THE NOMENCLATURE AND TYPE SPECIES OF SOME GENERA OF RECENT AND FOSSIL CORALS.

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ABSTRACT.

A systematic revision of the classification of the madreporarian hexacorals has shown that in the cases of 91 genera either the genotype has not been definitely designated or selected or else the wrong name, for one or more of several reasons, has been applied by authors. Each of the cases is dealt with, giving the place and date of first usage, genosyntypes if there are such, the correct genotype, type locality and present whereabouts of the type material, and discussion. Genotypes (genolectotypes) are selected wherever necessary. No new generic names are proposed and but one new name is given to an old species.

INTRODUCTION.

During the course of a comprehensive study of the type species and specimens of recent and fossil hexacorals both in this country and Europe the author was struck by the confusion in the nomenclature of many genera in common use. Accordingly, all of the apparently valid genera of the *Madreporaria hexacoralla* (about 500) have been investigated with regard to the status of the genotypes. The largest number were found to have types by monotypy, that is, only one species was described or cited as an example at the time of the first publication of the generic name. Some of the remainder with two or more syntypes had their types (lectotypes) selected later either by their own founders or others. Edwards and Haime did a great service in 1850, when, in the introduction to their "Monograph of the British Fossil Corals," they definitely designated the type of each genus then accepted by them. Previous to that time, and, with some exceptions, since, the designation of genotypes had been and has been more or less of an accident on the part of authors. E. de Fromentel between 1860 and 1887 created 50 or more genera but designated the types of only two or three. As late as 1930 Oppenheim, in his large work on the Gosau corals, created a number of new genera and subgenera with no definite type species.

The present paper attempts to complete the selection of the types of genera not previously treated and to clear up the cases of several genera in which the correct genotype is a

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matter of discussion.[1] Genera which are obviously synonyms of others, such as *Trinacis* and *Turbinacis* Quenstedt, are omitted, but where an older name usually considered as a synonym has been found to be a possible claimant for the place of a well-established name the case is presented, and, if possible, the undesirable name eliminated by proper choice of a type species. This is done strictly in accordance with the present rules of nomenclature laid down by the International Commission on Zoological Nomenclature, but it should be pointed out that these rules are often unsatisfactory guides and that it is to be hoped that a clearer codification will be forthcoming.

The study of the genera of the hexacorals has brought out that the names of several valid genera are pre-occupied. These will be dealt with in a separate paper.

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GENERA AND TYPE SPECIES.

Acanthogyra.

1. *Acanthogyra* Ogilvie, 1897; Paleontogr., Suppl. Bd. ii, 130.

   Genosyntypes: *A. columnaris* Ogilvie, *A. multiformis* Ogilvie, *A. subcompressa* Ogilvie.

   Genolectotype: (here selected), *A. columnaris* Ogilvie 1897. Portlandian, Stramberg.

[1] The genus *Anabacia* is not treated in the present paper, since it has recently been considered by Dr. H. Dighton Thomas (Geol. Mag. lxxii, 428, 1935), who proposes the new name *Apostrophyllum* for the species of simple *Microsolenids* heretofore listed under *Anabacia*.

Acropora.

2. *Acropora* Oken, 1815; Lehrb. Naturgesch., Th. 3, abth. 1, 66.

Genosyntypes: *A. damicornis* Oken (= *Pocillopora damicornis* Lamarck), *A. porites* Oken (= *Porites porites* (Pallas), *A. muricata* Oken (= *Madrepora muricata* Linnaeus = *Millepora muricata* Linnaeus).

Genolectotype: (selected by Verrill, 1901, p. 164), *Millepora muricata* Linnaeus 1758 (*Madrepora formosa* Dana 1848). Recent, Indo-Pacific.

Gregory (1900, 27-28)[2] has given good reasons why the name *muricata* should be restricted to an Indo-Pacific species of *Acropora*, rather than to an Atlantic species, but he has not actually done so. Verrill, on the other hand (1901, 165), thought that Brook had done so in 1893 (23). Brook, however included both Indo-Pacific and West Indian forms under the name *muricata*. Hence his authority can hardly be appealed to. In fact, I cannot find that any author has actually restricted or confined *muricata* to either an Indo-Pacific or West Indian species, although several, including Vaughan (1901), have implied it. Vaughan maintained that the author of the *Museum Calonnianum* (Humphreys, 1797), first applied the name to a West Indian form only. This cannot be accepted as a valid restriction, as the *Museum Calonnianum* is not acceptable for nomenclatural work (Opinion 51, International Commission on Zoological Nomenclature, 1912). Furthermore, the later citation or description of any species from a certain locality cannot be taken as a restriction of that species to that locality. Merely because Pourtalès, Brook, Vaughan, Gregory, etc., have described a species *muricata* from the West Indies, they have not established the right of a West Indian form to that name, if it can also be equally applied to an Indo-Pacific species. Gregory (1900, 28) has summed up the situation well:

"To take one of the many corals included by Linnaeus in *M. muricata* would be an arbitrary proceeding; but if it is to be done the name ought to be applied to an Indo-Pacific species, both since Linnaeus assigned it to that area (i.e. "Pelago Asiatico") and as the best figures he quotes are those in Rumphius' Herbarium Amboinense." (1750, pl. lxxxvi, fig. 1.)

[2] Dates and page numbers in parentheses refer to the list of "Literature Cited" at the end of the paper.

Rumphius' figure and description both pertain to a species now known as *Acropora formosa* (Dana), I am informed by Dr. J. Verwey, who is best qualified to decide questions concerning the various species of *Acropora.* The species *muricata* is therefore here restricted to that described by Rumphius in his *Herbarium Amboinense*, vi, pl. lxxxvi, Fig. 1, 1750, an Indo-Pacific species. *A. cervicornis* (Lamarck) 1816 should be applied to the West Indian form usually known as *A. muricata.*

Agelecyathus.

3. *Agelecyathus* Duncan, 1876; *Proc. Zool. Soc. London,* 434.

Genosyntypes: *A. helenae* Duncan, *A. persicus* Duncan.

Genolectotype: (here selected), *A. helenae* Duncan 1876. Recent, St. Helena.

This genus is a synonym of *Polycyathus* Duncan 1876, the type of which came from precisely the same locality as *A. helenae*, probably in the same haul, and also fixed to an oyster shell.

Allocoenia.

4. *Allocoenia* Étallon, 1859; *Mem. Soc. Émul. Doubs,* (3), iii, 77.

Genosyntypes: *Astrea trochiformis* Michelin 1844, *Allocoenia furcata* Étallon.

Genolectotype: (here selected), *Allocoenia furcata* Étallon 1859. Sequanian, Valfin, France.

Michelin's type of *Astrea trochiformis* in the Paris Museum is very badly preserved, but is probably congeneric with *A. furcata.* A topotype specimen, possibly the type of *A. furcata,* in the Collection Ferry in the same institution, shows that *Allocoenia* is an *Astrocoenia.* An appearance of pali, the chief generic distinction claimed for *Allocoenia,* is produced by the union of the two septa of the third cycle of each system with that of the first (second?), as in many species of *Astrocoenia,* notably *A. whitneyi* Wells of the Aptian of Texas.

Alveopora.

5. *Alveopora* de Blainville, 1830; Dict. Nat. Sci., lx, 359 (Quoy & Gaimard's MSS.)

Genosyntypes: *A. viridis* de Blainville *nom. nud.* (Q. & G. MSS.), *Madrepora daedalea* Forskål 1775, *Mad-*

repora retepora Ellis & Solander 1786, *A. octoformis* de Blainville *nom. nud., Pocillopora brevicornis* Lamarck 1816.

Genolectotype: (here selected), *Madrepora daedalea* Forskål 1775. Recent, Red Sea.

In 1850, Edwards and Haime (1850, lvii) designated *A. rubra* Q. and G. 1833 as the type of this genus. At the same time they indicated *Pocillopora fenestrata* E. and H. 1848 (*non* Lamarck) as the type of their *Poraraea* (*Porastrea*). Later they found that *Poraraea* was identical with de Blainville's *Alveopora* and pointed out that *Alveopora rubra* was a species of *Montipora.* They made the necessary changes resulting from these facts in 1860 (iii, 193) and *fenestrata* has since continued to be recognized as the type of the genus *Alveopora.* It is a synonym of *Madrepora daedalea* Forskål (*non* Ellis and Solander) and is a distinct species not identical with *A. fenestrata* (Lamarck).

There is a shade of doubt whether Forskål's specimen of *M. daedalea* was really an *Alveopora,* and his original specimen is missing (Matthai, 1928, 24) unfortunately. From his figures and description (1776, pl. xxxvii, fig. B), however, it is certain that the reference to *Alveopora,* as that genus is understood, is far more likely to be correct than to *Coeloria,* in which it has been placed as the type species by Matthai (1928).

Aphragmastraea.

6. *Aphragmastraea,* Solomko, 1888; Jura-und Kreidekorallen der Krim, 84.

Genosyntypes: *Parastraea superficialis* Eichwald, *A. crassisepta* Solomko 1888 (= *Astrea cristata* Dubois de Montpelier 1843 *non* Goldfuss).

Genolectotype: (here selected), *A. crassisepta* Solomko 1888. Neocomian, Badrak, Crimea. (Type in Pal. Museum, Munich.)

Astraraea.

7. *Astraraea* Felix, 1900; Sitz.-Ber. Naturf. Ges. Leipzig, 4.

