia are elongate simple tubes of the same general character as those of the Tubuliporidae. Dimorphism occurs, and the zoarium consists of normal zoecia separated by numerous dactylethræ, which often form the major part of the zoarium.

Zoarium usually large and complex.

#### Fam. Clausidæ, d'Orbigny (emended).

*Diagnosis.*—Cyclostomata Dactylethrata in which the zoarium is arborescent. The zoecia open on all sides of the zoarium. The dactylethræ are collected into zones or are scattered regularly or irregularly among the zoecia.

#### Genus 1. MULTICLAUSA, d'Orbigny, 1852.

*Diagnosis.*—Clausidæ in which the zoarium consists of stout branches, cylindrical or pyriform, and in which the zoecia are distributed throughout the zoarium, and not collected into zones or groups. The apertures occur either regularly or irregularly.

Type species: *M. compressa*, d'Orbigny, 1852.

#### 1. *Multiclausa Haimei*, nom. nov.

*Berenicea lucensis*, Haime, 1854, Bry. Jur., Mém. Soc. géol. France, sér. 2, t. v. p. 180, pl. vii. fig. 4.

*Berenicea (Multisparsa) lucensis*, pars (Haime, non d'Orb.), Brauns, 1879, Bry. mitt. Jura, Metz, Zeit. deut. geol. Ges. Bd. xxxi. p. 328.

*Diastopora lucensis*, pars (Haime, non d'Orb.), Reuss, 1867, Bry. braun. Jura Balin, Denks. k. Akad. Wiss. Wien, Bd. cxxvii. p. 9.

Non *Bidiastopora luciana*, d'Orbigny, 1849, Prod. Pal. t. i. p. 317.

Non *Multisparsa luceana*, d'Orbigny, 1852, Pal. franç., Terr. créat. t. v. p. 870, pl. 761. figs. 1-3.

*Diastopora diluviana*, pars, M.-Edwards, 1838, Mém. Cris., Ann. Sci. nat. Zool. sér. 2, t. ix. p. 228, pl. xiv. fig. 4.

*Diagnosis.*—Zoarium branching repeatedly and irregularly, and sometimes anastomosing; branches stout.

*Zoæcia* long, cylindrical ; apertures distant and irregularly placed.

*Peristomes* low. Walls with thin sinuous ridges.

*Distribution*.—England: Great Oolite—Cornbrash. Foreign: Bajocian, Germany; Bathonian, France and Austria.

## 2. *Multiclausa Jellyæ*, sp. n.

*Diagnosis*.—*Zoarium* growing in large dense tufts of thick irregular branches.

*Zoæcia* cylindrical, long.

*Peristomes* raised; surface punctate; apertures arranged irregularly, not very distant and often in irregular lines.

*Distribution*.—England: Inferior Oolite—Cornbrash. Foreign: Bathonian, France.

*Affinities*.—This species is allied to *M. Haimeï*, Greg., but differs from it by the greater elevation of the peristomes and by having the zoæcia more crowded and the apertures closer and often in irregular lines.

## Genus 2. TEREBELLARIA, Lamouroux, 1821.

*Diagnosis*.—Clausidæ in which the zoarium is arborescent and thick. Zoarial growth is by the addition of Berenicoid colonies on to the ends of the branches; each colony sends an expansion downward around the stem (hence growth is acropetal and exogenous). The zoæcia are reflexed. The apertures occur in zones separated by interzones of dactylethræ.

Type species: *T. ramosissima*, Lamouroux, 1821.

### 1. *Terebellaria ramosissima*, Lamouroux, 1821.

*Terebellaria ramosissima*, Lamouroux, 1821, Expos. méth. p. 84, pl. lxxxii. fig. 1.

*Terebellaria antilope*, Lamouroux, 1821, *op. cit.* p. 84, pl. lxxxii. figs. 2, 3.

*Terebellaria tenuis*, d'Orbigny, 1849, Prod. Pal. t. i. p. 318.

