NOTES ON THE NOMENCLATURE OF THE MOLLUSKS OF
THE FAMILY TURRITIDAE.

By William Healey Dall.

Honorary Curator of Mollusks, United States National Museum.

In the course of my revision of the West American mollusk fauna, the Turritidae (formerly Pleurotomidae) were reserved until nearly the last, owing to my knowledge of the extremely unsatisfactory condition of their nomenclature.

Owing chiefly to a want of thoroughness and consequent inaccuracy the recent revisions of the group by Tryon and Cossmann were quite unreliable, though to their labors in bringing material and references together and so giving a starting point for investigation I am much indebted. Furthermore several recent writers on the group have in my opinion excessively divided it, forming genera, subgenera, and sections on merely specific, or even individual, characters of no physiological or systematic importance. Of the more than 175 names of more than specific importance which have been applied to members of this family, probably not more than one third are indicative of characters of sufficient value to warrant a separate name.

Another difficulty in a satisfactory treatment of the family arises from the fact that these animals often differ among themselves anatomically in ways not expressed in the shell characters; species generically distinct sometimes having extremely similar shells. This has been amply proved in the cases of Leucosyrinx, Irenosyrinx, Steiraxis, and Aforia for instance. Therefore until much more is known of the anatomy of the species any arrangement must be merely tentative, though it is not unreasonable under the circumstances to put like shells of unknown anatomy in the same systematic group for the present.

From the recent species we must reason by analogy to determine the proper place of fossils, as no other course is open. It would require several years' work and access to European collections to place the known species and determine the synonymy of the entire
family, a task beyond my powers under present conditions. I shall therefore only attempt to review our West American species, and to determine the original types and consequent characteristics of some of the more familiar genera of the family. To these data I add references to the various names which have been given to members of the group, making a basis from which later workers may be able to proceed with the review of the whole family. Some scattered names may have escaped discovery during my search, but this is a misfortune hardly to be avoided in such work. The rules by which I have been guided in recognition of valid names are those of the International Committee on Zoological Nomenclature and, while applying these rules with precision as far as the facts are known to me, I have endeavored to use in doubtful cases a rational conservatism, changing nothing for the mere love of change and avoiding the whimsicalities by means of which some recent writers have endeavored to justify their retention of familiar but unfortunately invalid names.

The Turritidae are an ancient group, originating in Mesozoic time and have naturally a world-wide distribution. There are probably more species of the family in the recent fauna than of any other family of mollusks. The distinctness of the group was recognized by Rumphius as early as 1704 and his name Turris with his typical species has been adopted into binomial nomenclature in its original sense, though the group has been multifariously subdivided since. It is a pity that Lamarck disregarded the work of his predecessors so far as to apply to the group a name different from that by which it had been known for nearly a century, thus necessitating an inconvenient revision nearly another century later.

Genus TURRIS Bolten, 1799.

The name Turris for the typical part of the genus was given by Bolten a year earlier than Lamarck's application of the name Pleurotoma to the same type. Still earlier, Helbling had given the name Fusus to a group consisting chiefly of Turritidae, but fortunately, by applying the method of elimination to his assembly, the name Fusus could be fixed upon a small and inconspicuous group of Gastropods, and a shifting of names which would have been practically intolerable was thus avoided. The rejection by the International Committee of the anonymous Museum Calonnianum of 1797, removes that source of confusion from consideration in systematic binomial nomenclature, though in this instance the author of that work merely followed Rumphius, and the sole identifiable species in his list is the type of Turris Bolten.

Link in 1807 followed Lamarck, though (possibly due to a typographical error) the name is spelled Pleurotome in his publication.
In the quadri-nominal system of Dumeril the name is spelled *Pleurotomarius* as a designation for the animal of *Pleurotoma*. To these synonyms may probably be added *Lophiotoma* and *Tomopleura*. Casey, 1904.

Genus CLAVATULA Lamarck, 1801.

The first subdivision of the genus was the proposal of Lamarck in 1801 of a genus *Clavatula*, which was typified by *C. coronata* Lamarck, but which is not *Clavatula* Swainson, 1840, typified by *C. sulcata* Swainson. Synonyms are *Clavicantha* Swainson, 1840, and probably the typical *Drillia* (*umbilicata*) Gray, 1838. Lamarck afterward united his *Clavatula* with *Pleurotoma*, but subsequent investigations have shown that *Clavatula*, according to its type-species, is entitled to subfamily distinction. The operculum, dentition, and anatomy are different from those of the group typified by *Turris babylonius*. It is a west African group in the main.

Genus CLAVUS Montfort, 1810.