Genosyntypes: *Thamnasteria multiradiata* Reuss, *Thamnasteria media* Sowerby.

Genolectotype: (here selected). *Thamnasteria media* Sowerby 1832. Turonian, Gosau.

Aulastraea.

8. *Aulastraea* Ogilvie, 1897; *Palaeontographica*, Suppl. Bd. ii, 130.

Genosyntypes: *A. schaferi* Ogilvie, *A. conferta* Ogilvie.

Genolectotype: (here selected), *Aulastraea schaferi* Ogilvie 1897. Portlandian, Stramberg.

Baryhelia.

9. *Baryhelia* Edwards and Haime, 1857; Hist. Nat. Corall., ii, 125.

Genosyntypes: *B. archiaci* E. and H., *B. michelini* E. and H.

Genolectotype: (here selected), *Baryhelia archiaci* E. and H. 1857. Cenomanian, Craie Tuffeau, Cherk, near Tournay, Belgium. (Type in Coll. Edwards, Mus. Nat. d'Hist. Nat., Paris.)

The type of *B. michelini* could not be found in the Coll. Edwards in the Paris Museum and is probably lost. *B. archiaci* is an unusually large species of *Heterocoenia*, for which *Baryhelia* is a synonym.

Baryphyllia.

10. *Baryphyllia* de Fromentel, 1857; Descr. Pol. Foss. Ét. Néocom., 26.

Genosyntypes: *B. gregaria* de From. (=*Barysmilia gregaria* d'Orb.), *B. dubia* de From., *B. haimei* de From., *B. minima* de From.

Genolectotype: (here selected), *Barysmilia gregaria* d'Orbigny 1850. Barremian, St. Dizier (Haute-Marne). (Types, Coll. d'Orbigny, No. 5259, Mus. Nat. d'Hist. Nat., Paris.)

Bathycyathus.

11. *Bathycyathus* Edwards and Haime, 1848; Ann. Sci. Nat., (3), ix, 294.

Genosyntypes: *B. chilensis* E. and H., *B. sowerbyi* E. and H., *B. indicus* E. and H.

Genolectotype: (here selected), *Bathycyathus chilensis* E. and H. 1848. Recent, coast of Chile. (Types in Mus. Nat. d'Hist. Nat., Paris.)

It is very likely that *chilensis* and *indicus* represent the same species. In 1848 the latter is stated by Edwards and Haime to be found in the Philippines, but in 1857 the locality is changed to 80 fathoms off Juan Fernandez (Chile). The specimens in the Paris Museum of the two species, including the types, show that there is practically no difference between *chilensis* and *indicus,* the supposed species being based on growth-forms.

Blastosmilia.

12. *Blastosmilia* Étallon 1859; Mem. Soc. Émul. Doubs, (3), iii, 453.

Genosyntypes: *B. fromenteli* Ét., *Lithodendron verticillatum Braum, B. perroni* Ét.

Genolectotype: *Blastosmilia fromenteli* Étallon 1859. Corallian, Valfin (Jura). This genus is a synonym of *Pleurosmilia* de Fromentel 1857.

Cellastraea.

13. *Cellastraea* de Blainville, 1834; Man. d'Act., 683 (*vernac.*, 377).

Genosyntypes: *Astrea incerta* de Blainville, *Astrea intersepta* Lamarck 1816, *Astrea emarciata* Lamarck 1816, *Astrea stylophora* Goldfuss 1826, *Astrea irregularis* Defrance 1826, *Astrea hystrix* Defrance 1826.

Genolectotype: (Type in Caen Museum), (here selected), *Astrea irregularis* Defrance 1826. Oligocene, Dego, near Savona, Italy.

This genus was correctly introduced by de Blainville in a roundabout fashion. He first used the name "Cellastrées" in 1830 (377) for a group of species under the genus *Astrea.* Later this was latinized in the index of the "Manual" to *Cellastraea* (1834, 683). Since there is no point in reviving the name as a possible rival of *Stephanocoenia* or *Stylocoenia,* it is here made a synonym of *Favites* Link 1807 by the selection of *Astrea irregularis*, a good species of *Favites*, as the type.

Citharocyathus.

14. *Citharocyathus* Alcock, 1902; "Siboga"—Exped., Deep-Sea Madrep., 21.

Genosyntypes: *C. conicus* Alcock, *C. venustus* Alcock.

Genolectotype: (here selected), *Citharocyathus conicus* Alcock 1902. Recent, 522 meters, southern end of Sulu Sea, East Indies.

A genus closely related to *Deltocyathus* but with a conical rather than subdiscoid corallum.

Coeloria.

15. *Coeloria* Edwards and Haime, 1848; Comptes-Rend., xxvii, 493.

Genotype: *Meandrina daedalea* Lamarck 1816 = *Madrepora daedalea* Ellis and Solander 1786 *non* Forskål 1775 = *Meandrina rustica* Dana 1848. (Type in U. S. Nat. Mus.) (By monotypy.)

This genus was considered by both Vaughan and Verrill to be a synonym of *Maeandra* Oken, but, because *Maeandra* (*q. v.*) is an exact synonym of *Meandrina* Lamarck, it must be considered as a valid genus. Matthai (1928, 21-24) has probably rightly restricted it to Indo-Pacific species, but he has given the type the wrong specific name. *Madrepora daedalea* Ellis and Solander is pre-occupied by Forskål's *M. daedalea* which is, as Forskål's figure (1776, pl. xxxvii, Fig. B) and description (1775, 135) show, a species of *Alveopora* (*q. v.*). The next name available, then, is *Meandrina rustica* Dana 1848.

Colpophyllia.

16. *Colpophyllia* Edwards and Haime, 1848; Comptes-Rend., xxvii, 492.

Genotype: *Meandrina gyrosa* Lamarck 1816 = *Madrepora gyrosa* Ellis and Solander 1786 = *Madrepora natans* Müller 1775. (*non Manicina gyrosa* Ehrenberg 1834, *nec Manicina gyrosa* Matthae 1928.) Recent, West Indies. (By monotypy.)

This genus has had a bad time of it. It was suppressed by Verrill (1901, 84) in favor of *Manicina,* and although Vaughan used the name at first (1901, 41), he later dropped it in favor of *Manicina,* following Verrill (1919, 421). Matthai has recently placed a quite different aspect on the case. There is no doubt, in the first place, that two quite distinct genera and species are involved under the species name *gyrosa.* One of these is represented by Ellis and Solander's figure 2 on their

plate 51 and was unhesitatingly identified by Vaughan (1901, 41) with his *Colpophyllia gyrosa* which is identical with the species so beautifully illustrated by Matthai as *Colpophyllia natans* (1928, pl. 26, f. 2-3, etc.). The other is represented by Ehrenberg's *Mancina gyrosa*, which has also been figured by Matthai (1928, pl. 63, fig. 6) as "*Manicini gyrosa* Ellis and Solander," and which *is* a species of *Manicina*. The whole question devolves on this point: which of the two species involved is *Madrepora gyrosa* E. and S.? Unfortunately their specimen is lost and we are forced to depend on their figure and description (plate 51, fig. 2). Most authors have agreed that it represents what Matthai now calls *Colpophyllia natans*. This is the opinion of the present author, although Matthai himself considers it a species of *Manicina* and thereby tries to save the name *gyrosa*.

Accepting, then, *Madrepora gyrosa* E. and S. as identical with *M. natans* Müller, we see that the species "*Manicina gyrosa*,"—Ehrenberg's species, has no trivial name attached to it, and it is proposed further on in this paper to call this form *Manicina mayori*.

Manicina willoughbiensis Vaughan 1919, an Oligocene species, is a species of *Colpophyllia* closely related to *C. natans*.

Culicia.

17. *Culicia* Dana, 1848; U. S. Expl. Exped., Zooph., 376.

Genosyntypes: *C. stellata* Dana, *C. tenella* Dana, *C. truncata* Dana.

Genolectotype: (here selected), *Culicia stellata* Dana 1848. Recent, Singapore. (Type in U. S. Nat. Mus.)

Cyathocoenia.

18. *Cyathocoenia* Duncan, 1867; Suppl. Brit. Foss. Corals., iv, (1), 27.

Genosyntypes: *C. dendroidea* Duncan, *C. incrustans* Duncan, *C. costata* Duncan.

Genolectotype: *Cyathocoenia incrustans* Duncan 1867. Lower Lias, Sutton Stone, England. (Type in Museum, Bath, England.)

Diener (1921, 33) has indicated *C. andreaei* Volz 1896 as the type. This is incorrect since that species is not a genosyntype. *Cyathocoenia* Duncan is a synonym of *Astrocoenia*,

the present author is convinced after a study of the type specimens. This is also the conclusion of Dr. H. Dighton Thomas (1935, 34).

Cyathocoenia.

19. *Cyathocoenia* de Fromentel, 1884; Pal. franç., Terr. crét., viii, 539.

Genosyntypes: *Cryptocoenia icaunensis* d'Orbigny, *Cyathocoenia regularis* de Fromentel, *Cryptocoenia neocomiensis* d'Orbigny, *Cyathocoenia turonensis* de Fromentel.

Genolectotype: (here selected), *Cryptocoenia neocomiensis* d'Orbigny 1850. Barremian, St. Dizier (Haute-Marne). (Type, Coll. d'Orbigny, No. 5274, Mus. Nat. d'Hist. Nat., Paris.)

The genolectotype chosen is a species of *Holocystis* Lonsdale, a subgenus of *Cyathophora* Michelin. De Fromentel's genus is pre-occupied by *Cyathocoenia* Duncan (*q. v.*).