*Diagnosis*. — *Zoarium* massive, branching irregularly. Apertures in rows of from 3 to 5; the lower limit is straight, but the upper is very irregular. Apertures in these bands crowded and quincuncial.

*Peristomes* slightly raised.

*Distribution*. — England: Inferior Oolite — Cornbrash. Foreign: Bathonian, France.

## Order TREPOSTOMATA.

Bryozoa in which the zoarium consists of prismatic or cylindrical zoecia which are arranged parallel to one another. The zoarium is either massive or composed of encrusting or erect lamina.

The zoecia are either closely packed or separated by mesopores or by inter-zoecial vesicles. The zoecia begin as thin, simple, immature Cyclostomatoid tubes. Diaphragms are generally present. Generally dimorphic.

## Family Amplexoporidae.

*Diagnosis.*—Trepostomata in which the zoecia are simple, prismatic, or subcylindrical, with a well-marked divisional line between the walls of adjoining cells. Mesopores absent. (Aborted zoecia occur and sometimes resemble mesopores.) Diaphragms horizontal.

## Genus CERIOPORA, Blainville, 1834.

*Diagnosis.*—Amplexoporidae with prismatic or subcylindrical zoecia. Mesopores absent. Acanthopores absent. Walls of zoecia thin. Diaphragms horizontal, numerous. Zoarium branching or massive.

Type species: *C. micropora*, Goldfuss, 1829.

1. *Ceriopora globosa*, Michelin, 1846.

*Ceriopora globosa*, Michelin, 1843, Icon. Zooph. p. 246, pl. lvii. fig. 5.

*Monticulipora globosa*, d'Orbigny, 1849, Prod. Pal. t. i. p. 323.

*Rept-modicava globosa*, d'Orbigny, 1852, Pal. franç., Terr. crét. t. v. p. 1015.

*Diagnosis.*—Zoarium massive, either spherical or of irregular lobed masses, generally with a broad base protected by epitheca. The surface is level and ornamented with irregularly scattered tubercles.

Diaphragms abundant.

Young zoecia are fairly abundant, and being smaller in size resemble mesopores.

*Distribution.*—England: Inferior Oolite—Bradford Clay. Foreign: Bajocian and Bathonian, France and Germany.

2. *Ceriopora arborescens*, Waagen, 1868.

*Ceriopora arborescens*, Waagen, 1868, Zool. Anz. Sowerbyi, Geogn. Pal. Beitr. Bd. i. Heft 3, p. 644, pl. xxxiii. fig. 2.

*Ann. & Mag. N. Hist.* Ser. 6. Vol. xvii.

*Diagnosis.*—Zoarium of thick massive branches or irregularly lobed masses.

Zoecia very long; walls thin.

Diaphragms numerous near distal end. Apertures irregular. No acanthopores.

*Distribution.*—England: Inferior Oolite and Great Oolite. Foreign: Bajocian, Germany; Bathonian, France.

### Family Heterotrypidæ, Ulrich.

*Diagnosis.*—Trepotomata in which the zoecia are simple, prismatic, or cylindrical, with a well-marked divisional line between the walls of adjacent zoecia. Mesopores present. Diaphragms numerous and horizontal. Neither cystiphragms nor inter-zoecial vesicles present.

### Genus HETEROPORA, Blainville, 1834.

*Diagnosis.*—Heterotrypidæ with prismatic or subcylindrical zoecia. Mesopores numerous. Acanthopores absent. Walls of zoecia thin. Diaphragms horizontal, numerous. Zoarium branching or massive.

Type species: *H. cryptopora* (Goldfuss), 1829.

#### 1. *Heteropora conifera* (Lamouroux), 1821.

*Millepora conifera*, Lamouroux, 1821, Expos. méth. p. 87, pl. lxxxiii. figs. 6, 7.

*Heteropora conifera*, M.-Edwards, 1836, in Lamarek, Hist. Nat. Anim. ed. 2, t. ii. p. 308.

*Ceripora conifera*, Michelin, 1846, Icon. Zooph. p. 245, pl. lvii. fig. 8.