Under the name of *Clavus* Montfort separated, in 1810, a genus typified by *C. flammulatus* Montfort, figured and described in the same place, and specifically designated as the type. Because at the same time he cited one of Lamarck's *Clavatulae*, the latter has been mistaken as the type. An unjustified attempt to reject *Clavus* on account of the perfectly distinct prior name of *Clava* Martyn, has been made, but Tryon correctly preserved the genus for smooth Turritidae with a short last whorl, long spire, nodulous shoulder, no spiral sculpture, a wide, deep anal sulcus adjacent to the suture and, in the completely adult, a marked subsutural callus on the body. Such species as *Pleurotoma crenularis* Reeve (Conch. Iconica, fig. 54 (not of Weinkauff), 1845; *P. lanceolata* Reeve (fig. 182). *P. maculosa* Reeve (fig. 45); and *P. echinata* Reeve (fig. 48) appear to be properly located in the genus *Clavus*.

Genus TURRICULA Schumacher, 1817.

The next to be considered is the genus *Turricula* Schumacher, 1817, based on *T. flammea* Schumacher, founded on figures 1337 and 1338, volume 4, of Martini's Conchylien Cabinet. This shell is *Turris javanus* Bolten, but not *Murex javanus* of Linnaeus and Gmelin. It is the *Murex tornatus* of Dillwyn, 1817, but not of Bolten. 1798. It is not *Clavatula flammea* Hinds, 1843.

The type of *Turricula* is an almost perfectly smooth shell of the kind ordinarily called *Surcula* H. and A. Adams, 1853, of which the type is *Murex javanus* Linnaeus and Gmelin, not Bolten. The only distinction between *Turricula* and *Surcula* is the rough sculpture of
the latter. *Surcula*, if based on the adjacency of the anal sinus to the suture can only be maintained as a minor section of *Turricula*. A futile attempt has been made to reject *Turricula* on account of the use of that name in the worthless polynomial system of Klein, but that is quite inadmissible on any genuine nomenclatorial basis. The *Turricula* of Herrman, 1783, was not used in a generic sense. The *Turricula* of the Museum Calonnianum has been rejected by the International Committee on Nomenclature. The use of the name by Fabricius, 1822, and Beck, 1837, being later than Schumacher's date, need not be further considered.

*Surcula* Weinkauff, 1875, is a Germanized rendering of *Surcula*, but whether due to author or compositor is uncertain.

**Genus MANGILIA** Risso, 1826.

The next name to be considered is *Mangelia* Risso, 1826. The first species is *M. costulata* Risso, which is identical with or merely a variety of *nebula* Montagu. Risso named no type, but *costulata* was selected by Bellardi in 1847, Kobelt in 1905, and Dall in 1908. The selection of other types by authors subsequent to Bellardi has created a good deal of confusion, since Risso's group of species was not homogeneous. As has been already shown by Iredale\(^1\) Gray, in the Proceedings of the Zoological Society of London for 1847, selected as the type of Leach's manuscript genus *Bela* this same *Murex nebula* of Montagu which makes *Bela* an exact synonym of *Mangelia*, this being the first valid publication of *Bela*. *Mangelia ginnania* Risso (fig. 130) to which Gray in 1847 referred the manuscript name of *Ishmula* Clark, is apparently identical with *Mangelia* s. s., though Monterosato proposed a sectional name *Ginnania* for it in 1884. *Raphitoma* Bellardi, 1844, was a heterogeneous group. Later in his preliminary synopsis of 1875, he divides the group into two sections: I, typified by *R. vulpecula* Brocchi, and II, by *R. harpula* Brocchi. In his subsequent monograph of the Pleurotomidae he specifies (p. 323) *vulpecula* as the type of the genus. The latter is a typical *Mangelia* and *Raphitoma* therefore becomes a synonym of *Mangelia*. Other authors disregarding Bellardi's selection of a type have made extraordinary confusion of the relations of this genus.

Its chief characteristics are the absence of an operculum; the entire, hardly thickened, and nonvaricose outer lip; the unarmed pillar; and shallow anal sinus near the suture. The shell is usually axially ribbed and spirally minutely sculptured. The fact that the author intended to be honored was named Mangili led Lovén and many subsequent writers to correct the spelling to *Mangilia*, which, as it hardly affects the location of the name in indices, though a little irregular

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from a nomenclatorial standpoint, may without too much reprehension be accepted.

Genus DRILLIA Gray, 1838.

The name Drillia was proposed in 1838 for a peculiar African species (umbilicata Gray) by J. E. Gray. What is probably the same species Brachytoma costanea Swainson, 1840, was one of the two types of Swainson's Brachytoma (not Brachystoma, as mispelled by several authors) and both of them probably may turn out to be Clavatulæ. At any rate the shells which have been commonly called Drillia have to take another name.

