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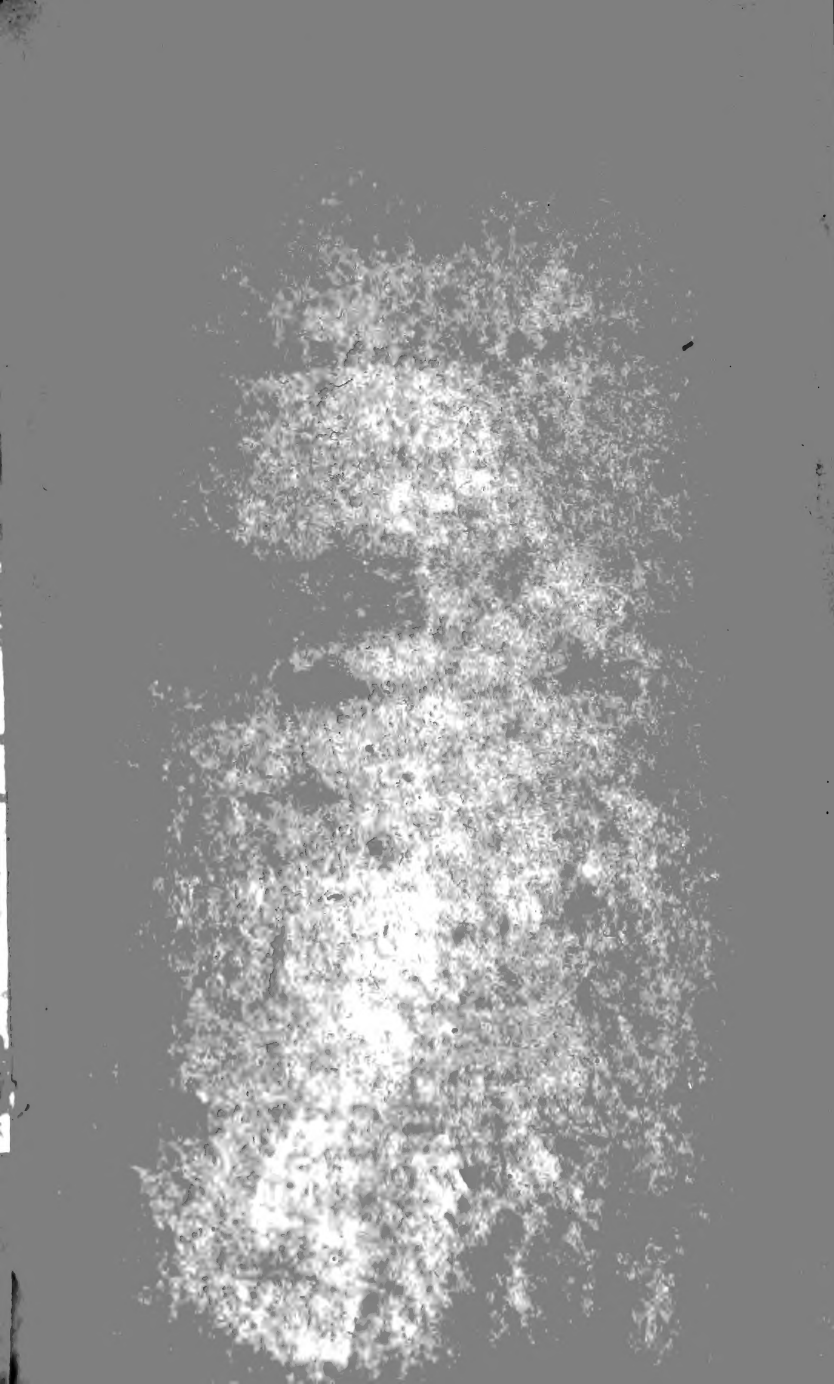
CALIFORNIA
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Ruth Coats

[Gumack]

Very secret



AN
EPITOME
OF
LAMARCK'S ARRANGEMENT
OF
TESTACEA:

BEING A
FREE TRANSLATION OF THAT PART OF HIS WORKS, DE L'HISTOIRE NATURELLE
DES ANIMAUX SANS VERTEBRES.

WITH
ILLUSTRATIVE OBSERVATIONS,

AND
*Comparative and Synoptic Tables of the Systems of Linnæus
and Lamarck.*

BY
CHARLES DUBOIS, F.L.S. & F.H.S.



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LAMARCK'S CONCHOLOGY.

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A SYNOPTIC TABLE

OF THAT PART OF

LAMARCK'S ARRANGEMENT OF Molluscous Animals, which includes such of them as have a Testaceous Covering, together with the Fossil Genera.

Mollusca.

NINTH CLASS.—ANNELIDES.

ANIMAL soft, elongated, vermiform, naked or inhabiting a tube, which it never entirely quits; the body furnished either with segments or transverse wrinkles; often without a head, eyes, or antennæ; without articulated feet, but most of them having in their place, bristly retractile knobs, disposed in lateral rows; mouth subterminal, either simple, orbicular, with lips, or in the form of a proboscis; often with jaws, a knotted longitudinal medulla, and nerves for sensation and motion; the blood red, circulating by means of arteries and veins; respiration by external or internal branchiæ, which are sometimes imperceptible.

Third Order.—Sedentary Annelides.

THE animal always inhabiting a tube, which it never entirely quits, and has no eyes; respiratory organs always at or near to one of the extremities of the body, unless the tube of the animal is open lengthways on one side.

Genus Arenicola	} First Division.—Les Dorsalées	} The gills, or respiratory organs dorsal, or disposed lengthways on the body of the animal.
. Siliquaria		
. Clymene	} Second Division.—Les Maldanies	} Respiratory organs not determined, supposed to be at the posterior part of the body. The tube of the animal open at both ends.
. Dentalium		
. Pectinaria	} Third Division.—Les Amphitritées	} Respiratory organs in general known, and disposed at or near the anterior part of the body; not separated or covered by an operculum. The tube membranous or corneous, more or less covered with sand.
. Sabellaria		
. Terebella		
. Amphitrite		

Genus Spirorbis..... }
 Serpula }
 Vermilia }
 Galeolaria..... }
 Magilus..... }
 Fourth Division.—Les Serpulées..... } Gills, or respiratory organs, separated or covered by an operculum; tube solid and calcareous.

TENTH CLASS.—CIRRHIPEDA.

ANIMAL soft, without head or eyes, testaceous, body fixed as if reversed, inarticulated, furnished with a mantle, having above tentacular arms, with curled tufts multiarticulated: the mouth nearly beneath, not projecting, with transverse jaws, dentated, and disposed in pairs. The number of arms vary and are unequal, disposed in two rows, each composed of two curled tufts of multiarticulated bristles, fringed or ciliated, a corneous skin supported by a pedicle. Anus terminating a tube, in the form of a proboscis. Medulla longitudinal and knotted; gills external, sometimes concealed; circulation by means of a heart and vessels. Shell either broad and sessile, attached at the bottom, or elevated on a flexible tendinous pedicle, and composed of several unequal valves, either moveable or united together; the interior lined by the mantle.

- Genus Tubicinella..... }
 Coronula..... }
 Balanus..... }
 Acasta..... }
 Creusia..... }
 Pyrgoma..... }
 Ditto bivalve..... }
 Anatifera..... }
 Pollicipes..... }
 Cinaras..... }
 Otion..... }

First Order.—Les Cirrhipédes Sessiles. }
 Second Order.—Les Cirrhipédes Pedunculés. }

Body of the animal without any peduncle, inclosed in a shell closely affixed to marine substances. The mouth is at the superior and anterior part of the body.
 Body supported by a tubular peduncle, flexible and tough, the base of which is affixed to marine bodies: the mouth is placed almost beneath. The two last genera, Cinaras and Otion, have the valves of their shells covered by a continuation of the membranous peduncle, with an anterior opening for the passage of the arms of the animal.

ELEVENTH CLASS.—CONCHIFERA.

ANIMALS soft, inarticulated, always fixed in a bivalve shell, without head or eyes, having the mouth naked, concealed, and without any hard parts; a large mantle enveloping the whole of the body, forming two laminiform lobes, the edges detached or sometimes united in front: generation oviparous, copulatio nulla. Gills or respiratory organs external, situated on each side between the body and the mantle; circulation simple, the heart with one ventricle, some few ganglions of the different nerves, but no knotted medullary cord. Shell always bivalve, enveloping the animal entirely or partially, sometimes free, sometimes affixed; the valves most frequently united on one side by a hinge or ligament: sometimes there are testaceous accessory pieces attached to the shell.

First Order.—Conchifères-dimyaïres.

THE interior of their shells present two muscular impressions, separated and lateral.

First Section.—Conchifères-craspipédes.

THEIR mantle is entirely or in part closed in front; their foot closed in front; and their shell gapes at the sides.