Cyathoceras.

20. *Cyathoceras* Moseley, 1881; "Challenger" Rep., Zool., ii, 156.

Genosyntypes: *C. cornu* Moseley, *C. rubescens* Moseley.

Genolectotype: (here selected), *Cyathoceras cornu* Moseley 1881. Recent, off Rio de la Plata, 600 fathoms. (Cotypes, British Museum, Nos. 80. ll. 25. 59-60.)

Dentipora.

21. *Dentipora* de Blainville, 1830; Dict. Nat. Sci., lx, 347.

Genosyntypes: *Madrepora virginea* Ellis and Solander, *Oculina anastomozans* de Haan *nom. nud.*, *Oculina cribrosa* de Haan *nom. nud.*, *Madrepora coalescens* Goldfuss.

Genolectotype: (here selected), *Madrepora virginea* E. and S. 1786. Recent, Atlantic.

The selection of *M. virginea* as genotype throws this name into the synonymy of *Oculina* Lamarck 1816. It had really already become the type in 1860 when Étallon placed *M. coalescens* in his new genus *Dendrohelia.*

Dermoseris.

22. *Dermoseris* Koby, 1887; Pol. Jur. Suisse, vi, 340.

Genosyntypes: *D. schardti* Koby, *D. nodosa* Koby, *Thecosmilia irregularis* Étallon, *D. caespitosa* Koby, *D. plicata* (Koby), *D. dichotoma* (Koby).

Genolectotype: (here selected), *Dermoseris schardti* Koby 1887. L. Kimmeridgian, St.-Germain. Carrière de la Tour. (Types in the Schardt Collection.)

Dermosmilia.

23. *Dermosmilia* Koby, 1884; Pol. Jur. Suisse, v, 194.

Genosyntypes: *Thecosmilia crassa* d'Orbigny, *Thecosmilia laxata* Étallon, *D. divergens* Koby, *D. corymbosa* Koby, *D. arborescens* Koby, *D. étalloni* Koby, *D. rugosa* Koby.

Genolectotype (here selected), *Dermosmilia divergens* Koby 1884. Corallian. Caquerelle. Soyhières. (Types in the Thurmann and Koby Collections.)

D'Orbigny's species was based upon *Dendrophyllia dichotoma* Michelin (*non* Goldfuss), (pl. 18, fig. 4, *non* pl. 19, fig. 6, which is *Aplophyllia orbignyi* E. and H.). Michelin's specimen was stated by him to be in the Collection Moreau, the whereabouts of which is at present unknown.

Dimorphophyllia.

24. *Dimorphophyllia* Reuss., 1864; *Denkschr. Akad. Wiss. Wien.*, xxiii, 16.

Genosyntypes: *D. oxylopha* Reuss, *D. lobata* Reuss.

Genolectotype: (here selected), *Dimorphophyllia oxylopha* Reuss 1864=*Meandrina collinaria* Catullo 1856. Oligocene, Middle Tongrian, Oberburg, Styria.

Felix (1916, 20) pointed out that *Hydnophyllia collinaria* (Cat.) is the species called *Dimorphophyllia oxylopha* by Reuss, but he failed to note that *Hydnophyllia* Reis 1889 thereby becomes a synonym of *Dimorphophyllia.*

Diploctenium.

25. *Diploctenium* Goldfuss, 1826; Petref. German., i, 50.

Genosyntypes: *D. cordata* Goldfuss, *D. pluma* Goldfuss.

Genolectotype: (here selected), *Diploctenium cordata* Goldfuss 1826. Maestrichtian St. Petersburg, near Maastricht, Holland. (Types in Bonn University Museum.)

Edwards and Haime (1850, xxv) selected *D. lunata* Michelin (= *D. cordata* Goldfuss 1829, *non* Goldfuss 1826 = *Madrepora lunata* Bruguière 1792) as the type of *Diploctenium*. Their choice is not valid since the species selected by them was not described in the original description of *Diploctenium* in 1826.

Disaraea.

26. *Disaraea* de Fromentel, 1861; Introd. Ét. Pol. Foss., 245.

Genosyntypes: *D. cotteaui* de From., *D. gracilis* de From.

Genolectotype: (here selected), *Disaraea cotteaui* de Fromentel 1861. Corallien, Chatel-Censoir (Yonne).

This genus is a Microsolenid in which the corallites are tall and cylindrical, separated from each other and forming fasciculate colonies. *Calamophyllia strangulata* d'Orbigny 1850 is congeneric with *D. cotteaui*.

Diploria.

27. *Diploria* Edwards and Haime, 1848; Comptes-Rend., xxvii, 493.

Genotype: *Meandrina cerebriformis* Lamarck 1816 = *Madrepora labyrinthiformis* Linnaeus 1758. Recent, West Indies. (By monotypy.)

The history of this genus is similar to that of *Coeloria*. Verrill considered it a synonym of *Maeandra* (1901, 66), and was followed by Vaughan (1918, 119, 1919, 417). *Maeandra* being no longer available as a valid name, *Diploria* becomes applicable to the Atlantic species included under *Maeandra* by Vaughan and Verrill with the exception of *M. areolata* which is a species of *Podasteria*, q.v., and under *Meandrina* by Matthai (1928, 50 *et seq.*).

Dictuophyllia.

28. *Dictuophyllia* de Blainville, 1830; Dict. Nat. Sci., lx, 325.

Genotype: *Meandrina reticulata* Goldfuss 1826. Maestrichtian, St. Petersburg near Maastricht, Holland. (Types in Bonn University Museum.) (By original designation.)

This genus was misunderstood by its author as well as by Edwards and Haime and Duncan, because they did not realize that they were dealing with the mould of the calicular surface rather than with the skeleton itself. The result was a complete reversal of the structures,—the real calicular series became the walls and the intercalicular spaces the calices. Umbgrove (1925) was the first who recognized the true relationships of the specimens but he missed the lamellar columella and placed the species in *Diploria.* The author has examined topotypes of *D. reticulata* in the British Museum. The form is clearly a dentate meandroid coral very closely related to the genus usually known as *Leptoria* (rect. *Platygyra,* q.v.). The main distinction between the two genera is that the walls of the coralite series in *Dictuophyllia* are separated by costae and exotheca whereas in *Platygyra* they are closely fused and appear as a single mural structure.

Dipsastraea.

29. *Dipsastraea* de Blainville, 1830; Dict. Nat. Sci., lx, 338.

Genosyntypes: *Madrepora favosa* E. and S., *Madrepora favosa* Esper, *Madrepora denticulata* E. and S., *Astrea versipora* Lamarck, *Astrea deformis* Lamarck, *Astrea calycularis* Lamarck, *Madrepora solida* Forskål, *Madrepora favus* Forskål, *Astrea retiformis* Lamarck, *Astrea abdita* E. and S., *Astrea confluens* Goldfuss, *Astrea muricata* Goldfuss, *Astrea burgundiae* de Blainville.

Genolectotype: (here selected), *Madrepora favus* Forskål 1775. Recent, Red Sea. (By elimination, E. and H., in 1857.)

Ehrenberg placed *denticulata* and *versipora* in *Favia* in 1834. In 1848 Edwards and Haime placed *deformis* in *Aphrastrea, solida* in *Goniastrea, abdita* in *Prionastrea*; in 1849 they included *confluens* (= *plicata*) in *Latomeandra, muricata* in *Litharaea*; in 1850 they placed *burgundiae* in *Complexastrea, favosa* in *Prionastrea, versipora* in *Plesiastrea, calycularis* in *Rhodaraea,* and *retiformis* in *Goniastrea*;

and in 1857 they placed *favosa* Esper in *Favia*. Thus *Madrepora favus* Forskål was left and became the type of *Dipsastraea* by elimination.[3] It is a synonym of *Favia* Oken.

Doederleinia.

30. *Doederleinia* Gardiner, 1909; *Trans. Linn. So. London*, Zool., xii, 281.

Genosyntypes: *Halomitra irregularis* Gardiner, *Podabacia robusta* Quelch.

Genolectotype: (here selected), *Halomitra irregularis* Gardiner 1898. Recent, Funafuti.

This genus is very similar to *Halomitra*, but from the structure of the septa it appears to have been derived from the *repanda*-group rather than the *fungites*-group of *Fungia*.

Donacosmilia.

31. *Donacosmilia* de Fromentel, 1861; Introd. Ét. Pol. Foss., 146.

Genosyntypes: *D. corallina* de From. *D. cotteaui* de From.

Genolectotype: (here selected), *Donacosmilia corallina* de Fromentel 1861. Corallian, Ecuelle (Haute-Saône). Types[?] in Coll. Ferry, Mus. Nat. d'Hist. Nat., Paris).

Echinastrea.

32. *Echinastrea* de Blainville, 1830; Dict. Nat. Sci., lx, 343.

Genosyntypes: *E. ringens* (Lamarck), *E. gemmacea* (Lamarck), *E. rosularia* (Lamarck), *E. alveolata* (Goldfuss).

Genolectotype: (here selected), *Echinastrea rosularia* (Lamarck) = *Echinopora rosularia* Lamarck 1816. Recent, Indo-Pacific.

Echinastrea becomes a synonym of *Echinopora*.

Echinophyllia.

33. *Echinophyllia* Klunzinger, 1879; Korall. Roth. Meer., iii, 69.

[3] Genotypes resulting from elimination of other syntypes are not necessarily valid, under the rules of nomenclature, and in this paper they may or may not be retained.