The small blackish Drillias so common in Panamic waters, of which Pleurotoma hottea Valenciennes is the type, will take the name of Crassispira Swainson, 1840. The light-colored species, with an oily gloss, thin shells, and prominent riblets usually crossed by rather widely spaced spiral striations, will take the new name of Elaeocyma Dall. This group appears to be peculiar to the Pacific coast of America. Drillia empyrosia Dall may be taken as type and D. unimaculata Sowerby, hemphilli Stearns, and several others belong to it.

Cymatosyrinx Dall, 1889, based on Pleurotoma lunata Lea, will cover the thin-shelled light-colored species of its type.

For the generally brown or brownish clathrate species a few of which are found in nearly every fauna, and of which Pleurotoma gibbosa Reeve may be specified as a typical example, the new name of Clathrodrillia Dall may be used. Drillia ostrearum Stearns is an American example.

Genus MELATOMA Swainson, 1840.

Swainson in 1840 described and figured under the name of Melatoma costata a shell which he supposed to be fluvial but which really belonged to the Turritidae. Seven years later Gray gave the name of Clionella (sinuatum Born) to a species of the same conchological type. This group which by its dentition and operculum is related to the Clavatulæ must take the earlier name.

There is a group of species typified by Pleurotoma penicillata Carpenter which in sculpture and periostracum closely resemble the African Melatoma, but their operculum has an apical nucleus and is long and narrow. They may be called Pseudomelatoma. Melatoma Anthony, 1847, is quite a different thing.

Genus MONILIOPSIS Conrad, 1865.

This name was applied in 1865 to a very beautifully sculptured species (M. elaborata Conrad) from the Eocene. The West American
species formerly called *Surcula cancellata* Carpenter, *inermis* Carpenter, etc., though with much less elaborate ornamentation appear to be related to the Eocene fossil and may tentatively be referred to the same group. At all events they can not be comprised in *Surcula* as properly restricted. I may note that Conrad's species was very insufficiently figured by him.

**Genus ANCISTROSYRINX Dall, 1881.**

This group, which has a wholly superficial resemblance to *Columbarium*, is an evident development from *Cochlespira* Conrad, 1865, of the Eocene. It should be stated, however, that some wholly incongruous species have been referred to this section by authors unfamiliar with the original type, *A. elegans*, which is figured in Dr. A. Agassiz' Three Voyages of the *Blake* (vol. 2, p. 66, fig. 282, 1888). The distinctions which may serve to retain *Ancistrosyrinx* as a section of *Cochlespira* are recorded in Bulletin Museum of Comparative Zoology (vol. 43, p. 257, 1908). *Candelabrum* Dall, MS. not of Blainville, is a synonym.

**Genus GEMMULA Weinkauff, 1876.**

This section of *Turris* with short canal and beaded or rugose anal fasciole was named without a designated type, but, in 1896, Cossmann selected *Pleurotoma gemmata* Hinds. The section *Hemipleurotoma* Cossmann, is regarded as synonymous by Casey.

There is a numerous group of abyssal Turritidae with a sculpture somewhat like that of *Gemmula* but covered with a greenish perios traecum, the shell of a chalky consistency, the outer lip thin and simple instead of internally thickened and lirate as in *Pl. gemmata*. These differences seem to be of at least sectional value and the group may be named *Cryptogemma* with *Gemmula benthina* Dall, 1908, as type. The aspect of these shells suggests relationship with *Antiplanes*, but these features may be due to similar influences of the deep-water environment. The universal erosion, even in the youngest living specimens, prevents us from knowing the nuclear characters.

**Genus BELA (Leach MS.) Gray, 1847.**

Iredale reviewed this genus in 1915 in the Proceedings of the Malacological Society of London, and as the type of *Bela* selected by Gray himself is the same species as the type of *Mangelia* Risso, there is no question but that the name must be abandoned.

The next name in order is *Lora* Gistel, 1848, type *Tritonium viridulum* O. Fabricius (probably = *Bela exarata* Möller). This is followed by *Oenopota* of Mörch, 1852, who designated no type. *Onopota*, H. and A. Adams, 1858, is synonymous.
Genus BATHYTOMA Harris and Burrows, 1891.

* Dolichotoma * Bellardi, 1875 (* Doligotoma * Weinkauff, 1876), is pre-occupied by * Dolichotoma * Hope, 1839. The type is * Pleurotoma cata- phracta * Brocchi, which automatically becomes the type of * Bathy- toma*. This species is more or less sculptured. Casey proposed in 1904 the name * Megasurcula * for the smoother West American species. But von Koenen in 1867¹ proposed for the * Pleurotoma filosa * of Lamarck the name * Cryptoconus;* and a comparison of it with the smaller Californian species (* stearnsiana Raymond*) shows only specific differences between them. * Cryptoconus* thus supersedes * Bathytoma* for the West American forms, whether it be accepted for the more emphatically sculptured European and West Indian species or not, and I can see no important characters to separate them.