Genus Aspergillum . . .	} Shell either inclosed within a testaceous sheath, distinct from its valves, or incrustated entirely or partially in the substance of the sheath, or projecting outwardly.
..... Clavagella . . .	
..... Fistulana . . .	
..... Septaria . . .	
..... Teredina . . .	
..... Teredo . . .	
..... Pholas . . .	} Shell without a tubular sheath, either provided with accessory pieces, distinct from its valves, or the shell gaping widely at the anterior part. They burrow in stones, &c.
..... Gastrochoena . .	
..... Solen . . .	} Shell transversely elongated, without accessory pieces, and only gaping at the lateral extremities. Ligament external.
..... Panopæa . . .	
..... Glycimeris . . .	
..... Mya . . .	} Ligament interior; a large spoon-shaped tooth, to which the ligament is attached on each or only one valve. Shell gaping at the two lateral extremities, or at one only.
..... Anatina . . .	
First Family.—Les Tubicolées	
Second Family.—Les Pholadaires . . .	
Third Family.—Les Solenacées	
Fourth Family.—Les Myaires	

Second Section.—*Conchifères-ténuipèdes.*

THE mantle of their bodies is altogether, or nearly without the united lobes in front. Their foot is small and compressed; the lateral gaping of their shells in most instances very inconsiderable.

Genus <i>Lutraria</i>	} Ligament wholly internal: shell gaping at the sides	} Les	} Fifth Family.— Macraces.	} { The animal with a small foot, but compressed and adapted to the purpose of removing from one place to another; shell equi- valve, most frequently gaping at the lateral extremities; ligament in- ternal, with or without a second, visible externally.
.... <i>Maetra</i>				
.... <i>Crassatella</i>	} Shell not gaping at the sides	} Les	} Fifth Family.— Macraces.	} { The animal with a small foot, but compressed and adapted to the purpose of removing from one place to another; shell equi- valve, most frequently gaping at the lateral extremities; ligament in- ternal, with or without a second, visible externally.
.... <i>Erycina</i>				
.... <i>Ungulina</i>	} Ligament seen on the outside, or double, one being internal, the other external	} Les	} Fifth Family.— Macraces.	} { The animal with a small foot, but compressed and adapted to the purpose of removing from one place to another; shell equi- valve, most frequently gaping at the lateral extremities; ligament in- ternal, with or without a second, visible externally.
.... <i>Solenimya</i>				
.... <i>Amphidesma</i>	} Sixth Family.— <i>Les Corbulées</i>	} Les	} Fifth Family.— Macraces.	} { The animal with a small foot, but compressed and adapted to the purpose of removing from one place to another; shell equi- valve, most frequently gaping at the lateral extremities; ligament in- ternal, with or without a second, visible externally.
.... <i>Corbula</i>				
.... <i>Pandora</i>	} Seventh Family.— <i>Les Lithophages</i>	} Les	} Fifth Family.— Macraces.	} { The animal with a small foot, but compressed and adapted to the purpose of removing from one place to another; shell equi- valve, most frequently gaping at the lateral extremities; ligament in- ternal, with or without a second, visible externally.
.... <i>Saxicava</i>				
.... <i>Petricola</i>	} Nymphaées-solénaires	} Les	} Fourth Family.— Nymphaées.	} { Shells borers, without accessory pieces or a distinct sheath, and more or less gaping at the anterior side: ligament of the valves external.
.... <i>Venerirupis</i>				
.... <i>Sanguinolaria</i>	} Nymphaées-tellinaires, one or two lateral teeth	} Les	} Fourth Family.— Nymphaées.	} { Shells with two cardinal teeth at most on the same valve; often a little gaping at the lateral extremities: ligament exterior; nym- phæ or callosities at the hinge, in general projecting outwardly.
.... <i>Psammobia</i>				
.... <i>Psammotea</i>	} No lateral teeth	} Les	} Fourth Family.— Nymphaées.	} { Shells with two cardinal teeth at most on the same valve; often a little gaping at the lateral extremities: ligament exterior; nym- phæ or callosities at the hinge, in general projecting outwardly.
.... <i>Tellina</i>				
.... <i>Tellinides</i>	} No lateral teeth	} Les	} Fourth Family.— Nymphaées.	} { Shells with two cardinal teeth at most on the same valve; often a little gaping at the lateral extremities: ligament exterior; nym- phæ or callosities at the hinge, in general projecting outwardly.
.... <i>Corbis</i>				
.... <i>Lucina</i>	} No lateral teeth	} Les	} Fourth Family.— Nymphaées.	} { Shells with two cardinal teeth at most on the same valve; often a little gaping at the lateral extremities: ligament exterior; nym- phæ or callosities at the hinge, in general projecting outwardly.
.... <i>Donax</i>				
.... <i>Capax</i>	} No lateral teeth	} Les	} Fourth Family.— Nymphaées.	} { Shells with two cardinal teeth at most on the same valve; often a little gaping at the lateral extremities: ligament exterior; nym- phæ or callosities at the hinge, in general projecting outwardly.
.... <i>Crassina</i>				

Third Section.—*Conchifères-lamellipèdes.*

THEIR foot is flattened, eminently lamelliform, and not posterior. With its mantle, the animal frequently forms two tubes or syphons, which it protrudes from its shell, the one serving for the passage of water to the gills and mouth, the other to eject the excrement. This family (les Conques) is divided into Fluvialile and Marine shells: in the first species, the animal has its foot elongated, narrow, and a little projecting; in the second, the animal protrudes unequal, elongated syphons, and has the foot large and projecting.

Genus <i>Cycas</i>	} With lateral teeth and a false epi- dermis	} Conques fluvialiles	} Ninth Family.—Les Conques.	} Shells covered with a false epidermis; the hinge with lateral teeth: they inhabit fresh water.
..... <i>Cyrena</i>				
..... <i>Galathea</i>				
..... <i>Cyprina</i>	} In general without lateral teeth and rarely covered with an epi- dermis over all the shell.	} Conques marines .	} Ninth Family.	} No lateral teeth in the greater portion of these shells; the epidermis rarely covering the whole of the shell, except the umbones.
..... <i>Cytherea</i>				
..... <i>Venus</i>				
..... <i>Venericardia</i> ..				
..... <i>Cardium</i>				
..... <i>Cardita</i>	} Tenth Family.—Les <i>Cardiacées</i>	}	}	} Cardinal teeth irregular, both as to their form and position; and in general accompanied by one or two lateral teeth.
..... <i>Cypricardia</i>				
..... <i>Hiatella</i>	} Eleventh Family.—Les <i>Arcacées</i>	}	}	} Cardinal teeth small, numerous, inserted and arranged linearly on each valve, either in a right or arched line, or broken and interrupted.
..... <i>Isocardia</i>				
..... <i>Cucullæa</i>				
..... <i>Arca</i>				
..... <i>Pectunculus</i>				
..... <i>Nucula</i>	} Twelfth Family.—Les <i>Trigonées</i>	}	}	} Cardinal teeth lamelliform, transversely striated.
..... <i>Trigonia</i>				
..... <i>Castalia</i>				

Shell fluviatile or fresh water, the hinge of which is sometimes furnished with one irregular cardinal tooth, single or divided, and with one longitudinal tooth or ridge, running the whole length of one side of the valves, and sometimes without any tooth whatever; or the hinge with a row of irregular tubercles or granulations. Posterior muscular impression compound; umbones eroded, or worn away by friction.

- Genus Unio
- Hyria
- Anodon
- Iridina

Thirteenth Family.—Les Nayades ...

Fourth Section.—*Conchifères-ambigus.*

Shell inequivalve, irregular, affixed to other bodies; with one large tooth only, or without it at the hinge; two muscular impressions, separate and lateral.

- Dicerca
- Chama
- Etheria

Fourteenth Family.—Les Camacées...

Second Order.—*Conchifères-monomyaires.*

THESE animals have only one muscle, which appears to run through their body. Their shell presents one subcentral muscular impression.

First Section.

THIS section comprehends three distinct Families, in which are united such shells as have their ligament elongated and marginal; the greater number of these affix themselves to other marine bodies, by means of a byssus, or bundle of tendinous ligaments; many among them have their shells equivalve; the substance not foliaceous or flaky.

- Genus Tridacna
- Hippopus

Fifteenth Family.—Les Tridacnées...

- Modiola
- Mytilus
- Pinna

Sixteenth Family.—Les Mytilacées ..

Ligament marginal, sublinear, and running along the edge or margin of the shell: shell transverse, equivalve; muscular impression elongated, and near the superior margin.

Hinge with one subinterior lateral ligament, marginal, linear, and very entire, occupying a great part of the anterior margin; the substance of the shell rarely foliaceous. Shell longitudinal or subtransverse; muscular impression single, isolated, and without touching the margin.

Genus Crenatula	Seventeenth Family.—Les Mallécées. } Ligament marginal, at the inferior side sublinear, either interrupted by crenulations, or (<i>denis seriales</i>) sharp teeth, or altogether simple: shell subinequivalve, and of a foliaceous texture.
..... Perna	
..... Malleus	
..... Avicula	
..... Meleagrina	

Second Section.

THE form and position of the ligament in the shells of this section, eminently distinguish them from those of the preceding; they also present a peculiar appearance, and are generally eared at the base, that is, at the extremities of their cardinal margins: they are all inequivalve, and though many of them have their valves of the same size, one is always more convex than the other. The species of this section are extremely numerous, and, from the nature of the characters and substance of the shells, admit of being divided into two distinct families.