Genosyntypes: *Madrepora aspera* Ellis and Solander 1786, *Trachypora lacera* Verrill 1864.

Genolectotype: (here selected), *Madrepora aspera* Ellis and Solander 1786. Recent, Indo-Pacific, Red Sea.

Elasmocoenia.

34. *Elasmocoenia* Edwards and Haime, 1851; Pol. Foss. Terr. Pal., 69.

Genosyntypes: *E. guerangeri* E. and H., *Oculina explanata* Michelin.

Genolectotypes: (here selected), *Oculina explanata* Michelin 1845. Cenomanian, Le Mans, (Sarthe). (Type in Coll. Michelin, Mus. Nat. d'Hist. Nat., Paris.)

Epistreptophyllum.

35. *Epistreptophyllum* Milaschewitsch, 1875; *Palaeontographica*, xxi, 212.

Genosyntypes: *E. commune* Milasch, *E. cylindratum* Milasch, *E. tenue* Milasch.

Genolectotype: (here selected), *Epistreptophyllum commune* Milaschewitsch 1875. Upper Kimmeridgian, Nattheim, Wurtemberg. (Types in Stuttgart Museum.)

Favastrea.

36. *Favastrea* de Blainville, 1834; Man. d'Actin., 686 (vernac., 374).

Genosyntypes: *Astrea magnifica* de Blainville, *Astrea baltica* (Schweigger) (= *Madrepora ananas* Linn.), *Astrea pentagona* de Blainville (= *Cyathophyllum pentagonum* Goldfuss), *Astrea quadrigeminata* de Blainville (= *Cyathophyllum quadrigeminum* Goldfuss), *Astrea alveolata* de Blainville (= *Madrepora truncata* Esper), *A. hexagona* de Blainv. (= *Cyathophyllum pentagonum* Goldf.), *A. aranea* Defrance, *A. hypocrateriformis* de Blainv. (= *Cyathophyllum* Goldf.), *A. radicata* de Blainville, *A. manon* de Blainville (= *Manon favosum* Goldf.), *A. helianthoides* (Goldfuss).

Genolectotype: (here selected), *Madrepora ananas* Linnaeus 1758 (= *Acervularia baltica* Schweigger 1819) Silurian, Gotland.

Favastraea becomes a synonym of *Acervularia* Schweigger. De Blainville listed *Acervularia* as a synonym of *Favastraea.*

Felixigyra.

37. *Felixigyra* Prever, 1909; *Mem. Serv. Descr. Carta Geol. d'Ital.*, vi, 118.

Genosyntypes: *F. deangelisi* Prever, *F. duncani* Prever, *F. vaughani* Prever, *F. taramellii* Prever, *F. dollfusi* Prever, *F. crassa* Prever.

Genolectotype: (here selected), *Felixigyra deangelisi* Prever 1909. Cenomanian, Monte d'Ocre, Italy.

Fissicella.

38. *Fissicella* Dana, 1848; U. S. Expl. Exped. Zooph.

Genosyntypes: 47 species of recent corals, including two varieties, were included by Dana in this genus. At present these forms are distributed in 11 different genera.

Genolectotype: (here selected), *Astrea* (*Fissicella*) *ananas* Dana 1848 (= *Astrea ananas* Lamarck). Recent, Red Sea.

The genus *Fissicella*, having been correctly instituted by Dana, has been studiously ignored by subsequent workers, who have dismissed it as some sort of a synonym of *Favia, Prionastrea, Favites, Goniastrea,* or *Acanthastrea,* or of all of these. No type has been designated, and the genus is here made a synonym of *Favia* by the selection of *F. ananas* as the type.

Fromentellia.

39. *Fromentellia* Ferry, 1863; *Bull. Soc. Linn. Normand.*, xxvii, 217.

Genosyntypes: *F. fabryana* Ferry, *Amblophyllia rupellensis* d'Orbigny.

Genolectotype: (here selected), *Fromentellia fabryana* Ferry 1863. Bathonian, Chattillon-sur-Seine (Côte-d'Or). (Holotype, Coll. Ferry, Mus. Nat. d'Hist. Nat., Paris.)

This genus is not, as has been stated by Gregory (1930, 89), and Duncan (1884, 83), a synonym of *Euphyllia* Dana, but a form very closely allied to *Thecosmilia. A. rupellensis* is not congeneric with *F. fabryana.*

Funginella.

40. *Funginella* d'Orbigny, 1849; Note sur des Pol. foss., 11.

Genosyntypes: *Cyclolites semiglobosa* Michelin *pars*, *Cycloites haueriana* Michelin.

Genolectotype: (here selected), *Cyclolites haueriana* Michelin 1846. Turonian, Corbières (Aude). (Holotype, Coll. Michelin, Mus. Nat. d'Hist. Nat., Paris.)

This selection makes *Funginella* a synonym of *Cyclolites* Lamarck.

The types of *semiglobosa* could not be found by the author in the Michelin Collection in the Paris Museum and may be lost. D'Orbigny's specimens of the species in the d'Orbigny Collection (No. 6695) consist of two specimens, one of which is a young *Dimorpharaea*, the other *Cyclolites*. No. 6695a is *Cyclolites orbignyi* de Fromentel.

Gemmastrea.

41. *Gemmastrea* de Blainville, 1834; Man. d'Actin., 686, (*vernac.*, 387).

Genosyntypes: *Astrea lucasiana* Defrance, *Astrea cylindrica* de Blainv., *Astrea tubulosa* Goldfuss, *Astrea lobata* Muenster, *Astrea striata* Goldfuss.

Genolectotype: (here selected), *Astrea tubulosa* Goldfuss 1829. Middle Oolite, Wurtemberg.

Gemmastrea is here made a synonym of *Stylina* Lamarck.

Glyphephyllia.

42. *Glyphephyllia* de Fromenter, 1873; Pal. franç., Terr. crét., Zooph., 463 (1877), pls. 96, 97, 99 (1873).

Genosyntypes: *G. dumortieri* de Fromentel, *G. flabellata* de Fromentel, *G. excelsa* de Fromentel.

Genolectotype: (here selected), *Glyphephyllia dumortieri* de Fromentel 1873. Turonian, Figuières (Bouches-du-Rhône).

On page 483 (1873), de Fromentel, in a footnote, states that *Lobophyllia martiniana* Michelin also belongs to *Glyphephyllia*. In this he was correct, and *Glyphephyllia* is a synonym of *Lasmogyra* d'Orbigny, but he incorrectly stated that the species of *Glyphephyllia* lacked a columella.

Gyrodendron.

43. *Gyrodendron* Quenstedt, 1880; Petref. Deutschl., vi, 797.

Genosyntypes: *G. lobatum* Quenstedt, *G. integrum* Quenstedt, *G. cylindratum* Quenstedt.

Genolectotype: (here selected), *Gyrodendron lobatum* Quenstedt 1880 = *Chorisastrea* dubia Becker 1875. Upper Kimmeridgian, Weisser Jura, Nattheim. (Types of Becker in Pal. Museum, Munich.)

Gregory has considered this genus a synonym of *Stibastrea* Étallon. The latter, which is closely related to *Gyrodendron*, is separated by its serial calices in valleys with separated collines which are united by perithecal costae and exotheca. *Gyrodendron* has the serial calicular rows but each series is free except at its base. It is thus very close to *Latomeandra s.s.*, but the series are longer and more than one row of calices may be present within the walls of a series.

Latiphyllia.

44. *Latiphyllia* de Fromentel, 1861; Introd. Étud. Pol. Foss., 164.

Genosyntypes: *L. insignis* de Fromentel, *Euphyllia sinuosa* Reuss, *Thecosmilia* (?) *requieni* (Michelin), *Thecosmilia deformis* Reuss, *Lasmosmilia maeandra* d'Orbigny.

Genolectotype: (here selected), *Lobophyllia requieni* Michelin 1841. Turonian, Uchaux (Vaucluse). (Holotype, Coll. Michelin, Mus. Nat. d'Hist. Nat., Paris.)

Lepidophyllia.

45. *Lepidophyllia* Duncan, 1868; Suppl. Brit. Foss. Cor., iv, (2), 53.

Genosyntypes: *L. stricklandi* Duncan, *L. hebridensis* Duncan.

Genolectotype: (here selected), *Lepidophyllia hebridensis* Duncan 1868. Middle Lias, Pabba Shale, Isle of Pabba. (Holotype, Geological Museum No. 37052, Cambridge University.)

The second species has been chosen as the type because the holotype specimen is well-preserved, whereas the type of

L. stricklandi (No. 32230) is practically useless for a careful determination of the structures. *Lepidophyllia* is closely allied to *Stylophyllopsis.*

Leptopenus.

46. *Leptopenus* Moseley, 1881; "Challenger" Reps., Zool., ii, 205.

Genosyntypes: *L. discus* Moseley, *L. hypocoelus* Moseley.

Genolectotype: (here selected), *Leptopenus discus* Moseley 1881. Recent, South Atlantic-Indian Oceans, 1600-2000 fathoms. (Types Nos. 80.11.25.158-159, British Museum.)

Leptophyllastraea.

47. *Leptophyllastraea* Oppenheim, 1930; Anthozoen der Gosauschichten, 140.

Genosyntypes: *L. irregularis* Oppenheim, *L. regularis* Oppenheim, *L. conica* Oppenheim.