Genus AFORIA Dall, 1889.

This name was applied by me to * Pleurotoma circlinata* Dall, on the mistaken statement of Jefferys that it possessed no operculum. Better material enabled the diagnosis to be corrected and the species would have been referred to * Leucosyrinx* were it not for the fact that a portion of the shells (males?) show in the adult a deep notch or sinus in the anterior part of the outer lip between the canal and the periphery, somewhat analogous to the sinus for the eye pedicels in * Strombus*. Whether this is a sexual character remains to be determined, but it occurs in so many specimens that it can not be regarded as abnormal.

Genus BORSONELLA Dall, 1908.

It seems entirely probable that true * Borsonia* and * Cordieria* do not exist on the Pacific coast, and that the relations between * Anti- planes* and * Borsonella* are more intimate than those with any of the European forms, notwithstanding the plait on the pillar in * Bor- sonella*. With Casey I think that this is a feature which may occur sporadically in a portion of any large group of Turritidae.

Genus CYTHARA Schumacher, 1817.

Cossmann states (Essais, vol. 2, p. 121) that this name was used before Schumacher, but he gives no reference and a careful search has not revealed any binomial use of it, so I am obliged to regard the statement as a mistake. * Eucythara* Fischer is a synonym. Schu- macher's type, * C. striata* Schumacher, is said by several authors to be identical with * Cancellaria citellare* Lamarck, 1822. Both authors refer to the same figure of Chemnitz (1830), which repre- senta shell corresponding to the generally accepted type of * Cythara*.

¹ *Zittel, Traité, de Pal.*, vol. 2, p. 284 (Barrois translation), gives 1840 the date of von Koenen's name, but I have not been able to verify this.
Some authors have confounded with this figure two adjacent figures of immature Strombi and concluded that Cythara was a synonym of Strombus, but this conclusion has no valid basis.

The typical Cythara is a relatively large tropical shell with short spire and narrow, elongated aperture, plentifully supplied in adults with denticulations or striated callus on both body, pillar, and outer lip. It appears to be entirely distinct from the relatively small shells, mostly with unarmed apertures, from the temperate faunas, which authors, including the writer, have been accustomed to refer to this genus. The name which we shall adopt for the small forms referred to is difficult to determine, since some of them were included in Risso's Mangelia, and Reeve included all he knew in his monograph of the Mangelias along with Cythara proper. Other authors, ignoring the real type of Mangelia, have applied the latter name to these species, while still others have proposed a considerable number of new names for the various species of this group. True Cythara appears to bear much such a conchological relation to these shells as Glyphostoma does to the small shells we have been accustomed to call Clathurella.

Cossmann in 1889 calls them Mangilia, following Reeve; Bellardi in 1875 had called them Ditoma, but this name was preoccupied by Illiger in 1807. Bellardi's type species was Pleurotoma angusta Jan. This is a form with a thickened outer lip, spiral striation, and conspicuous short anal sinus. Cossmann in 1889 substituted Agathotoma, the type, of course, remaining automatically the same; but in 1875 Monterosato had proposed for Pleurotoma bertrandii Payraudeau the name Cytharella. This covers the smooth group exactly. Hae-dropleura Monterosato, 1882, type Mitromorpha septangularis Montagu, would provide for the more elevated forms with few axial ribs, but the type is said to be operculate, which the true Cytharellae are not. The forms with shouldered whorls and numerous axial ribs like angusta Jan must take Cossmann's name, unless some anterior designation can be found. Zetekia is a small form recalling Mitromorpha, with predominantly spiral sculpture and coarse lirations on both sides of the aperture and the anal sulcus inconspicuous. The type (U. S. Nat. Mus., No. 274109) is about six millimeters long, with a smooth nucleus of about three whorls and four subsequent whorls, with the suture obscure and the color purplish brown. It was collected at Panama and I have called it Z. denticulata.

Genus CLATHURELLA Carpenter, 1857.