Genus Pedum	Eighteenth Family.—Les Pectinides .. } Ligament internal or half internal; shell in general regular, of a compact substance, not foliaceous in its thickness: the ligament is confined to a small space beneath the apices, and does not form a tendinous cord on the margin of the shell. The shells of some are free, and the animal can remove them from one spot to another, or affix them to marine substances by means of a byssus; others are attached by the lower valve.
..... Lima	
..... Plagiostoma	
..... Pecten	
..... Plicatula	
..... Spondylus	

..... Gryphæa	Nineteenth Family.-- } Les Ostracées } Shell thick. ... } Shell very thin. }
..... Ostrea	
..... Vulsella	
..... Placuna	
..... Anomia	

Ligament internal or half internal: shell irregular, the substance laminar or foliaceous, sometimes acquiring great thickness, sometimes papyraceous: the animal has no foot, no arms, or protruding syphon; and in many genera of this family, the shells are affixed to other marine substances by the lower valve, which is always the largest.

Third Section.

SHELLS without a ligament, or the ligament imperceptible, or represented by a tendinous cord supporting the shell. The *Conchifères* monomyaires having been divided into three sections, from a consideration of the different positions of the ligament, it will be observed, that the two first have the valves of their shells attached by an obvious ligament (which never resembles a tendinous cord) beneath the shell, affixing it to marine bodies. In this section those shells are included which have no perceptible ligament, and those which have the appearance of a ligament, by which they are supported and affixed to marine substances. In fact, neither the one nor the other have a true ligament, for the tendinous cord observable in some of the species is only the extremity of the attaching muscle of the animal, which passes through a hole of the larger beak of the shell, by which it is affixed to other bodies, and in no manner serves to the support or connection of the valves. Therefore, in this section, there is no true ligament known: it is divided into two families.

Genus <i>Sphærulites</i>	} Twentieth Family.— <i>Les Rudistes</i>	} Ligament, hinge, and animal unknown: shell very inequivalve, no distinct umbones or beaks. The greater number of the species of this family are only known in a fossil state.
..... <i>Radiolites</i>		
..... <i>Calceola</i>		
..... <i>Birostrites</i>		
..... <i>Discina</i>		
..... <i>Crania</i>	} Twenty-first Fam.— <i>Les Brachiopodes</i> .	} <i>Conchifères</i> , having near their mouth two opposite elongated arms, ciliated or fringed, and spirally rolled within the shell when in a state of repose. Mantle with two lobes separated in front, enveloping or covering the body: shell bivalve, adhering directly by the valve, or by means of a tendinous cord.
..... <i>Orbicula</i>		
..... <i>Terebratula</i>		
..... <i>Lingula</i>		

TWELFTH CLASS.—MOLLUSCA.

ANIMALS soft, inarticulated, furnished with an anterior head, which is more or less projecting or salient; most frequently with eyes and tentaculæ, or possessing, at their summit, arms disposed in the form of a coronet: their mouth either short, elongated, or tubular, extile, and generally armed with hard parts. Mantle diversified, having its edges free on the sides of the body, or the lobes united, forming a sack, which in part envelops the animal: gills, or respiratory organs various, rarely symmetrical; circulation double, one particular, the other general: heart unilocular, sometimes with the auricles divided, and very distant; no medullary cord along the body, but a few scattered nerves and ganglions: body sometimes naked, either unprovided with solid internal parts, or inclosing a shell or other hard substance; occasionally provided with an external shell covering or sheathed in the body, and which is never composed of two opposite valves united by a hinge.

First Order.—Les Pétropodes.

THESE Molluscæ have no feet to crawl with, or arms to assist their motion or seize their prey; they have two opposite and similarly constructed fins, adapted to swimming; their bodies are free and floating. The Pteropodæ are swimming Molluscæ, without the means of affixing themselves to other bodies, floating on the surface of the sea, and changing their position by means of their two fins or oars, which resemble two wings placed on each side of the mouth in some, and in others on each side of the neck.

- Genus Hyalæa
- Clin
- Cleodora
- Limacina
- Cymbulia
- Pneumodermon.

First Order.—Les Pétropodes

In the Hyalæa, the head is so much concealed at the base, or point at which the fins are united, that it appears obsolete, exhibiting consequently an alliance between these animals and the Conchifera. In the Cymbulia, a little lobe which stands forward on the posterior part, between the two true wings, has erroneously been considered a third fin.

Second Order.—Les Gastéropodes.

ANIMALS with the body straight, never in a spiral form, nor enveloped in a shell capable of containing the whole of it; they have beneath the belly a foot or muscular disk, united nearly to the whole length of the body, and serving them to crawl with. Some are naked, others are screened by a dorsal shell, not sheathed in the body; and others again, have a shell more or less concealed in their mantle.

First Section.—Les Hydrobranchiæ.

ANIMALS only breathing water,

Genus Glaucus	} {	The respiratory organs, in whatever part they are situated, are always elevated, either in fillets, laminae, tufts, or like a comb; they are placed above the mantle, either on the back or on the sides, and not in any particular cavity.
..... Eolis		
..... Tritonia		
..... Scyllæa		
..... Tethys		
..... Doris		
..... Phyllidia	} {	Respiratory organs placed beneath the border or edge of the mantle, and disposed in a longitudinal series round the body, or on one side, not being placed in any particular cavity.
..... Chitonellus		
..... Chiton		
..... Patella		
..... Pleurobranchus	} {	Gills as above, but placed on the right side of the body only.
..... Umbrella		
..... Parmophora	} {	Respiratory organs placed in a cavity appropriated to them on the back of the animal, near the neck, projecting either within the cavity or above it. Shell always external and covering the animal, which is without tentaculæ.
..... Emarginula		
..... Fissurella		
..... Pileopsis		
..... Calyptræa		
..... Crepidula		
..... Ancylus	} {	Gills placed in a particular cavity near the posterior part of the back, and covered by the mantle or by an opercular shield.— No tentaculæ.
..... Acera		
..... Bullæa		
..... Bulla	} {	Respiratory organs situated as in the Bullæens, and also covered by a shield; but this family possesses tentaculæ.
..... Aplysia		
..... Dolabella		

First Family.—Les Tritoniens

Second Family.—Les Phyllidiens

Third Family.—Les Semiphyllidiens

Fourth Family.—Les Calyptraciens

Fifth Family.—Bullæens

Sixth Family.—Les Aplysiens

Second Section.—*Les Pneumobranchiæ.*

Branchiæ, or respiratory organs rampant, in the form of a vascular net, on the thickness of a particular cavity, the aperture of which the animal contracts or dilates at will. They only breathe fresh air.

Seventh Family.—*Les Limaciens*.

- Genus Onchidium
- Parmacella
- Limax
- Testacellus
- Vitrina

Third Order.—*Les Trachélipodes.*

THE bodies of the animals spirally contorted at their posterior part, which is separated from the foot, and always enveloped in a shell; the foot free, flattened, attached to the lower base of the neck or at the anterior part of the body, and useful to assist the animal in crawling: a spiral shell covering the body.

First Section.—*Les Phytiphages.*

ANIMALS feeding on vegetable substances.

Trachélipodes without a projecting syphon, breathing generally by a hole. The greater number feed on vegetable substances, and are furnished with jaws: aperture of the shells entire, not having at the base any dorsal notch, or canal; they only breathe air. Shell spirivalve, smooth or with striæ, the right margin often reflected outwardly; smooth and not distinctly nacreous. This family is terrestrial: they have cylindrical tentaculæ, with eyes at their summits with, or without an operculum. They all live out of the water.

First Family.—*Les Colimacés.*

- With four tentaculæ.
 - Genus Helix
 - Carocolla
 - Anostoma
 - Helicina
 - Pupa
 - Clausilia
 - Bulimus
 - Achatina
 - Succinea
- With two tentaculæ.
 - Auricula
 - Cyclostoma

Amphibious Trachélipodes, with two tentaculæ without eyes at their summit; generally no operculum, their tentaculæ flattened: they inhabit fresh water, and rise to breathe the air on its surface.— Shell spirivalve, most frequently smooth on its external surface, and having the right margin of its aperture always sharp, and not reflected.

Second Family.—*Les Lymnéens*.