Genolectotype: (here selected), *Leptophyllastraea irregularis* Oppenheim 1930. Turonian, Zimmergraben near Gosau, Austria. (Types in Oppenheim Collection, Berlin.)

This is a *Leptophyllia* which forms small colonies by intratentacular budding.

Lingulosmilia.

48. *Lingulosmilia* Koby, 1888; Pol. Jur. Suisse, vii, 421.

Genosyntypes: *L. cornuta* Koby, *L. emarginata* Koby, *L. excavata* Koby, *L. vermicularis* Koby.

Genolectotype: (here selected), *Lingulosmilia cornuta* Koby 1888. Rauracian, White Corallian, St. Ursanne, Caquerelle. (Types in the Collection Koby.)

Lithodendron.

49. *Lithodendron* Schweigger 1819; Beobacht. Naturh., Reis. Unt. Corall., tab. vi.

Genosyntypes:

Subgenus *Oculina* Lamarck: *Madrepora virgineum* Esper, *Madrepora prolifera* Esper.

Subgenus *Caryophyllia* Lamarck: *Madrepora ramea* Esper.

Lithodendron s.s.: *Madrepora catpitatum* Esper, *Madrepora fastigiatum* Esper, *Madrepora angulosum* Esper, *Madrepora cristata* Esper.

Genolectotype: (here selected), *Madrepora angulosa* Esper 1791 = *M. angulosum* Pallas 1766. Recent, West Indies.

The question of the disposal of this generic name has been sidestepped by systematists. Gregory has noted that

"the *Lithodendron* of Schweigger has been considered by some authors as mainly synonymous with *Goniocora*; but the genus was badly diagnosed. If it be retained it must be kept for one of the seven recent species which Schweigger included in it." (1900, 43.)

Here the problem is stated but not cleared up. More recently Matthai says:

"If Schweigger's fourth species of *Lithodendron*, viz., *L. capitatum*, based on Esper's Plate 82 (which is a copy of Ellis & Solander's Pl. 33 of *Madrepora fastigiata*) turns out to be the same as Pallas' *Madrepora fastigiata*, the generic name *Eusmilia* Milne Edwards & Haime will give way to the prior name *Lithodendron* Schweigger 1820 (genotype *Madrepora fastigiata* Ellis & Solander = *Madrepora capitata* Esper, type, Madrep. Tab. LXXXII), the first two species, viz. *L. virgineum, L. proliferum*, having been removed to *Oculina* Lamarck and *L. rameum* to *Dendrophyllia* by de Blainville." (1928, 192, footnote.)

Matthai is here apparently fixing the type of *Lithodendron* by elimination if and when certain identities are ascertained. But he has not considered the easier solution left by the fact that there are two species left from which to make a selection of the type,—*L. angulosa* and *L. capitata*. The first is the type of Oken's *Mussa* (1815), and, since Schweigger has ignored or was ignorant of this name, *L. angulosa* has not been eliminated from the syntypes of *Lithodendron*. *L. cristata* was eliminated in 1830 by de Blainville for his *Lobophyllia* (*Madrepora cristata* Esper, [*non* E. and S.], = *Mussa costata* Dana = *Lobophyllia costata* Matthai 1928). The selection of *L. angulosa* (Pallas) as type makes *Lithodendron* a synonym of *Mussa* Oken and the name can therefore be retired from the literature.

Lobophyllia.

50. *Lobophyllia* de Blainville, 1830; Dict. Nat. Sci., lx, 321.

Genosyntypes: *Madrepora glabrescens* Chamisso and Eysenhardt, *Madrepora angulosa* Pallas, *Madrepora auriantiaca* Quoy and Gaimard, *Madrepora fastigiata* Linnaeus, *Madrepora corymbosa* Forskål, *Madrepora sinuosa* Lamarck, *Madrepora carduus* Ellis and Solander, *L. lobata* de Blainville *nom. nud.*, *L. jouvencensis* de Blainville *nom. nud.*, *L. leucasiana* (Defrance).

Genolectotype: (selected by Matthai, 210, 1928), *Madrepora corymbosa* Forskål 1775. Recent, Red Sea.

The title of *M. corymbosa* to be the genotype of this genus is not clear. Of the ten syntypes listed above, *L. angulosa* became the type of *Mussa* Oken by elimination in 1848 (vide *Mussa*); *L. glabrescens* is Vaughan's lectotype of *Euphyllia* (1918, 82); *L. fastigiata* is the monotype of *Eusmilia* E. and H. 1848; *L. lobata* is the monotype of *Lasmosmilia* d'Orbigny 1849. Edwards and Haime selected *two* types for *Lobophyllia* (1850, xxxii),—*L. angulosa* for their "cymosae" and *L. multilobata* E. and H. for their "gyrosae." They had already made the first the type of *Mussa* in 1848 by elimination and the second "type" is invalid since it is not a syntype. If we do accept the validity of their types and not that of Matthai's, then *Lobophyllia* is a synonym of *Mussa* and a new generic term must be found for "*Lobophyllia.*"

Maeandra.

51. *Maeandra* Oken, 1815; Lehrb. Naturgesch., 70.

Genosyntypes: *M. areolata* Oken (=*Madrepora areolata* Linnaeus), *M. maeandrites* Oken:

a. *maeandrites* Pallas, *labyrinthiformis* Linn.
b. *labyrinthiformis* Pallas, *maeandrites* Linn.

Genolectotype: (selected by Vaughan, 1901, 15), *Madrepora maeandrites* Linnaeus 1758. Recent, West Indies.

Oken included two species in his *M. maeandrites* and corrected Pallas' errors in the identification of Linnaeus's species, as indicated above. Vaughan's selection of *M. maeandrites* (Linnaeus) as genotype is valid and cannot be changed, and

Maeandra is an exact synonym of *Meandrina* Lamarck 1801. Unfortunately Verrill declined to accept Vaughan's selection and chose *Madrepora labyrinthiformis* as the type, a change accepted by Vaughan in his later works (1918, 119; 1919, 417). This usage, however desirable, cannot be accepted.

Maeandroseris.

52. *Maeandroseris* Rousseau, 1854; "Voy. Pôle Sud d'Urville," Zool., v, 121.

Genosyntypes: *M. bottae* Rousseau, *M. australiae* Rousseau.

Genolectotype: (here selected), *Maeandroseris bottae* Rousseau 1854. Recent deposits along the Red Sea. (Holotype, Mus. Nat. d'Hist. Nat., Paris). (By elimination, Duncan, 1883, 309.)

M. bottae became the genotype by elimination in 1883 when Duncan founded *Plesioseris* with *M. australiae* as type.

Manicina.

53. *Manicina* Ehrenberg, 1834; Corallenth. Rothenmeer., 325.

Genosyntypes: *M. hemprichi* Ehrenberg, *M. interrupta* Ehrenberg, *M. pectinata* Ehrenberg, *M. gyrosa* Ehrenberg, *M. pachyphylla* Ehrenberg, *M. fissa* Ehrenberg, *M. maeandrites* Ehrenberg, *M. hispida* Ehrenberg, *M. praerupta* Ehrenberg, *M. manica* Ehrenberg, *M. lactuca* Ehrenberg, *M. areolata* Ehrenberg.

Genolectotype: (selected by Edwards and Haime, 1850, xxxvi), *Manicina areolata* Ehrenberg 1834 (*non Madrepora areolata* E. and S., Linnaeus) = *Turbinolia geoffroyi Audouin* 1826. Recent, Red Sea.

Edwards and Haime definitely chose *M. areolata* Ehrenberg as the type of this genus, but at that time they thought Ehrenberg's *areolata* was the form described by Linnaeus from the West Indies. Later they discovered that Ehrenberg's species was based upon specimens of the Red Sea *Turbinolia geoffroyi* Audouin for which they had created the genus *Trachyphyllia* in 1848 and was not congeneric with Linnaeus's and Ellis and Solander's *areolata.* Nevertheless they continued to use *Manicina* for the latter species, although by selecting Ehrenberg's *areolata* as its type they had sunk their own *Trachyphyllia.* This state of affairs has persisted

until the present day. Matthai, in 1928, tried to justify the use of *Manicina*, with *areolata* Linnaeus as type, by stating that Ehrenberg's *areolata* (the types of which he had studied) was, in fact, identical with Linnaeus's species and figured (pl. 3, f. 7) specimen No. 652 of the Berlin Museum to prove his contention. A glance at this figure shows that it is *"Trachyphyllia" geoffroyi*. The author has recently examined Ehrenberg's types to see if Ehrenberg had included *any* specimens of *areolata* Linnaeus (as properly restricted to the West Indian form) in the hope that *Manicina* could be kept in its accustomed position, but found that *all* (Nos. 651-4) are specimens of *T. geoffroyi*. *Trachyphyllia* must fall into *Manicina*, which must henceforth be used for the Red Sea species. Even though Ehrenberg cited figures of the real *areolata* in his synonymy, he based his genus upon actual specimens and Edwards and Haime simply picked the wrong type for the genus. Had they picked Ehrenberg's *hispida* or *manica*, which they later placed correctly in the synonymy of *areolata* Linnaeus, no such belated change as is here proposed would be necessary.

For the correct generic name for *"Manicina" areolata* (Linn.) see the remarks under *Podasteria*.

Meandrina.

54. *Meandrina* Lamarck, 1801; Syst. Anim. s. Vert., 372.

Genotype: *Meandrina pectinata* Lamarck 1801 = *Madrepora maeandrites* Linnaeus 1758. Recent, West Indies. (By monotypy.)