This was a new name for Defrancia Millet, not Bronn, 1825. In 1908¹ I discussed the synonymy of Clathurella, for which a species

¹ Bull. Mus. Comp. Zool., vol. 43, No. 6, p. 250. On p. 261, under Bellardiella, the statement as to the nucleus is inaccurate and should be eliminated. The correct description is given on p. 260, line 7 et seq.
not included in Millet's original list has been usually but erroneously taken as the type. As neither Millet nor Carpenter named a type, and Carpenter's name automatically takes as type the designated species of *Defrancia* Millet (\(D. \text{pagoda}\), selected by the writer in 1908), *Clathurella* must be reserved for species having the character of \(D. \text{pagoda}\) Millet. However, Iredale has shown that Bronn in 1831 proposed the name *Pleurotomoides* for the preoccupied *Defrancia* of Millet, which must take precedence of *Clathurella* with the same typical species. Beck proposed *Pleurotoma* as a substitute for *Defrancia* in 1847, but it had been used by Gray in 1838 as a sub-family name. This leaves the species placed in *Clathurella* by Cossmann, 1896, type \(C. \text{rava}\) Hinds, without a name, and among the numerous names for small Turritidae one must be sought. The earliest which seems available appears to be *Philbertia* Monterosato, 1884. The curious succession of synonyms is as follows, noting first that Bellardi did not (as has been erroneously stated) propose a name *Heterotoma*, and if he had it was preoccupied by Hartmann in 1844. Then follows *Bellardia* Bucquoy, Dautzenberg, and Dollfus, 1882, not of Mayer, 1870; *Bellardia* Fischer, 1883 (new name for *Bellardia*), not of Tapparone Canefri earlier in 1883; *Philbertia* Monterosato (p. 132, 1884); *Cormarmondia* Monterosato (p. 135, 1884) (new name for *Bellardia*); *Otitoma* Jousseaume, 1898; and lastly *Clathurina* Melvill (April, 1917) (new name for *Clathurella*).

As far as the data are accessible to me *Philbertia* (from which the later *Comarmondia* does not materially differ) is the earliest available name for the group included by *Clathurella* Cossmann not Carpenter, and typified by *Pleurotoma bicolor* Risso=\(P. \text{purpurea}\) (Montagu), variety *bicolor* Bucquoy, Dautzenberg, and Dollfus+\(P. \text{philberti}\) Michelotti, fide Monterosato. *Philbertia* has the outer lip thickened or varicose, lirate or dentate within when adult, the pillar usually smooth, the nucleus acute, smooth, and rather elevated; the species are small and the sculpture more or less clathrate or sculptured both axially and spirally.

The nearest group to it is *Glyphostoma*, which is large, with a more brilliant surface, a more fusiform profile, more contracted and emphatically armed aperture and different nucleus. *Philbertia* abounds in shallow temperate waters, while *Glyphostoma*, receding to the Eocene in time, apparently prefers tropical waters and even considerable depths.

**Genus CALLIOTECTUM** Dall, 1889.

A dissection of a better preserved specimen of \(C. \text{vernicosum}\), the type of this genus, has revealed a minute radula with teeth of the Volutoid type, and the long esophageal caecum characteristic of the
Volutidae, to which family it must be referred as one of the degenerate abyssal forms which have lost their columellar plaits. A magnificent species related to Calliotectum, named Prodallia dalli and figured by Bartsch in 1915, was dredged in very deep water among the Philippines.

The other named groups among the Turritidae of the Pacific coast are not involved in synonymic difficulties and therefore need not be discussed here.

**Preliminary list of names hercetofore applied to divisions of the Turritidae with references and notes.**

Acamptogenotia Rovereto, 1899, see Pseudotoma Bellardi not Stephens.


Amblyacrum Cossmann, 1889, Cat. Ill., p. 295. Essais, vol. 2, p. 137. Type, Pl. rugosa Deshayes. This is a Surecula with short canal, moderate anal sulcus and Drillia-like sculpture. No varix behind outer lip.


Beisselia Holtzappel, 1889. (Not seen.) Type, Koenenia speciosa Holtzappel, Senonian; new name for Koenenia Holtzappel, 1888, not of Beushausen; nor of Grassi, 1885. This is a pleurotomoid resembling a very large coarse Fusinus.


Bellardia
Bellardiella


2nd sect. Type, B. prima Bell. (2 plaits).
1st sect. Type, B. bicoronata Bell. (1 plait).
3rd sect. Type, B. uniplicata Nyst. (1 plait).

Brachytoma Swainson, Man., 1840, p. 314. Types, Pl. stromboides Sowerby, Man., fig. 281, and B. castanea Swainson, after Chemnitz. Both these species are Drilli Auct. and both are probably Clavatula. B. castanea is, perhaps, identical with Gray's type (umbilicata) of Drillia.


Chauvetia Monterosato, Nom. Conch. Medit., 1884, p. 137, new name for Nesaea Risso, 1826, not Lamarck. 1812–16. Type is stated to be Buccinum candidissimum Philippi. This species appears to be a cancellate Anachis. Cossmann refers it to Donovania but the type is not of that genus. In 1890 Monterosato refers it to the group of Raphitoma vulpecula.


Clathrodrippia Dall, 1918. Type, Pl. gibbosa Reeve.


Dautzenberg and Dollfus, 1882. Type, C. purpurea Montagu (=philberti + purpurea + corbis Monérosato, 1884.)