*Multicrescis conifera*, d'Orbigny, 1852, Pal. franç., Terr. crét. t. v. p. 1074.

*Millepora dumetosa*, Lamouroux, 1821, *op. cit.* p. 87, pl. lxxxii. figs. 7, 8.

*Spiropora dumetosa*, DeFrance, 1827, Dict. Sci. nat. t. 1. p. 300.

*Cricopora dumetosa*, Blainville, 1830, *ibid.* t. lx. p. 386.

*Heteropora dumetosa*, M.-Edwards, 1836, *op. cit.* t. ii. p. 308.

*Ceripora dumetosa*, Michelin, 1846, *op. cit.* p. 245, pl. lvii. fig. 7.

*Crescis dumetosa*, d'Orbigny, 1852, *op. cit.* t. v. p. 1072.

*Millepora pyriformis*, Lamouroux, 1821, *op. cit.* p. 87, pl. lxxxiii. fig. 5.

*Heteropora pyriformis*, Michelin, 1846, *op. cit.* p. 244, pl. lvii. fig. 3.

*Polytrena pyriformis*, d'Orbigny, 1849, Prod. Pal. t. i. p. 323.

*Multicrescis pyriformis*, d'Orbigny, 1852, *op. cit.* t. v. p. 1074.

*Heteropora ramosa* (non *M. ramosa*, Fleming), Michelin, 1846, *op. cit.* p. 244, pl. lvii. fig. 4.

*Ceripora ramosa*, d'Orbigny, 1849, *op. cit.* t. i. p. 323.

*Millepora ramosa*, Fleming, 1828, Brit. Anim. p. 529.

*Heteropora reticulata*, Haime, 1854, Mém. Soc. géol. France, sér. 2, t. v. p. 211, pl. ix. fig. 9.

*Heteropora calycina*, Bruder, 1881, Jurabl. Straberg, Sitz. k. Akad.

Wiss. Wien, Bd. lxxxiii. Abl. i. p. 89, pl. ii. fig. 6.

*Heteropora ficulina*, Michelin, 1846, *op. cit.* p. 244, pl. lvii. fig. 2.

*Polytremma ficulina*, d'Orbigny, 1849, Prod. Pal. t. i. p. 323.

*Reptomulticrescis ficulina*, d'Orbigny, 1852, *op. cit.* t. v. p. 1079.

*Diagnosis.*—*Zoarium* of erect branches, which are generally cylindrical and either grow in irregular stumpy branches (typical form), or expand into thick pyriform masses (form *pyriformis*), or into lobed *Alcyonium*-shaped masses (var. *ficulina*), or regular cylindrical branches (var. *ramosa*). The branches dichotomose and may sometimes anastomose (form *reticulata*). The surface is level.

*Zoecia* crowded. Diaphragms numerous. Mesopores irregular in distribution. Frequently only at the angles between *zoecia*, but sometimes completely surrounding them.

*Distribution.*—England: Inferior Oolite and Great Oolite. Foreign: Bajocian and Bathonian, France and Germany; Callovian, France and Austria.

## 2. *Heteropora laminata*, sp. n.

*Diagnosis.*—*Zoarium* encrusting, growing in layers superposed into thick masses. The surface of the zoarium is level.

Mesopores irregular in distribution, generally numerous.

*Distribution.*—Inferior Oolite, Dorset; Bradford Clay, Wiltshire.

*Affinities.*—This species differs from *H. conijera* mainly by zoarial characters, though the mesopores are generally more numerous. The fact that the mesopores are useless as specific guides is shown by their great variation in different parts of the same specimen of species of this genus. This shows that Haime was correct as to the variability in the number of these structures, though, by his refusal to admit any value to their complete absence, he underrated their significance.

## 3. *Heteropora oviformis*, sp. n.

*Diagnosis.*—*Zoarium* small, free, ovate masses.

*Zoecia* short. Surface of zoarium covered with large scattered pustules.

*Distribution.*—Bradford Clay, Bradford, Wiltshire.