The matter of the correct usage of this generic name has caused uncalled-for difficulties. *M. maeandrites* is clearly the type of the genus, but Matthai has recently tried to show that Lamarck's *Meandrina* of 1801 is invalid because of an apparent discrepancy between the generic diagnosis and the structure of the type species. Even should we admit that the name is invalid, we cannot accept Matthai's use of *Meandrina* Link 1807 as the next available name for the corals of this group. This would be contrary to all accepted rules and usage. Although Lamarck may have diagnosed his genus incorrectly, perhaps through an error, we are still obliged to accept *M. maeandrites* as the type, Opinion 79 (1924) of the International Commission on Zoological Nomenclature not being applicable in this case.

Monomyces.

55. *Monomyces* Ehrenberg, 1834; Corallenth. Roth. Meer., 301.

Genosyntypes: *Madrepora patella* Ellis and Solander, *Monomyces anthophyllum* Ehrenberg, *Monomyces* (?) *eburneus* Ehrenberg.

Genolectotype: (here selected), *Monomyces anthophyllum* Ehrenberg 1834. Recent, Mediterranean.

This genus includes as synonyms *Rhizotrochus* Edwards and Haime and *Biflabellum* Doederlein. Selection of *M. patella* would depose the well-known and much-used name *Cycloseris*, and it is better that the name of *Rhizotrochus*, a much rarer genus, should fall.

Montastraea.

56. *Montastraea* de Blainville, 1830; Dict. Nat. Sci., lx, 339.

Genosyntypes: *Astrea michelini* de Blainville, *Astrea guettardi* Defrance, *Astrea adamantina* de Blainville = *Cyathophyllum hexagonum* (exesum) Goldfuss (pl. 19, fig. 5), *Astrea coniformis* de Blainville = *Cyathophyllum quadrigenium* (exesum) Goldfuss (pl. 19, fig. 16), *Astrea boloniensis* de Blainville.

Genolectotype: (here selected), *Astrea guettardi* Defrance 1826. Miocene, Turin, Bordeaux.

The use of *Montastraea* with *A. guettardi* as its type removes the causes of controversy over the use of the names *Orbicella, Phyllocoenia*, and *Heliastrea*. These are all synonyms of the present genus which has never been given recognition by later workers. The type specimen of Defrance has been lost but topotypes are not rare and E. and H.'s types of *guettardi* in Paris show that it is congeneric with *Orbicella annularis* and *O. cavernosa*.

Mussa.

57. *Mussa* Oken, 1815; Lehrb. Naturges., iii, 73.

Genosyntypes: *Madrepora dianthus* Esper (+ *M. lacera* Pallas), *Madrepora angulosa* Pallas, *Madrepora fastigiata* Pallas.

Genolectotype: (selected by Vaughan, 1918, 122), *Madrepora angulosa* Pallas 1766. Recent, West Indies. (By elimination, E. and H., 1848.)

Vaughan chose Oken's second syntype as type of *Mussa*, although it may be considered to have become so in 1848. In that year Edwards and Haime (1848a, 254) included *M. dianthus* in their restriction of Ehrenberg's *Desmophyllum* and also made *M. fastigiata* the type of their *Eusmilia* by monotypy (1848b, 467). When they had done this *M. angulosa* was left as type of *Mussa* by elimination.

Mycedium.

58. *Mycedium* Oken, 1815; Lehrb. Naturges., i, 69.

Genosyntypes: *M. elephantotus* = *Madrepora elephantotus* Pallas, *M. cucullata* = *Madrepora cucullata* Ellis and Solander, *M. ampliata* = *Madrepora ampliata* Ellis and Solander.

Genolectotype: (selected by Verrill, 1901), *Madrepora elephantotus* Pallas 1766. Recent, Pacific.

There is a prior usage of the name *Mycedium* by Browne (1756, 1789, 392) and a question arises whether Browne's *Mycedium* of 1789 is entitled to recognition. There is no doubt that that of 1756 is not, since it is pre-Linnaean. Browne's second edition of his work in 1789 is exactly the same as that of 1756, except that some copies have a sort of appendix in the form of an index of the Linnaean names of Browne's species by Georg Dionysius Ehret. It is evident that Browne's names were not regarded at the time as being in accordance with Linnaeus's system and should not be so at the present time. The republication of a pre-Linnaean work after 1758 does not validate any names used in that work.

Verrill has shown (1901, 133) that *M. elephantotus* is not a species of *Agaricia*, a West Indian genus, but a distinct genus of Pacific corals, including Dana's *Phyllastrea*, the type of which, *P. tubifex*, may be identical with *M. elephantotus*.

Nefocoenia.

59. *Nefocoenia* Oppenheim, 1930; Anthozoen der Gosauschichten, 416.

Genosyntypes: *Araeacis lobata* Ruess (*non* Felix), *N. favosites* Oppenheim, *N. decussata* Oppenheim, *N. montuosa* Oppenheim, *N. nefiana* Oppenheim, *N. edelbachensis* Oppenheim (*Proplesiatraea*).

Genolectotype: (here selected), *Araeacis lobata* Reuss 1854. Turonian, Gosau.

Opisthophyllum.

60. *Opisthophyllum* Ogilvie, 1897; *Palaeontographica*, Suppl., ii, (7), 101.

Genosyntypes: *O. zitteli* Ogilvie, *O. vesiculare* Ogilvie, *O. minimum* Ogilvie.

Genolectotype: (here selected), *Opisthophyllum zitteli* Ogilvie 1897. Portlandian, Stramberg. (Types in Pal. Museum, Munich.)

Oxypora.

61. *Oxypora* Kent, 1871; *Proc. Zool. Soc. London*, 283.

Genosyntypes: *Trachypora lacera* Verrill, *Echinopora aspera* Dana (*Madrepora aspera* E. and S.).

Genolectotype: (here selected), *Trachypora lacera* Verrill 1864. Recent, Singapore. (Type in Mus. Comp. Zool., Harvard.)

Verrill's genus *Trachypora* had already been pre-occupied by Edwards and Haime in 1851 for a Paleozoic tabulate coral. Kent proposed *Oxypora* in its place but failed to designate a type. The type species includes *O. contorta* Quelch 1884 in its synonymy.

Palaeopsammia.

62. *Palaeopsammia* Wanner, 1902; Palaeontographica, xxx.

Genosyntypes: *P. multiformis* Wanner, *P. zitteli* Wanner.

Genolectotype: (here selected), *Palaeopsammia multiformis* Wanner 1902. Danian, White chalk, between Farâfrah and Dachel Oases, Libyan Desert. (Types in Pal. Museum, Munich.)

Pectinia.

63. *Pectinia* Oken, 1815; *Lehrb. Naturgesch.*, i, 68.

Genosyntypes: *Madrepora maeandrites* Linnaeus, *Madrepora lactuca* Pallas.

Genolectotype: (selected by Vaughan, 1901, 15), *Madrepora lactuca* Pallas 1766. Recent, Indo-Pacific.

When de Blainville in 1830 created the genus *Tridacophyllia* for *M. lactuca* he eliminated that species from the syntypes of *Pectinia* and *M. maeandrites* became the type. Vaughan's later selection of *M. lactuca* is valid, however.

Pentacoenia.

64. *Pentacoenia* d'Orbigny, 1850; *Rev. et Mag. Zool.*, 175.

Genosyntypes: *P. elegantula* d'Orbigny, *P. pulchella* d'Orbigny, *P. microtoma* d'Orbigny.

Genolectotype: (here selected), *Pentacoenia elegantula* d'Orbigny 1850. Barremian, Fontenoy (Vosges). (Type No. 5278, 5278A, Coll. d'Orbigny, Mus. Nat. d'Hist. Nat., Paris.)

The type selected above is a species of *Cyathophora* Michelin and *Pentacoenia* becomes a synonym of that genus. It is not a *Stylina,* as claimed by Gregory (1900).

Phyllocoeniella.

65. *Phyllocoenia* Felix, 1926; Sitz. Ber. Nat. Ges. Leipzig, 71.

Genosyntypes: *Phyllocoenia archiaci* E. and H., *Phyllycoenia macrocanta Abich, Phyllocoenia carryana* d'Orbigny, *Phyllocoenia conferta* Duncan, *Phyllocoenia grandistella* Abich.

Genolectotype: (here selected), *Phyllocoenia carryana* d'Orbigny 1852. Miocene, Aquitanian, Carry (Bouches-du-Rhône). (Colotypes Nos. 11241, 11241A, Collection d'Orbigny, Mus. Nat. d'Hist. Nat., Paris.)

This genus rests upon very insecure ground. Felix proposed it for the species listed above on the supposition that their septa possessed no dentations,—a character formerly ascribed to the genus *Phyllocoenia* of Edwards and Haime, the type of which has been found to possess dentations and which is a species of *Montastrea.* Specimens of the genosyntypes are rarely preserved well enough that the upper margins of the septa can be seen, but the internal structure of the septa of most of them is characteristic of *Montastrea,* as far as they have been examined by the author, including *P. carryana.*

Phyllogyra.

66. *Phyllogyra* Tomes, 1882; *Quart. Journ. Geol. Soc. London*, xxxviii, 340.

Genosyntypes: *Symphyllia etheridgei* Duncan, *P. sinuosa* Tomes.

Genolectotypes: (here selected), *Symphyllia etheridgei* Duncan 1872. Bajocian, Inferior Oolite, Crickley, Gloucestershire. (Type No. R 2169 British Museum [N. H.].)