Clavatula Swainson, 1840, Man., p. 314. Type, C. sulcata Swainson, Man., p. 314, 1840, =Murex gibbosus Born, Index, 1775; Test. Mus. Vind., 1780, p. 321; +Pl. flavidula Lamarck var., Kiener, Icon., p. 31, 1839; =Drillia Auct., not Clavatula Lamarck, 1801.

Clavicantha Swainson, 1840, Man., p. 314; =Clavatula Lamarck, 1801, not Swainson, 1840.

Clavosurcula Schepman, Siboga Exp., livr. 64, Mon. 49 e, p. 429, 1913. Type, C. sibogae Schepman. Resembles Steiraxis.


Comarmonia see Philbertia.


Coronia Gregorio, Mon. Clalb., 1890, p. 23. 1st sp. Pl. ocenirostra Conrad; = Gemnula Weinkauff, 1875, not Coronia Ehrenberg, 1840.

Crassispira Swainson, Man., 1840, p. 313. Type, Pleurotoma botae Valenciennes in Kiener, 1839 + fasciata Swainson, Man., 1840, p. 313.


Cryptogemma Dall, 1918. Type, _Genunnula benthima_ Dall.


Cythara Schumacher, Essais, p. 245. 1817. Type, _C. striata_ Schumacher = _Cancellaria citharella_ Lamarck 1822. This includes the species with short spine, denticulate outer lip and striated pillar, the aperture narrow. Costmann states this name was used before Schumacher binomially (Essais, p. 121), but this appears to be erroneous.

Cytharella Monterosato, Bull. Mal. Ital., 1875, p. 6. Type, _Pleurotoma bertrandii_ Payraudeau. Cf. *Ditoma* Bellardi, 1875. = _Mangilla_ Costmann, not Risso. These are the small species with thickened but not lirate or denticulate outer lip and pillar; the spine usually shorter than the aperture, the surface longitudinally ribbed, smooth, or spirally minutely sculptured; nucleus small, smooth. Not *Cytherella* Rupert Jones, 1849, Crustacea, from Cythere.


Daphnelispos Schepman, _Siboga_ Exp. iuvr. 64, Mon. 49' e., p. 449, 1913. Type, _D. lamellosa_ Schepman, _Siboga_ Exp. iuvr. 64, p. 449, 1913. Like _Daphnella_ but with heavily callous lips.

Daphnobia Costmann, 1896, Essais, p. 93. Type, _Buccinum junceum_ Sowerby. Eocene. Shell extremely like _Aesopus_.

Defrancia Millet, see _Clathurella_ Carpenter.


Dilloconus Sandberger. (Not seen.) Not _Dilococonus_ Haeckel (Protista), 1869; nor of Candèze (Coleoptera) 1860, nor of Zittel, Cephalopoda, 1868 (not seen).


Drillia Gray, see _Clavatula_ Lamarck and _Clavus_ Montfort. Also _Crassispis_ Swainson, and _Clavatula_ Swainson not Lamarck. _Drillia_ Gray, Ann. Nat. Hist., vol. 1, 1838, p. 28. Type, _D. umbilicata_ Gray. _Brachytopma_ Swainson, 1840 (castanea), is synonymous. _Brachitoma_ (strombiformis Sowerby) is also a _Drillia_.

Drilliola (Monterosato, MS.) Costmann, 1903. Essais, vol. 5, p. 188. Type, _D. eucundata_ Monterosato, Medlt. Costmann states that it goes between (his)
Eucithara and Clathurella and has a flattened later spirally sculptured protoconch.

Elaecyma Dall, 1918. Type, Drillia empyrosia Dall.

Enatoma ROVERETO, 1859, see Atoma.

Endiatoea COSSMANN, 1890, Essais, p. 106. Type, Oligotoma quadricincta Cossmann; = Aphoniotoma Cossmann, 1883, not Bellardi, 1875. Eocene.


Cossmann, 1890, Essais, p. 223, suspends judgment on account of unfigured type.


Eueithara FISCHER, 1883, Man., p. 593. New name for Cythara Schumacher, 1817, not Klein! Klein being nonnominal this name is useless. The type-mentioned by Fischer is Mangiliastromboides Reeve.

Eucyctiotoma BOETTGER, 1895, Nachrbl. d. Mal. Ges., p. 55. Type, Clathurella bicarinata Reeve, foce Cossmann. (Should be Pease, not Reeve,.) Indopacific. Shell with two very prominent carinae, beaded, with Clathurellloid aperture. Cossmann names bicarinata as type. Boettger gives (1) tricarinata Reeve, and (2) bicarinata Pease, but does not designate either as type.