- Planorbis
- Physa
- Lymnæa

(XVI)

Genus <i>Melanis</i>	Third Family.—Les Mélaniens	Fluviatile Trachéïpodes with two tentaculæ and an operculum, and only breathing water. The shells have the margin of the aperture disunited, the right side always sharp: with an epidermis.
..... <i>Melanopsis</i>		
..... <i>Pirena</i>		
..... <i>Valvata</i>	Fourth Family.—Les Péristomiens	Animal the same as the preceding family: shell conoid or sub-discoïd; the margins of the aperture united.
..... <i>Paludina</i>		
..... <i>Ampullaria</i>		
..... <i>Navicella</i>	Fifth Family.—Les Néritacés	Operculated Trachéïpodes, breathing water only; some inhabit fresh water, others are marine. Shells semiglobular or a flattened oval, without a columella, and the left margin of the aperture forming a cover half over the aperture of the shell, like the deck of a boat.
..... <i>Neritina</i>		
..... <i>Nerita</i>		
..... <i>Natica</i>		
..... <i>Janthina</i>		
..... <i>Sigaretus</i>	Sixth Family.—Les Janthines	Shell marine, its aperture not at all closed, floating on the surface of the water; breathing water only. The animal has a bladder attached to its foot, by which, when it is inflated, the shell is suspended.
..... <i>Stomatella</i>		
..... <i>Stomatia</i>		
..... <i>Haliotis</i>		
..... <i>Tornatella</i>	Seventh Family.—Les Macrostomes	Shell not floating, aperture very much widened, margin disunited, no columella or operculum. The animal breathing water only.
..... <i>Pyramidella</i>		
..... <i>Vermetus</i>	Eighth Family.—Les Plicacés	Aperture of the shell not widened, and plaits on the columella: the animal breathing water only.
..... <i>Scalaria</i>		
..... <i>Delphinula</i>		
..... <i>Vermetus</i>	Ninth Family.—Les Scaliariens	Shell having no plaits on the columella, the edges of the aperture united circularly. Animal a vermicular Trachéïpode, and breathing water only.
..... <i>Scalaria</i>		
..... <i>Delphinula</i>		

Genus Solarium
 Rotella
 Trochus
 Monodonta
 Turbo
 Planaxis
 Phasianella
 Turritella

Tenth Family.—*Les Turbinacés*
 { Shell turreted or conoid, aperture round or oblong, not widened, having the edges disunited: they appear furnished with an operculum. The animal breathes only water.

Second Section.—Les Zoophages.

ANIMALS feeding on animal substances only.

Genus Cerithium
 Pleurotoma
 Turbineilla
 Cancellaria
 Fasciolaria
 Fusus
 Pyrala

Genus Struthiolaria
 Ranella
 Murex
 Triton

Genus Rostellaria
 Pterocera
 Strombus

First Family.—*Les Canalis*
 { Trachélipodes with a projecting or salient syphon, breathing water only, conveyed to the branchiae or gills by that syphon; they feed upon animal substances only, are marine, without jaws, and provided with a retractile proboscis. Shell spirivalve, inclosing the animal; the aperture either canalculated or notched at the base; the right lip not changing its form by age, the canal more or less long; all having opercula. In the first division of this family, the additional growth is but slightly marked: in the second, it is distinguished by thickened bands or varices, which remain on the external whorls, except in the genus *Struthiolaria*, which has only a thickened lip.

Second Division.—All the species having permanent varices, or a thickened lip on the right side.

Second Family.—*Les Aillées*
 { Shell having a canal more or less long at the base of the aperture, the right side of which changes its form with age, and becomes wing-shaped; a sinus at the lower part of the lip. These shells present the remarkable fact of being totally different in form in an adult state, from that in the young: a fact only observable in the *G. Cypræa* besides this family. The operculum of the animals of this family is horny, long, and straight.

Genus *Cassidaria* }
 *Cassis* } An ascending canal recurved back-
 *Ricinula* } wards }
 *Purpura* }
 *Monoceros* } Third Family.—Les
 *Concholepas* } *Purpurifères*.
 *Harpa* }
 *Dolium* } An oblique notch inclining to the
 *Buccinum* } back }
 *Eburna* }
 *Terebra* }

Shells having a short canal at the base of the opening ascending towards the back, or a notch in the form of a semi-canal, inclined backward. The animals of all this family produce coloring matter, but particularly the *G. Purpura*, from which was extracted the celebrated dye of the Romans: it is contained in a peculiar reservoir near the animal's neck. All of them appear to possess an operculum.

..... *Columbella* }
 *Mitra* }
 *Voluta* } Fourth Family.—Les *Columellaires* ..
 *Marginella* }
 *Volvaria* }

No canal at the base of the aperture, but a subdorsal notch more or less distinct, and having plaits on the columella of the shell.—The *Columbellæ* have a small operculum attached to the foot of the animal.

..... *Ovula* }
 *Cypræa* }
 *Terebellum* }
 *Ancilla* }
 *Oliva* }
 *Conus* }

Shell without a canal, but having the base of the aperture effuse or notched; the whorls of its spire large, compressed, rolled round each other, so that the last nearly conceals all the others, rendering the spiral cavity large and narrow, and indicating that the body of the animal must be flattened. The two first genera of this family have the right lip recurved inwardly: no operculum.

Fifth Family.—Les *Enroulées*

Fourth Order.—Céphalopodes.

MANTLE of the animal in the form of a sack, containing the lower part of the body; head projecting above the sack, crowned with arms not articulated, furnished with suckers (Ventouses, *Anglice*, Cupping-glasses), which surround the mouth; two sessile eyes; two corneous mandibles at the mouth; three hearts; the sexes separated. They live in the sea, floating at large, attaching themselves to marine bodies at will: others only drag themselves along, by means of their arms, at the bottom of the water, or on its banks; the greater part of these are generally secluded in the hollows of rocks. They are all carnivorous, living on crabs or any other marine animals which they are able to catch, the singular position of their arms greatly facilitating the necessity they are under of bringing their prey to their mouths, where the two strong mandibles enable them to break and crush the hard bodies with which some of their food is covered. Some of them are entirely naked; others live in a thin unilocular shell, which envelopes them, and in which they float on the surface of the water; and there are others which have a multilocular shell, either completely or partially internal.

First Division.—Céphalopodes-polythalamés.—(Immergés).

TESTACEOUS Céphalopodes.—Shell multilocular, enveloped completely, or only partially enclosed in the posterior part of the animal's body, often closely adhering.

- Genus Belemnites
- Orthocera
- Nodosaria
- Hippurites
- Conilites

Shell multilocular, with septa plain and simple at the edges, the divisions of them not exhibiting any sutures on the internal thickness of the substance: shell straight or nearly so; not in a spiral form. The greater number of these shells are only known in a fossil state.

First Family.—Les Orthocérées

- Spirula
- Spirolina
- Lituola

Second Family—Les Lituolées

Shell partly in a spiral form, the whorls separated or connected with each other, the last continued in a right line. The septa are generally traversed by a syphon, which in some species being continued in a straight line, occasions the last one to have from three to six perforations. The first genus is known in a recent state only; and Féron has ascertained that the body of the animal is contained in the last septum only, and the shell enveloped by its posterior part.

Genus <i>Renulina</i>	} Third Family.— <i>Les Cristacées</i>	} Shell semidiscoid ; multilocular, with simple septa ; the spire eccentric.
. <i>Cristellaria</i>		
. <i>Orbiculina</i>		
. <i>Miliola</i>	} Fourth Family.— <i>Les Sphérulées</i>	} Shell globose, multilocular, with simple septa, spheroidal or oval ; the whorls of the spire enveloping, or the chambers united in a tunic.
. <i>Gyrogona</i>		
. <i>Melonia</i>		
. <i>Rotalia</i>	} Fifth Family.— <i>Les Radiolées</i>	} Shell discoid, multilocular, with simple septa, spire central, chambers lengthened and discoid, extending from the centre to the circumference.
. <i>Lenticulina</i>		
. <i>Placentula</i>		
. <i>Discorbis</i>	} Sixth Family.— <i>Les Nautilacées</i>	} Shell discoid, spire central, cells short, and in a spiral line not extending from the centre to the circumference. The greater number are fossil species. The septa, as in the preceding genera, simple, neither notched nor undulated, on the internal partition of the testaceous exterior.
. <i>Siderolites</i>		
. <i>Polystomella</i>		
. <i>Vorticialis</i>		
. <i>Nummulites</i>		
. <i>Nautilus</i>		
. <i>Ammonites</i>	} Seventh Family.— <i>Les Ammonées</i>	} Shell multilocular ; septa sinuous, lobed, and cut in their contour, uniting together against the internal partition of the shell, and articulated in sinuous sutures divided and dentated. Most of these are known only in a fossil state.
. <i>Orbulites</i>		
. <i>Ammonoceras</i>		
. <i>Turritites</i>		
. <i>Baculites</i>		

Second Division.—Céphalopodes-monothalamés.—Navigators.

Genus *Argonauta*

Shell unilocular, altogether external, and enveloping the animal.