Placotrochoides.

67. *Placotrochoides* Alcock, 1902; "Siboga"-Exped., Deep Sea Madrep., 33.

Genosyntypes: *P. dentiformis* Alcock, *P. scaphula* Alcock.

Genolectotype: (here selected), *Placotrochoides scaphula Alcock* 1902. Recent, East Indies.

Platygyra.

68. *Platygyra Ehrenberg*, 1834; Corallenth. Rothenmeer., 323.

Genosyntypes: *P. labyrinthica* Ehrenberg (*non* E. and S.) var. α *leptochila* Ehrenberg, var. β *pachychila* Ehrenberg, *P. lamellina* Ehrenberg, *P. cerebriformis* Ehrenberg, *P. phrygia* Ehrenberg, *P. spatiosa*, Ehrenberg.

Genolectotype: *Madrepora phrygia* Ellis and Solander 1786. Recent, Red Sea, Indo-Pacific. (Genolectotype, Matthai, 1928.) (Type in the Hunterian Museum, Glasgow.)

The name *Platygyra* was not used by Edwards and Haime, and the first attempt to revive the name and designate a type was made by Brueggemann (1870, 571). His choice was "*Madrepora labyrinthica* Ellis and Solander" (= *Diploria strigosa*, an Atlantic species). This was unfortunate, because Ehrenberg had incorrectly identified his species *labyrinthica* with Ellis and Solander's Atlantic form, as indicated by subsequent study of his specimens by Vaughan (1901, 50) and Matthai (1928, 110), and by the fact that he specifically states that his specimens were from the Red Sea. Bruegge-

mann's choice is invalid,—he should have selected "*Platygyra labyrinthica* Ehrenberg" as his type. Vaughan was willing to accept Brueggemann's choice but inadvertently assumed that Brueggemann meant the Red Sea species. Matthai's choice of *P. phrygia* is sound and *Leptoria*[4] Edwards and Haime 1848, becomes an exact synonym.

Plesiosmilia.

69. *Plesiosmilia* Milaschewitsch, 1876; Palaeontographica, xxi, 189.

Genosyntypes: *P. turbinata* Milasch., *P. cylindrica* Milasch., *P. hemispherica* Milasch., *P. excavata* Milasch., *P. sessilis* Milasch., *P. infundibuliformis* Milasch.

Genolectotype: (here selected), *Plesiosmilia turbinata* Milaschewitsch 1876. Upper Kimmeridgian, White Jura, Nattheim, Wurtemberg.

Pleurostylina.

70. *Pleurostylina* de Fromentel, 1861; Introd. Ét. Pol. Foss., 201.

Genosyntypes: *P. corallina* de Fromentel, *P. frondescens* de Fromentel.

Genolectotype: (here selected), *Pleurostylina corallina* de Fromentel 1861. Corallian, Ecuelle (Haute-Saône).

Podasteria.

71. *Podasteria* Ehrenberg, 1834; Corallenth., Rothenmeer., 326.

Genotype: *Manicina gyrosa* Ehrenberg 1834 (*non Madrepora gyrosa* Ellis and Solander 1786, pl. 51, fig. 2). (By monotypy.) (Type No. 2859, Museum für Naturkunde, Berlin.)

Ehrenberg established this genus provisionally for a specimen which apparently did not exactly fit his conception of *Manicina*, although he had doubts as to the necessity for separating it from the latter. The name has been generally regarded since by authors as of no standing, but it was correctly

[4] The name *Leptoria* is pre-occupied for a genus of Lepidoptera (Westwood, British Butterflies and their Transformations, p. 31, 1841).

instituted. Matthai examined Ehrenberg's specimen and identified it with Ellis and Solander's *Madrepora gyrosa* (1928, 94), but he has misrepresented this latter species which properly falls into the synonymy of *Colpophyllia natans* (Müller), leaving Ehrenberg's *gyrosa* without a name. It is here proposed to call this form *Podasteria mayori* (in honor of A. G. Mayor, founder of the Tortugas Laboratory), the type specimen being Ehrenberg's specimen of his *gyrosa*, No. 2859 in the Berlin Museum, where it has been studied by the author, and which has been described and figured by Matthai (1928, p. 91, pl. 63, f. 6). It is congeneric with "*Manicina*" *areolata* (Linn. *et al.*). It is not a common species, the only authentic locality at present being the Dry Tortugas, Florida, where it occurs in shallow water and has been collected by Matthai and the author. Very probably other specimens exist in collections under the name *Maeandra* (*Diploria, Meandrina*) *strigosa*, a form which it resembles.

The second species of this genus is *Madrepora areolata* Linn. (the *Maeandra areolata* of Vaughan and Verrill, and *Manicina areolata* of most other authors).

Polyphyllastrea.

72. *Polyphyllastrea* d'Orbigny, 1849; Note sur des. Pol. foss., 10.

Genosyntypes: *P. plana* d'Orbigny, *P. toucasiana* d'Orbigny.

Genolectotype: (here selected), *Polyphyllastrea plana* d'Orbigny 1850. Corallian, Poisat, near Nantua. (Type No. 4531, Coll. d'Orbigny., Mus. Nat. d'Hist. Nat., Paris.)

P. plana is a species of *Microsolena*, and d'Orbigny's genus is now a synonym of the latter. *P. toucasiana* is a species of *Synastrea.*

Polyphylloseris.

73. *Polyphylloseris* de Fromentel, 1857; Pol. Foss. Et. Neocom., 67.

Genosyntypes: *Polyphyllastrea convexa* d'Orbigny, *Polyphyllastrea icaunensis* d'Orbigny.

Genolectotype: (here selected), *Polyphyllastrea convexa* d'Orbigny 1850. Barremian, *Gy-l'Évèque.* (Type, Coll. d'Orbigny, Mus. Nat. d'Hist. Nat., Paris.)

Porpites.

74. *Porpites Schlotheim*, 1820; Petrefactenkunde, i, 349.

Genosyntypes: *P. hemisphericus* Schlot. (= *Cyclolites hemisphericus* Lamarck), *P. lenticulatus* Schlotheim, *P. echinatus* Schlotheim, *P. globulatus* Schlotheim.

Genolectotype: (here selected), *Porpites globulatus* Schlotheim 1820. Maestrichtian, Aachen.

Edwards and Haime restricted this genus to the last two syntypes when they placed the first two in the Paleozoic genus *Palaeocyclus*. The third and fourth are both species of *Cycloites*, but have not been recognized by later authors. The type specimens are not with the other types of Schlotheim in the Berlin Museum.

The genus is a synonym of *Cyclolites*.

Pourtalosmilia.

75. *Pourtalosmilia* Duncan, 1884; *Journ. Linn. Soc. London, Zool.*, xxiii, 72.

Genosyntypes: *Blastosmilia pourtalesi* Duncan, *Coelosmilia fecunda* Pourtalès.

Genolectotype: (here selected), *Blastosmilia pourtalesi* Duncan 1878. Recent, Mediterranean, red coral zone. (Holotype, No. 83.12.10.133, British Museum [N. H.].)

This genus is a synonym of *Anomocora* Studer 1878, which has for its type *Coelosmilia fecunda* Pourt., and which is in turn a synonym of *Coenosmilia* Pourtalès 1874.

Praestephanocoenia.

76. *Praestephanocoenia* Oppenheim, 1930; Anthozoen der Gosauschichten, 472.

Genosyntypes: *Prionastraea ? schafhäutli* Winkler, *Stephanocoenia juvavica* Frech.

Genolectotype: (here selected), *Prionastraea ? schafhäutli* Winkler 1861. Norian, Zlambach Beds, Fischerwiese, Hallstätter Salzberg.

Pseudocoenia.

77. *Pseudocoenia* d'Orbigny, 1850; Prod. Pal., ii, 33.

Genosyntypes: *P. suboctonis* d'Orbigny, *P. bernardina* d'Orbigny, *P. ramosa* d'Orbigny, *P. digitata* d'Orbigny, *P. octonis* d'Orbigny, *P. elegans* d'Orbigny, *P. ramosa* d'Orbigny (error of d'Orbigny, it = 1st *ramosa*).

Genolectotype: (here selected), *Pseudocoenia barnardina* d'Orbigny 1850. Corallian, Landeyron. (Type No. 4472 [*non* 4472a, b], Coll. d'Orbigny, Mus. Nat. d'Hist. Nat., Paris.)

The species selected as typical is a species of *Stylina*, for which the genus is therefore a synonym, as it was considered by Edwards and Haime and later authors. The other syntypes are represented in the Coll. d'Orbigny by a series of very badly preserved specimens, most of which appear to be *Stylina*.

Rabdastrea.

78. *Rabdastrea* Étallon, 1859; Mem. Soc. Émul. Doubs (3), iii, 99.

Genosyntypes: *R. jurensis* Étallon, *R. flexuosa* Étallon.

Genolectotype: (here selected), *Rabdastrea jurensis* Étallon 1859. Sequanian, (Diceratian), Valfin.

This form is very close to *Ovalastrea* d'Orbigny, and represents a link between the massive astreiform type of this latter and the bushy corallum of *Calamophyllia*.

Rhabdocora.

79. *Rhabdocora* de Fromentel, 1873; Pal. franç., Terr. crét., Zooph., pl. lxxiii (1867), 432 (1873).

Geosyntypes: *R. cretacea* de Fromentel, *R. exiguis* de Fromentel.