**Gosavia** Stoliczka, 1865. Volutoid placed with Pleurotomidae by Cossmann.

**Gymnobela** Verrill, 1884, Trans. Conn. Acad., vol. 6, p. 157. Type, *G. engonia* Verrill, fixed by Cossmann, 1896. No type selected by Verrill. Inoperculate, Bela-form, or swollen; nucleus cancellate; abyssal. Verrill's first species is *G. engonia*, his second and figured species is *curta*.


**Helenella** Casey, Trans. St. Louis Acad., vol. 4, 1904, p. 167. Type (1st of two sp.) *Pl. multigranosa* E. A. Smith, St. Helena. Two plaitts on the pillar. Recalls *Mitromorpha*; very small shells.


**Hemipleurotoma** Cossmann, 1889, Cat. ill., p. 264. Type, *Pl. archimedis* Bellardi. In Essais Pal., 1896, p. 78, Cossmann proposes another type, *Pl. denticula* Basterot. He regards *Coronia* Gregorio as synonyms.


**Heterotoma** Auct. after *Heterotomatae* of Bellardi, Moll. Piem. Mon. L'eur., 1847, p. 7. Not *Heterotoma* Latreille, 1829. Bellardi did not propose a genus *Heterotoma* but named a group in the plural number. In any case, the name was never once preoccupied.


**Kylix** Dall, 1918. Type, *K. alecyone* Dall.


Lora Gistel, Naturg., 1848, p. ix, sole example Tritonium viridulum Fabricius, which is a Bela, probably B. exarata Möller, according to the type-specimen.


Nannodiella Dall, 1918. Type, N. nana Dall.

Nicola Gregorio (not seen). Not Nicola Malmgren, Verm. 1865.


Onopota. See Oenopota Möhr.

Orthosurcula Casey, Trans. St. Louis Acad., vol. 14, 1904, p. 151. Types named are Pl. longiforma Aldrich (Red Bluff) and S. transversaria Lamarck. Cossman, 1906, Essais, p. 222, refers this to S. s. s.


Otocheilus Conrad, Amer. Journ. Conch., vol. 1, 1853, p. 24. Type, Fulgoraria mississippiensis Conrad, 1848. Eocene. Cited by Tryon Man., p. 150. This is placed by Tryon in Pleurotomidae but it is really a synonym or section of Lyria in the Volutidae where Conrad placed it.

Oxyacrum Cossmann, 1889, Cat. Illustr., p. 274; 1896, Essais Pal., p. 82. Type Pl. oblitterata Deshayes. Eocene.


Philbertia Monterosato, Sln. Mediterr. 1884, p. 132. Type, Pleurotoma bicolor Risso, +philberti Michaud, +purpura (Montagu) Bucquoy, Dautzenberg, and Dollfus, var. bicolor. Heterotomatae Bellardi, 1847, not Heterotoma Hartmann, 1844; +Bellardia Bucquoy, Dautzenberg, and Dollfus, 1882, not of Mayer, 1870; +Bellardicella Fischer, Man., Dec. 1883 (n. n. for Bellardia), not Tapp. Canefri, July, 1883, type, Pl. gracilis; +Comarmondia Monterosato, 1884, n. n. (p. 135) for Bellardicella; +Clathurina Melville, Apr. 1917, type, Pleurotoma foraminata Reeve; +Heterostoma Cossmann, 1896, not of Bellardi, 1847. Group equivalent to Clathomarellus Auct. not Defrance. Mangillinae. Philbertia has the outer lip thickened, lirate or dentate within when adult, pillar smooth, nucleus smooth, rather elevated and acute. Differs from Glyphostoma by smaller size, less brilliant surface, less fusiform profile, less contracted mouth and different nucleus.

Phyctaenia Cossmann, Cat. Illustr., 1889, p. 245. Type indicated Borsonia nodularis Deshayes. Eocene of Paris. Not Phyctaenia Hübner, 1816. Lepidop-


*Pholidotoma* Cossmann, 1896, Essais, pt. 2, p. 111. Type, *Fusus subheptagonus* Orbigny. This belongs to the Volutidae, near *Volutoderma* et al., though placed in Pleurotomidae by Cossmann.


*Pleurofulsia* Gregorio, Mon. Claib., p. 33, 1890. Type, *Pl. longirostris* Gregorio, Mon. Claib., p. 33, 1890, a variety of *Pl. servata* Conrad. Species resemble a coarsely spirally sculptured *Fusinus*. Cossmann makes it a synonym of *Surcula* (javana type).


*Pseudometaloma* Dall, 1918. Type, *Pl. penicillata* Carpenter.