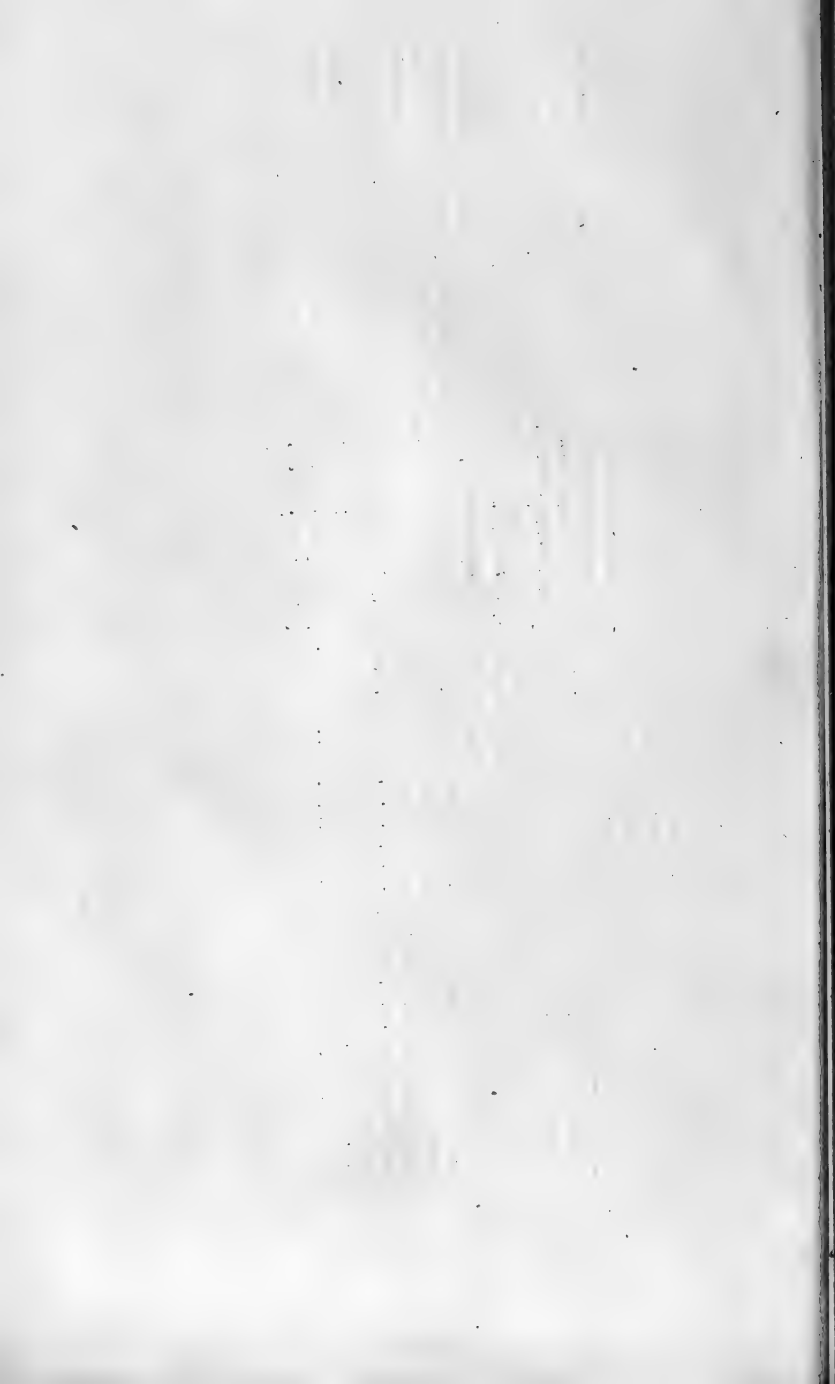
Third Division.—Céphalopodes-sépiarés.—Pulpy Animals.

- | | | |
|----------------------------|-----|--|
| Genus Octopus | } { | No shell either external or internal; a solid body, free, crested, or horned, and contained in the interior of most of these animals. Some crawl at the bottom of the sea, others have the faculty of swimming on its surface. |
| Loligopsis | | |
| Loligo | | |
| Sepia | | |

Fifth Order.—Les Hétéropodes.

Body free, elongated, swimming horizontally; head distinct; two eyes; the arms not in the form of a crown on the summit of the head; no foot beneath the belly or under the throat for the purpose of crawling; one or more fins, not disposed in pairs, or any regular order of distribution. These animals, though allied to the Céphalopodes, may be considered as the first vestiges of a series of marine animals, intermediate between them and the fishes, they probably are very numerous and much diversified, but have at present escaped observation, or their examination has been neglected.

- | | | |
|------------------------------|-----|---|
| Genus Carinaria | } { | Shell free, elongated; animal swimming horizontally; head distinct; two eyes; no arms surmounting the head in the form of a crown; no foot or fins regularly distributed. |
| Pterotrachea | | |
| Phylliroe | | |



A TABLE exhibiting LAMARCK'S Divisions of the LINNÆAN Genera of Shells, with a reference to the Page in which the Description of each is given in this Work.

** Many of Lamarck's Genera of Recent Testaceæ are not mentioned in this Table, as no *certainty* can now be established of the Genus in which Linnæus would have placed them: though *presumptive* evidence might appear sufficient to determine that point.

I. Chiton	{	Chiton	Page 146
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		Coronula	24
		Balanus	25
		Acasta	26
II. Lepas	{	Creusia	27
		Pyrgoma	28
		Anatifera	28
		Pollicipes	29
		Cinaras	30
		Otion	30
III. Pholas	{	Pholas	37
		Gastrochæna	38
		Panopæa	41
		Glycymeris	41
		Mya	42
		Anatina	43
		Lutraria (some)	44
IV, Mya	{	Amphidesma (some)	49
		Corbula	50
		Unio	90
		Hyria	92
		Vulsella	127

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V. Solen	{ Solen	38
	{ Anatina (some)	43
	{ Sanguinolaria	54
	{ Hiatella	80
VI. Tellina	{ Mya (some)	42
	{ Amphidesma (some)	49
	{ Pandora	51
	{ Psammobia	54
	{ Psammotæa	55
	{ Tellina	56
	{ Lucina (some)	60
	{ Cyclas	64
	{ Cyrena	65
VII. Cardium	Cardium	75
VIII. Mactra	{ Lutraria (most)	44
	{ Mactra	45
	{ Crassatella (some)	46
	{ Amphidesma (some)	49
IX. Donax	{ Petricola (some)	42
	{ Crassatella	46
	{ Venerirupis (some)	53
	{ Donax	61
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X. Venus.....	{ Petricola (some)	52
	{ Venerirupis (some)	53
	{ Sanguinolaria (some)	54
	{ Corbis	59
	{ Lucina (some)	60
	{ Donax (some)	61
	{ Crassina	63
	{ Cyrena (some)	65
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	{ Cyprina	67
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		Isocardia	81
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		Tridacna	99
		Hippopus	100
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		Arca	83
		Pectunculus	85
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XIV. Ostrea	{	Crenatula	107
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		Malleus	109
		Pedum	113
		Lima	114
		Pecten	116
		Gryphæa	123
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XV. Anomia	{	Placuna	128
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		Orbicula	135
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XVI. Mytilus	{	Saxicava	51
		Anodon <i>ta</i>	93
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		Mytilus	103
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		Meleagrina	112
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XVII. Pinna	Pinna	105
XVIII. Argonauta	{	Limacina 142
		Argonauta 308
		Carinaria 310
XIX. Nautilus	{	Orthoceras 302
		Nodosaria 303
		Spirula 303
		Cristellaria 304
		Nautilus 307
XX. Conus	Conus	294
XXI. Cypræa	Cypræa	284
XXII. Bulla	{	Bullæa 160
		Acera 160
		Bulla 161
		Bulimus 181
		Achatina 183
		Physa 191
		Pyrula (some) 236
		Ovula 281
Terebellum 290		
XXIII. Voluta	{	Auricula 186
		Ancilla 201
		Tornatella 208
		Turbinella 230
		Cancellaria 231
		Columbella 268
		Mitra 269
		Voluta 272
		Marginella 278
		Volvaria 279
Achatina 283		
Oliva 292		

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	{	Concholepas	158
		Achatina (some)	183
		Phasianella	223
		Pleurotoma	228
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XXIV. Buccinum .		Triton	244
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		Cassis	252
		Purpura	255
		Monoceros	257
		Harpa	260
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	{	Pirena	195
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		Pleurotoma (some)	228
XXV. Strombus ..		Rostellaria	246
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		Turbinella (some)	230
		Fasciolaria	233
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		Ranella	239
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		Turbo (some)	220
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		Planorbis (some)	190
		Paludina	196
		Scalaria	211
		Delphinula	213
		Trochus (some)	216
		Monodonta (some)	219
		Turbo	220
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XXIX. Helix	{	Helix	169
		Carocolla	175
		Anostoma	176
		Helicina (some)	178
		Pupa (some)	179
		Bulimus	181
		Succinea	185
		Auricula	186
		Cyclostoma	188
		Planorbis	190
		Lymnæa	192
		Melania	193
		Melanopsis	194
		Paludina (some)	196
Valvata	196		
Ampullaria	197		
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Janthina	203		
	}	Sigaretus	204

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XXX. Nerita	{	Navicella (some)	198
		Neritina	199
		Nerita	200
		Natica	202
XXXI. Haliotis ..	{	Stomatia	206
		Haliotis	207
XXXII. Patella ..	{	Lingula	139
		Patella	149
		Umbrella	151
		Parmophora	152
		Emarginula	153
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		Pileopsis	155
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		Crepidula	158
		Ancylus	159
XXXIII. Dentalium	{	Navicella (some)	198
		Stomatella	205
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XXXIV. Serpula .	{	Siliquaria	13
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		Serpula	17
		Vermilia	18
		Aspergillum	31
		Septaria	35
XXXV. Teredo ..	{	Vermetus	310
		Fistulana	34
		Septaria (some)	35
Teredo		36	

THE following corrections of some of Lamarck's grammatical errors have kindly been forwarded to the Editor, by a classical Friend, though unfortunately not in time to appear in their proper places. They are nevertheless, too important to be omitted, and the Editor here begs leave to acknowledge their reception with many thanks. There are doubtless others, which should be corrected, but the difficulty of doing so is very great, as it requires an experienced Conchologist as well as an accomplished Scholar, to trace the etymology of many of the Generic names of Shells, and the few persons in whom that combination of talent exists, have not hitherto condescended to elucidate this subject for the benefit of others less highly instructed.