Genolectotype: (here selected), *Rhabdocora cretacea* de Fromentel 1873. Barremian, Sougraigne (Aude).

Although figures of the type species were published in 1867, they were not named at that time, nor until 1873 when the descriptions of the genus and two species appeared.

Gregory (1900) has considered this form a synonym of *Goniocora*.

Rhodopsammia.

80. *Rhodopsammia* Semper, 1872; *Zeitschr. Wiss. Zool.*, xxii, 257.

Genosyntypes: *R. carinata* Semper, *R. amoena* Semper, *R. parallela* Semper, *R. socialis* Semper, *R. affinis* Semper, *R. ovalis*, Semper, *R. incerta* Semper, *R. dubia* Semper.

Genolectotype: (here selected), *Rhodosammia parallela* Semper 1872. Recent, 10 fathoms, Lapinig Channel, Philippines.

This is a synonym of *Balanophyllia.* Many of the other syntypes are probably synonyms of *R. parallela.*

Schizosmilia.

81. *Schizosmilia* Koby, 1888; Pol. Jur. Suisse, vii, 435.

Genosyntypes: *S. excelsa* Koby, *S. rollieri* Koby, *S. corallina* Koby.

Genolectotype: (here selected), *Schizosmilia excelsa* Koby 1888. Astartian, Bressaucourt.

Sclerosmilia.

82. *Sclerosmilia* Koby, 1888; Pol. Jur. Suisse, vii, 426.

Genosyntypes: *S. rugosa* Koby, *S. laufonensis* Koby.

Genolectotype: (here selected), *Sclerosmilia rugosa* Koby 1888. Rauracian, Caquerelle, St. Ursanne, Taréche. (Types in the Colls. Thurmann, Koby.)

Stylastraea.

83. *Stylastraea* de Fromentel, 1861 (non Lonsdale, 1845); Introd. Pol. Foss., 223.

Genosyntypes: *S. martini* de Fromentel, *S. sinemuriensis* de Fromentel.

Genolectotype: (here selected), *S. sinemuriensis* de Fromentel 1861. Sinemurian, Vic-de-Chassenay (N. E.).

Although the type specimen of this species selected is listed in the index at the Paris Museum, like many other types in that institution, it is not to be found at present.

Stylomadrepora.

84. *Stylomadrepora* Oppenheim, 1923; Eocänfauna der Polje von Lukovac, 41.

Genosyntypes: *S. dinarica* Oppenheim, *S. madreporacea* Oppenheim.

Genolectotype: (here selected), *Stylomadrepora madreporacea* Oppenheim 1923. Eocene, Lukovac, near Nevesinje, Herzegovina. (Holotype, No. R 22283 British Museum [N. H.].)

S. madreporacea is a species of *Stylophora*; *S. dinarica* may be the same or a form of *Seriatopora.* Oppenheim's figures show nothing except the form of the corallum and his descriptions are misleading. An examination of the types in the British Museum by the author shows that there is no foundation for the assertion by Oppenheim that *Stylomadrepora* is a form midway between *Madrepora* (*Acropora*) and *Stylophora.*

Stelloria.

85. *Stelloria* d'Orbigny, 1849; Note sur des Pol. Foss., 9.

Genosyntypes. *S. rustica* d'Orbigny, *S. elegans* d'Orbigny.

Genolectotype: (here selected), *Stelloria elegans* d'Orbigny 1850 = *Anthophyllum sulcata* Michelin 1845. Cenomanian, Le Mans (Sarthe). (D'Orbigny's type No. 6703, labelled "*Coelosmilia sulcata* d'Orb.," Coll. d'Orbigny, Mus. Nat. d'Hist. Nat., Paris.)

Michelin's type of *A. sulcata* cannot be found in the Paris Museum, but it was certainly identical with d'Orbigny's specimen. *S. rustica* d'Orbigny is not represented in the Collection d'Orbigny. Usually held to represent a form of colonial coral, *Stelloria* is really a simple type belonging in the vicinity of *Gardineria* Vaughan.

Stenogyra.

86. *Stenogyra* de Fromentel, 1861; Introd. Ét. Pol. Foss., 153.

Genosyntypes: *S. corallina* de Fromentel, *S. plicata* de Fromentel, *S.* (*?*) *perroni* de Fromentel.

Genolectotype: (here selected), *Stenogyra corallina* de Fromentel 1861. Corallian, Champlitte.

This is probably a synonym of *Rhipidogyra* E. and H. The name was pre-occupied in 1854 by Shuttleworth for a mollusc.

Stephanocyathus.

87. *Stephanocyathus* Seguenza, 1864; Corall. Terz. Messina, 61.

Genosyntypes: *S. elegans* Seguenza, *S. variabilis* Seguenza, *S. zancleus* Seguenza.

Genolectotype: (here selected), *Stephanocyathus elegans* Seguenza 1864. Pliocene, near Messina.

This genus, usually considered a synonym of *Trochocyathus*, but in reality having no relationship with that form, takes precedence over *Odontocyathus* and *Stephanotrochus* Moseley 1881 and *Sabinotrochus* Duncan. The presence or absence of paliform lobes in these forms is hardly even of specific importance. Such lobes may occur in specimens of the same species or be absent. *Sabinotrochus* was founded on an immature individual of this genus.

Stylohelia.

88. *Stylohelia* de Fromentel, 1861; Introd. Ét. Pol. Foss., 180.

Genosyntypes: *S. mammillata* de Fromentel, *S. conferta* de Fromentel.

Genolectotype: (here selected), *Stylohelia mammillata* de Fromentel 1861. Corallian, Gy (Haute-Saône).

Telciophyllia.

89. *Teleiophyllia* Duncan, 1864; *Quart. Journ. Geol. Soc. London*, xx, 34.

Genosyntypes: *T. grandis* Duncan, *T. navicula* Duncan.

Genolectotype: (here selected), *Teleiophyllia grandis* Duncan 1864. Miocene, Nivaje Shale, San Domingo. (Type No. 28754, British Museum [N. H.].)

Vaughan (1919, 423) placed this genus in the synonymy of Duncan's *Thysanus*, but the author believes that they should be kept separate. *Teleiophyllia* is bilaterally symmetrical in

its growth-form, has a narrow edge-zone and a well-developed exotheca and epitheca. *Thysanus* is symmetrical with a broad edge-zone and no exotheca and but a rudimentary epitheca. *Teleiophyllia* is probably related to *Lasmogyra* d'Orbigny.

Tubastraea.

90. *Tubastraea* Lesson, 1834; in, Belanger, Voy. Indes-Orient., 515.

Genotype: *Tubastraea coccinea* Lesson 1834 = *Lobophyllia aurea* Quoy and Gaimard 1833. Recent, Borabora, Pacific. (Lesson's type in Mus. Nat. d'Hist. Nat., Paris.) (By monotypy.)

Edwards and Haime (1860, 125), in discussing their genus *Coenopsammia*, noted that it was the same as Lesson's genus, but preferred their own name on the grounds that *Tubastraea* had already been used for a different group by de Blainville. De Blainville, however, did not use the name in its Latin form but as "Tubastrées." *Coenopsammia* is a synonym of *Tubastraea*, and its species are not congeneric with those of *Dendrophyllia*.

Zittelofungia.

91. *Zittelofungia* Duncan, 1884; *Journ. Linn. Soc. London, Zool.*, xviii, 150.

Genosyntypes: *Cyclolites alpina* d'Orbigny, *Cyclolites ranikoti* Duncan, *Cyclolites crenulata* Duncan, *Cyclolites vicaryi* Haime, *Cyclolites anomala* Duncan, *Cyclolites superba* Duncan, *Cyclolites haimei* Duncan, *Cyclolites altavillensis* (Defrance), *Cyclolites striata* Duncan.

Genolectotype: (here selected), *Cyclolites vicaryi* Haime 1851. Montian, Lower Ranikot Group, Sind. (Types, Nos. R29131-32, British Museum [N. H.].)

Duncan, in his generic diagnosis, lumped in this genus all the species he had figured and described in 1880 (52-55, pls. 13, 16, 17). There are in the British Museum specimens of several of these species and from these the selection has been made of a genotype.

Of these specimens, 3 are supposed to be Haime's original types. One of these (R29133) is a *Cycloseris*, probably identical with Duncan's *C. alpina*. Of the remaining eight species,

the author has not seen specimens of *C. ranikoti, anomala* and *superba*, and for this reason the type has been selected from the others. The types of Haime's *vicaryi*, except the one belonging to *Cycloseris*, fit Duncan's generic description well. It should be noted, however, that Haime's figures (1853, pl. 12, f. 8) are a considerable improvement over the specimens and that one cannot positively say that the British Museum specimens are Haime's types of *vicaryi*.

The wall in this genus, as in *Cyclolites*, is non-existent. The septa are dentate, mostly imperforate but not laminar, in their structure resembling those of *Cycloseris*.[5] Gregory (1930, pl. 15, fig. 1) has given a good figure of the structure of *vicaryi*. The fundamental structure of the septa is that of *Cyclolites*, the imperforate appearance being due to filling of the pores between the trabecular elements. *Cyclolites* is probably more closely allied to *Cycloseris* than is generally considered and the *Cycloseroid* septa of *Zittelofungia* are not especially remarkable. *Zittelofungia*, principally because of its strong basal epitheca, lacking in *Cycloseris*, is here considered a synonym of *Cyclolites*.

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[5] The septa of corals of this genus pass through a *Cyclolites* stage in the earlier part of their development, later becoming compact.

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