*Pseudotoma* Bellardi, Mon. PI. 1875, p. 209. No type selected. 1st sp. *P. laevis* Bellardi, which is mentioned by Fischer, Man., 1883, p. 589. Dall, 1908, adopted *Pleurotoma intorta* Brocchi as type. In Bellardi's preliminary synopsis of *Pleurotomidae*, 1875, he mentions *Pl. intorta* as the type and it is the sole species given. Not *Pseudotoma* Stephens, 1852. Lepidoptera. *Equus* A. Camptognotia Rovereto, 1899, Syn., p. 3.


*Raphitoma* Bellardi (1847) Mon. Pleur., pp. 10, 84 (1875) no type fixed. Not *Raphitoma* Bellardi, 1878, Mon. Pleur., p. 323, where *vulpecula* Brocchi, which is a typical *Mangilia*, is cited by Bellardi as the type of the genus making it a synonym of *Mangilia*. *Raphitoma*, as first established, was very hetero-
geneous. In his preliminary synopsis Bellardi (1875) divides this group into two sections, I, type R. vulpecula Brocchi, and II, type R. harpula Brocchi. G. O. Sars, Norv., 1878, p. 218, tries to restrict Raphitoma (Bellardi) to spirally sculptured species. Type, R. anceps (Eichwald), = Pl. boreale Lovén + Defrancia teres Forbes. The cancellate species he would leave in Clathurella. Cf. Teres Bucquoy, Dautzenberg, and Dollfus, also with R. anceps as type.


Savatieria Rochbrune and Mabille, 1885, Bull. Soc. Phil. Paris, ser. 7, vol. 9, p. 101. Type, S. frigida, Rochbrune and Mabille; also Moll. Cap Horn, page II, 65, pl. 2, fig. 5, 1889. This, though referred to Pleurotimidae (sic), is obviously an Anachis. Not all the species referred to this genus by Strebel, Zool. Jahrb., 1905, are congeneric with the original type.


Steiraxis Dall, 1893, Proc. U. S. Nat. Mus., 1895, p. 15. Type, Pl. (St.) aulaca Dall. Paucispiral operculum.


Suavodrilla Dall, 1918; type, Drilita kemnicottii Dall. Alaska.


Surcula, see Turrricula.


Tomella Swainson, Mamm., p. 314, 1840. Type, Pl. lineata Lamarck.

Tomopleura Casey, St. Louis Acad., 1904, p. 138. Type, Pl. nivea Philippi, 1851. =Teres Bucquoy, Dautzzenberg, and Dollfus, 1882, p. 86. Pl. anceps Eichwald. +Terecia Norman, 1888, as emendation. P. nivea is unfigured, from the description it should resemble albida Perry, virgo Lamarck and similar species in sculpture but with a shorter canal, smaller size and more posterior notch. Cassmann, 1906, Essais, p. 220, refers this to Drillia s. s.


Tripla Gregorii, Mon. Clasb., p. 37, 1890. Type, Pl. antaeatripla Gregorii, Mon. Clasb., 1890, p. 38. Type, a small Surcula, feebly sculptured. In 1896, Cassmann refers it to Crassiepica Swainson as synonym. Cassmann restores it to good standing, Essais, vol. 5, p. 188, 1903.


Trypanotoma Cassmann (1893?) Essais, p. 100, 1896. Type, Pl. terebriformis O. Meyer, Eocene. Differs from Oligotoma (equals Asthenotoma) only by faint axial sculpture.


Zetekia Dall, 1918; type, Z. denticulata Dall. Panama.

The following changes of names have been found necessary:

Pleurotoma sello new name for biseriata E. A. Smith, 1882, not of Conrad, 1834.

Pleurotoma acsara new name for asperulata E. A. Smith, 1882, not of Lamarck, 1822.

Pleurotoma aglaia new name for crassa E. A. Smith, 1888, not of Edwards, 1856.

Pleurotoma agatho new name for flexuosa E. A. Smith, 1882, not of Munster, 1835.

Pleurotoma alcippe new name for parilis E. A. Smith, 1888, not of Edwards, 1860.

Pleurotoma amylyne new name for parva E. A. Smith, 1888, not of Conrad, 1830.

Pleurotoma antiope new name for recta E. A. Smith, 1888, not of Anton, 1830.

Pleurotoma arethsus new name for reticulosa E. A. Smith, 1882, not of Edwards, 1900.

Pleurotoma roseotincta new name for roscobasis Pilsbry, 1902, not of E. A. Smith, 1888.

Pleurotoma herenice new name for spinosa E. A. Smith, 1882, not of Debrance, 1826.

Pleurotoma clymene new name for tenella E. A. Smith, 1882, not of Mayer, 1558.

Pleurotoma enna new name for unifasciata E. A. Smith, 1888, not of Deshayes, 1833.

Pleurotoma glance new name for ventricosa E. A. Smith, 1888, not of Deshayes, 1833.