Argonauta	} Being of the masculine gender, their species should have the masculine terminations, as Triton variegatus, &c.
Otion	
Triton	
Unio	

Teredo Is feminine, as *Teredo palmulata*.

Amphidesma	} Are neuter, as <i>Pleurotoma imperiale</i> , &c.
Anostoma	
Cyclostoma	
Diceras	
Orthoceras	
Pleurotoma	
Pyrgoma	

IN the first part of this Epitome the orthography of Lamarck's name will be found to differ, from its having been variously written by different authors: viz. de la Marck, La Marck, and Lamarck; the latter of which is; however, presumed to be the correct way of writing it.

ERRATA.

<i>Page</i>	<i>line</i>	<i>for</i>	<i>read</i>
23	last	Balænarium	Balænarum
24	20	balanaris	balænaris
26	1	Soudes entrêlles	Soude entr'elles
27	11	Montaguii	Montagui, & <i>passim</i>
30	1	Cineras	Cinaras, & <i>passim</i>
32	3	perifery	periphery
41	14	Glycimeris	Glycymeris, & <i>passim</i>
52	19	labagella	fiabagella
107	19	Crenulata	Crenatula
135	21	Brochio-	Brachio-
143	7, 12	Perronii	Peronii
173	13	Richardi	Richardii
247	13	Pterocera	Pteroceras, & <i>passim</i>
302	5	Orthocera	Orthoceras, & <i>passim</i>

THE HISTORY OF THE
MOUNTAINS OF GREAT BRITAIN

THE HISTORY OF GREAT BRITAIN
IN THE REIGN OF KING CHARLES THE SECOND

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INTRODUCTION.

CONCHOLOGY comprehends the description of all molluscous animals having a testaceous covering, and constitutes one of the most numerous and beautiful branches of natural history, exhibiting as much variety, symmetry of form, and vivid richness of coloring, as any other of the marvellous works of HIM, who " In six days made the heaven and earth, the sea, and all that in them is."

SHELLS abound in the different seas, salt-marshes, sandy shores, rivers, lakes, forests, and plains, of every part of the globe: but the most beautiful and valuable aquatic and terrestrial species are found in the eastern and tropical climates. With moderate care they are less perishable than almost any other natural production of equal delicacy, preserving their beauty unimpaired during the lapse of ages; and from the difficul-

ty with which the greater number of them are obtained, and the high prices given by amateurs for some of the more rare or beautiful species, when in a high state of preservation, they will always continue objects of great admiration and interest.

By many persons shells have been deemed merely pleasing curiosities, or pretty playthings, and collections of them formed with no other view than that of gratifying an elegant and expensive taste: but the investigations of scientific men, have placed them in a higher rank; nor can it now with truth be asserted, that a knowledge of them does not lead to any of the useful results, which the study of other branches of natural history has produced. Much interesting and instructive information has already been derived from them, and a far greater portion may be reasonably anticipated, from the skilful examination of modern naturalists. A rapid progress in the attainment of this knowledge must necessarily be retarded by the very limited observation that can be made of the habits and formation of animals dwelling in the impenetrable depths of the sea, or the impervious shades of the forest. It must also be admitted, from the intimate connection existing between conchology and geology,

that a knowledge of the one is indispensable to the study and acquirement of the other; as the former assists in elucidating most satisfactorily many of the phenomena of nature, and the extraordinary mutations this planet has undergone; which, without it, would have remained in a state of much greater obscurity.

To the unwearied and immortal labours of Linnæus in forming his *Systema Naturæ*, the world will for ever remain greatly indebted; but, from the fallibility of human nature, the magnitude of the undertaking, the greater diffusion of scientific research, and subsequent discoveries, it has become absolutely necessary to make such alterations in his system, (particularly in that part of it which treats of the *Testaceæ*), as will explain the generic characters with greater precision, form a more natural association of their species, and constitute new genera of such as were unknown, or had escaped his observation at that period; the propriety of which it may be presumed Linnæus himself must have admitted, had he existed at the present time.

MANY subsequent writers on Conchology, impressed with this necessity, have suggested improvements, and pointed out distinctions in the arrangement of the

genera of shells, but have not possessed the necessary industry, or perhaps sufficient courage, to form a new and more natural one, differing so essentially from the long established, and universally adopted system of the most eminent naturalist that has ever existed.

THE Chevalier de la Marck, however, undismayed by the prodigious difficulties he had to encounter, and though, in the midst of his great and laborious enterprise, unhappily afflicted with the loss of sight from the effects of an inveterate ophthalmia, (a calamity at all times most deeply to be deplored, and, to a naturalist, nearly an insurmountable barrier to success, as his vision should, if it were possible, be microscopic), steadily pursued the path he had adopted, and, with a strength of mind but seldom equalled, and a persevering industry greatly to be admired, has brought to its completion—*L'Histoire des Animaux sans Vertébres*—a work which will remain a lasting monument of his patient and intelligent investigation of a subject not easily understood, and yet more difficult to be explained with any degree of clearness or correctness, deprived as he was of the most important aid of ocular demonstration, by which he could have pointed out many other of those extremely slight indications, and al-

most imperceptible variations of structure, so eminently characteristic of the transitions from one genus to another, and so necessary to enable the naturalist with greater confidence to determine in which the object under his examination should properly be classed.

THE inevitable consequence of this melancholy privation, has been some anomalies and inaccuracies: they are however of less importance, and fewer in number, than could have been expected in a work so voluminous, continued under such unfavorable and discouraging circumstances.

LA MARCK, in that part of his work descriptive of the Molluscæ having testaceous coverings, has been entirely guided by the organization of the animal, in forming an arrangement of the genera of their shells. It being a well established fact, that the animal constructs the shell by which it is wholly covered, or only partially protected, on the model of its naked body, by successive superincumbent strata of testaceous matter, the first being merely a thin, fragile, or viscous substance, becoming of greater thickness and solidity by each additional deposit, until it ul-

timately attains its full period of growth and mature completion, affording a convenient habitation and secure retreat, or only defending such organs of the animal as the Master Architect of nature had pointed out as being most in need of protection.

WHERE an opportunity was not afforded La Marck, or the persons assisting him in his great task, to examine the anatomical structure of the animal, he has, from analogous reasoning on the muscular impressions of the shells, or other characteristic and concurrent testimonies, been enabled to determine with great probable certainty, the most consistent and natural association of their several species. In many instances he has beautifully displayed a strong and continued chain of approximation, amounting almost to a positive proof of the transitions which appear to take place from one genus to another, and which some physiologists hypothetically assume to exist, firmly linking together the different orders of natural history throughout the creation, by means of those paradoxical and singularly organized animals so frequently met with.

AND it may here be observed, that the study of every

branch of natural history would be materially facilitated, and a more natural classification of the various species accomplished, by observing attentively the indications Nature herself so often furnishes, which are too frequently overlooked and neglected as unimportant, from their being but slightly defined.

THE multiplication of genera which La Marck's classification has occasioned, appears to many unnecessary, and difficult to comprehend or remember; it in fact, however, greatly facilitates and simplifies the study of Conchology, by confining within a narrower compass the too widely extended genera of Linnæus, and remodelling those that have been blended together in strange confusion, either with regard to the figure or the habitat of the shell, or the structure and functions of the animal; each of which now being distinguished by certain more or less strongly defined generic characters, peculiar to itself, may at once be recognised from its congeners, and, by a moderate exercise of memory, placed in its proper and most natural class.

It is not, however, the writer's intention to enter in-

to the discussion of a subject upon which so much diversity of opinion exists in the minds of naturalists; but to give an opportunity of comparing, without much trouble, the classification of Linnæus and La Marck, to those who may be disinclined to purchase an expensive book, or are altogether unacquainted with the language in which it is written, and not perhaps anxious to make Conchology a scientific pursuit; thus enabling them at the same time to keep pace with modern science, by understanding *something* of the new arrangement.

LA MARCK's generic descriptions have in most instances been preserved, but not always literally rendered, and frequently others added or substituted, as much as possible divested of the technical terms of science, which are difficult to comprehend, and appear obscure to those not accustomed to compare shells with their written descriptions.

A CATALOGUE of the recent species is subjoined to each genus in the order established in the original work, the number of fossil species enumerated, and illustrative examples selected from the system of Lin-

næus or others, with a reference to the author in whose work it is figured or described.

THE genera of fossil species, and naked molluscæ, are mentioned in the respective places assigned to them, as they assist in explaining geological facts, and are most important in connecting the evidence upon which La Marck has founded his system. The reasons that have prompted him to depart from the classification of previous authors on Conchology, are invariably stated, and such additional observations and illustrative remarks added or interspersed, as the writer's experience has enabled him to offer, which it is humbly presumed may tend to elucidate this interesting subject in an easy and concise manner.

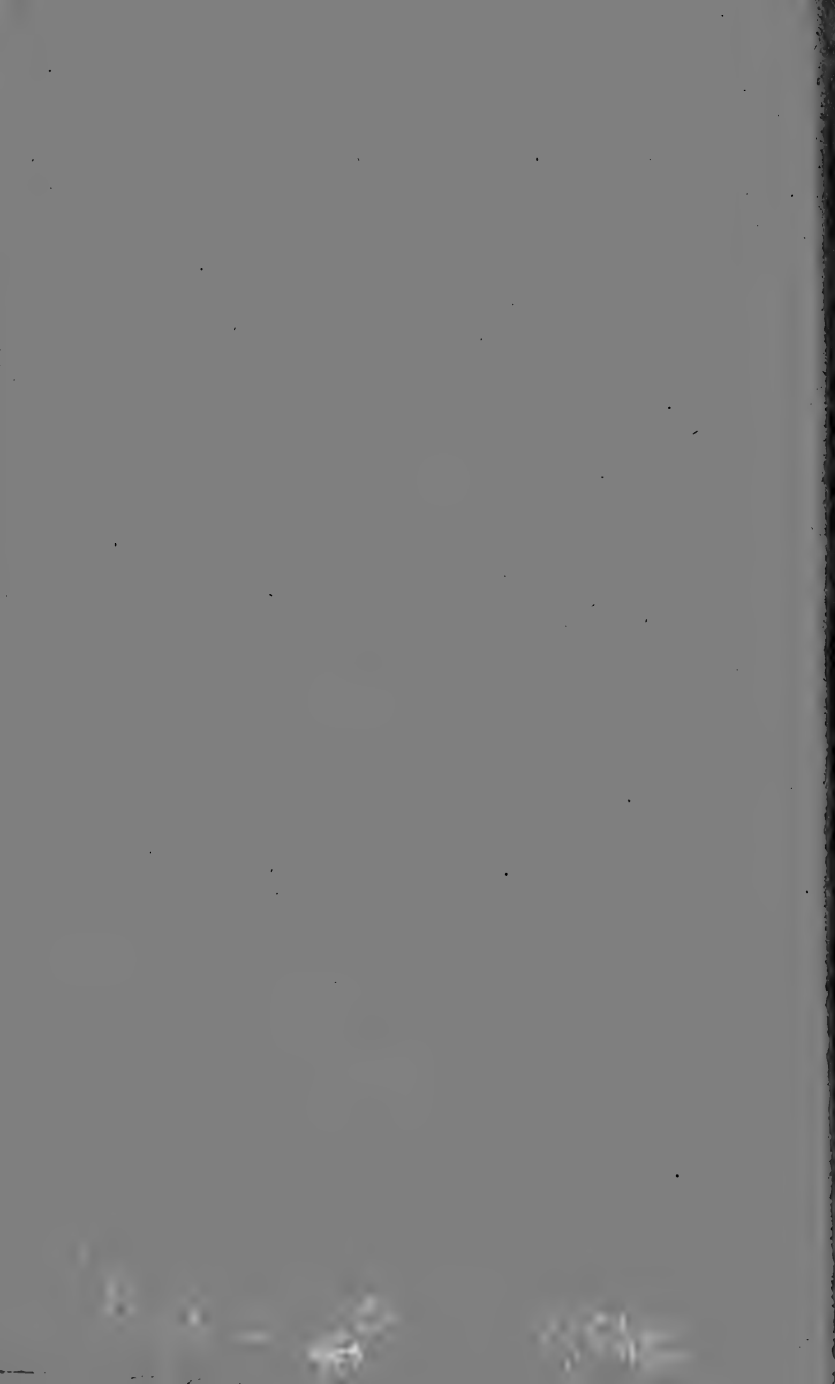
A SYNOPSIS Table is also added, exhibiting the arrangement made by La Marck, of the molluscous animals with and without testaceous coverings, including also the fossil genera.

No pretensions to originality or merit are made, beyond that of endeavouring to assist or promote, by every possible means, a pursuit that must tend to ele.

vate the thoughts from "nature up to nature's God!" and afford an elegant and rational amusement to many, whose leisure moments need relaxation from the fatigues of more serious study, or the cares of business.

SHOULD this attempt prove successful, the writer will feel amply compensated; and he hopes the motive that has prompted him, will screen his exertions from the too severe criticism of those scientific persons who may condescend to peruse the following pages.

CONCHOLOGY.



AN INTRODUCTION
TO
LA MARCK'S CONCHOLOGY.

ARENICOLA.

LUMBRICIUS MARINUS.—*Linnæus*.

Ency. pl. 34, f. 13.

AN Annelides said to inhabit a tubular shell; but the animal only has been seen by La Marck. A description of this animal is given in the Synoptic Table.

Arenicola piscatorium.

SILIQVARIA.

SERPULA ANGUINA.—*Linnæus*.

Martini, fig. 13, c. tab. 2, t. 1.



K. Scott.

THIS was considered a serpula by *Linnæus*; but the distinctions are sufficiently marked to constitute a separate genus. Shell tubular, irregularly twisted, sometimes in a spiral form at the base, open at the upper

extremity, and having a subarticulated longitudinal dentated fissure the whole of its length.

Siliquaria anguina. Siliquaria lævigata.
 muricata. lactea.

CLYMENE.

Savigny's Manuscripts.

A THIN slender tube, open at both ends, its external surface incrustated with sand and fragments of shells.

Clymene amphistoma.

DENTALIUM.

DENTALIUM ELEPHANTINUM.—*Linn.*

Mart. t. 1, f. 4 A. 5 A.

SHELLS of this genus are well known from their resemblance to an elephant's tusk in shape: the shell is a testaceous tube, nearly regular, slightly curved, and gradually attenuated to the lower end, and open at both extremities. Some species are longitudinally ribbed, others with annular marks, probably indicating their progressional growth; but the greater number are quite smooth on the exterior.



Tube striated, or ribbed longitudinally.

Dentalium elephantinum	Dentalium octogonum
..... aprinum	..... novemcostatum
..... fasciatum	..... dentalis

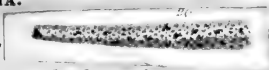
Tube without ribs or longitudinal striæ.

Dentalium entalis	Dentalium nigrum
..... tarentinum	..... politum
..... corneum	..... eburneum

PECTINARIA.

AMPHITRITE AURICOMA.

Muller, p. 26, pl. 26.



A MEMBRANOUS, or papyraceous tube, in the form of a reversed cone, not fixed to one spot, the exterior with adhesions of sand.

Pectinaria Belgica

Pectinaria capensis.

SABELLARIA.

SABELLA ALVEOLATA.—*Linnaeus.*



Is nearly allied to the preceding species: the animal however, differs; the tubes are cellular at the base, the

orifice expanded in the form of a cup. They are united together in one common mass, and composed of agglutinated grains of sand and fragments of shells.

Sabellaria alveolata Sabellaria crassissima.

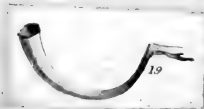


TEREBELLA.

Encycl. Meth. p. 57, fig. 5.

THIS is distinct from the Sabellaria, the animal being different. Tube lengthened, cylindrical, flattened, attenuated, and pointed at the base; of a membranous texture, with adhesions of sand.

Terebella conchilega Terebella cristata
Terebella ventricosa.



AMPHITRITE.

SABELLA PENICILLUS.—*Linnaeus.*

THIS animal has no resemblance to the Sabella of Linnaeus. Tube elongated, cylindrical, becoming thinner towards the base, of a tough membranous texture, and most of them without adhesions.

Amphitrite ventilabrum Amphitrite vesiculosa
..... penicillus volutacornis
..... magna infundibulum.

SPIRORBIS.

SERPULA SPIRORBIS.—*Linnaeus*.*Lister, p. 553, fig. 5.*

LINNAEUS has classed this with his *G. Serpula*, to which it is nearly allied; the animal being, however, distinct, a separation is necessary. Tube testaceous, turned spirally on an horizontal plane, the lower part of which is attached to marine substances, generally fuci; the opening of the tube terminal, and rounded or angular.

Spirorbis nautiloides	Spirorbis carinata
..... spirillum	..... lamellosa
Spirorbis tricostalis.	

 SERPULA.
SERPULA VERMICULARIS.—*Linnaeus*.*Ellis Corall. tab. 38, fig. 2.*

LINNAEUS and other authors have considered this a mollusca, very little importance having hitherto been attached to the animals inhabiting shells. Subsequent investigation has, however, proved the animal of this genus to be an Annelides; the tubes are solid, cal-

careous, irregularly twisted; aperture terminal, rounded, and smooth; fixed at the lower extremity, or more or less completely adhering by other parts to marine substances. It is found solitary, or in groups curiously intertwined.

Serpula vermicularis	Serpula filaria
..... fascicularis	..... pellucida
..... intestinum	..... intorta
..... contortuplicata	..... cristata
..... plicaria	..... spirulæa
..... glomerata	..... quadrangularis
..... decussata	..... minima
..... protensa	..... echinata
..... infundibulum	..... sulcata
..... annulata	..... costalis
..... cereolus	..... dentifera
..... filograna	..... siphon
..... vermicella	..... arenaria.



VERMILIA.

SERPULA TRIQUETRA.—*Linnæus*.

Born, p. 436, t. 18, fig. 14.

THIS, like the preceding genus, has been confounded

with the *Serpulæ* by previous writers: it is quite distinct, however, from any other tubular Annelides, and the tube being provided with a convex, orbicular, and sometimes conical operculum, has necessarily occasioned a separation from the *Serpulæ*. Tube testaceous, cylindrical, more or less twisted, gradually attenuated towards the lower end; opening round, the margin with one, two, or three teeth; shell attached at one side to marine bodies.

<i>Vermilia rostrata</i>	.....	<i>Vermilia subcrenata</i>
.....	<i>triquetra</i>	.....
.....	<i>bicarinata</i>	.....
.....	<i>eruca</i>	.....
	
		<i>plicifera</i>
		<i>scabra</i>
		<i>tæniata</i> .

GALEOLARIA.

In the French Museum.



THE *Galeolaria* nearly approximate the *Vermilia*, but the size of the shell, peculiar structure of the aperture, and more especially the extraordinary operculum, have induced La Marck to constitute the present genus — Their tubes are found adhering together at the base, in crowded groups or tufts, open at the summits: aperture orbicular, terminating on one side in a spatulous

tongue (*lingulam spatulatam*). Operculum squamose, furnished on the upper side with small testaceous parts or valves, from five to nine in number, the middle one dentated at the truncated part of its summit, the others a little toothed on their internal margin; the whole of them attached to the edge of the operculum on one side only.

Galeolaria cœspitosa

Galeolaria elongata.



MAGILUS,

THIS most singular shell, which might easily be mistaken for a petrified body, is composed of a testaceous, white substance, resembling semi-transparent alabaster; the base of it turned round into a short solid oval spire, with about four contiguous whorls, resembling a *Helix*; the last and larger one prolonged in an irregularly undulated, or nearly straight direction, sometimes to the length of several feet: the upper exterior part of the tube is convex, the lower side flattened, plaited, carinated, and somewhat angular, with closely set, waved, lamellar plaits, much thicker on one side than the other; the interior rounded, smooth, and its lower part with a groove corresponding to the external keel

THIS shell is generally found embedded in madre-pore; the animal, though unknown, La Marck conjectures must occupy, in the first instance, the spiral whorls, from which it altogether removes as necessity requires an extension of the length of the tube, filling up, at each stage of increase, the cavity previously quitted, with solid testaceous matter, but not forming partitioned cells or chambers, as some of the *Serpulæ* do; it occupies only the small portion of its last addition.

FROM these observations of La Marck it may reasonably be presumed that the shell, in the first place, is only buried to a depth sufficient to conceal the whorls of the spire, at which time the terminal tube would reach the surface of the madre-pore in which it is found (usually the *Madrepora sinuosa*); but in consequence of the growth of that substance in a spherical form, the animal of the *Magilus*, in order to keep pace with it, from the necessity of having a communication open to the exterior surface of its retreat, is forced to abandon the first plan of continuing the whorls in a spiral direction, in which it never could have reached the exterior; and, by prolonging the last one, seeks an exit at the nearest opening. The lamellar

plaits on the surface of the tube undoubtedly indicate the periodical additions at the different removals of the inhabitant. The great length of the last whorl mentioned by La Marck, must be of very rare occurrence; in the many examples the writer has examined, it seldom exceeded a few inches.

Mrs. MAWE has possessed examples of this shell in its early stage of growth, in which the spaces or chambers were not filled up, and merely presented a division between them.

Magilus antiquus.



TUBICINELLA.

LEPAS TRACHÆFORMIS.

Wood's Conchology, page 31.

THIS animal is at present but little known; the structure of its shell, however, clearly indicates that it must become the type of a distinct genus. The shell is univalve, in the form of a cylindrical tube somewhat bent, and rather narrower at the base; open at both ends, the upper one closed by an operculum consisting of four smooth trapezoidal valves affixed to its interior

edge by a fleshy collar, the lower extremity closed by a membrane. The tube is encircled with strong annular ribs separated into six compartments, or valves, by longitudinal interstices. It is found buried in the fat of whales, to the depth of several inches, its operculum, and a portion of the upper part of the tube only visible on the surface. The number of additional rings or circles which surround the tube, no doubt mark its progressive growth, from the obvious necessity of possessing an opening to the exterior, by keeping pace with the increase of the substance in which it is embedded.

LA MARCK, in his generic description of this shell, calls it an univalve, as he does his genus *Balanus*, accounting for an increase of their size in circumference by supposing that the pieces which are firmly fixed together, may be disunited by the animal, the necessary addition made to them, and again reclosed; an hypothesis extremely rational, but which appears to militate against his assertion of these shells being univalves. Another species has also been described by Dr. Leach.

Tubicinella balænarium.



CORONULA.

LEPAS DIADEMA.—*Linnaeus.**Wood's Conchology, plate 5, page 35.*

THIS, like the preceding genus, exists on the back of the whale, tortoise, or other marine animals, in which a small portion of it is embedded at the base, and additionally secured or fastened by small teeth on the lower part of the cells or partitions of the shell. It appears an univalve, but is composed of six longitudinally ribbed valves, diverging from the summit to the base, and, with the intermediate spaces, (which are smooth, or finely striated concentrically), dividing it into twelve compartments. The aperture is always regular, and of a rounded oval, or slightly hexagonal form; interior funnel shaped; base open, and divided into eighteen striated partitions or radiating cells, and the operculum divided into four small obtuse valves. The increased size of the shell takes place at the lower extremity or base.

Coronula diadema

Coronula balanaris

Coronula testudinaria.





BALANUS.

LEPAS TINTINNABULUM.—*Linn.**Mawe's Linn. f. 1, pl. 2.*

LA MARCK in this Genus has only preserved such shells as appeared univalves by the connection of their valves in a peculiar manner, their lower part closed with testaceous matter, and the operculum consisting of *four* pieces. These Shells are usually of a conical form, more or less elevated, sometimes narrower at the base, in the form of a tulip; aperture subtriangular or elliptical; base closed by a solid testaceous termination, firmly fixed to the substance on which the shell is attached; operculum consisting of four pieces or valves, inserted internally near the base.

THE increased growth of these shells in height and circumference is easily perceived in each of its stages, the one on the conical part, and the flake or testaceous separation at the bottom exhibiting the other. La Marck conjectures that the animal, when necessity obliges it to increase the size of its habitation, possesses the faculty of detaching the parts forming its exterior, and, after having added a given portion to each, fasten-

ing them together again, (*les soudes entrêlles de nouveau*). Some species are armed with spines on the exterior, which La Marck has not mentioned.

Balanus angulosus	Balanus palmatus
..... sulcatus	..... stalactiferus
..... tintinnabulum	..... plicatus
..... nigrescens	..... duploconus
..... cylindræus	..... patellaris
..... calycularis	..... semiplicatus
..... roseus	..... galeatus
..... ovularis	..... subimbricatus
..... miser	..... rugosus
..... amphimorphus	..... plancianus
..... perforatus	..... crispatus
..... lævis	..... punctatus
..... spinosus	..... fistulosus
..... radiatus	..... latus.



ACASTA.

ACASTA MONTAGUII.—*Leach.*

Cirrip. Acampt. plate f.



THE species constituting this genus were named by Dr. Leach, *Acastæ*, and continue to be so called by La

Marck. They are found enveloped in sponge, and never affixed to hard bodies; the valves are but slightly connected together, particularly those at the bottom: the exterior form is oval subconical, formed of six lateral unequal valves with an orbicular lamina, internally concave, (resembling a patella), forming the base; the operculum with four pieces or valves: the exterior of the base being conical or convex, prevents the shell from standing by itself in an erect position, when detached from the substance which envelopes it.

Acasta Montaguui Acasta glans
Acasta sulcata.

CREUSIA.

LEPAS STRIATULA.—Linn.

Pennant. 4, pl. 38, f. 7.



THIS genus, as well as the preceding, was named by Dr. Leach, and with the succeeding G. Pyrgoma, are the only two genera known to possess four valves, and the operculum to consist of *two* pieces only; they are in general small shells affixed to madrepore or other marine substances, orbicular or conically convex, composed of four unequal valves, united, but distinctly

marked by a suture at the divisions; the operculum internal and *bivalve*.

Creusia stromia *Creusia spinulosa*
Creusia verruca.



PYRGOMA.

PYRGOMA CANCELLATA.—*Leach.*

THIS genus differs from the preceding with regard to its form. Its valves, being more firmly united, give it the appearance of a subglobular univalve, the interior division longitudinally grooved, the convex back presents an elliptical area, circumscribed by a crenated margin, in the centre of which the aperture is placed; the operculum is *bivalve*.

Pyrgoma cancellata.



ANATIFA.

LEPAS ANATIFERA.—*Linn.*

Mawe's Linnæus, fig. 7, plate 2.

THIS should properly be called *G. Anatifera*; it is unlike all other preceding shells of the Linnæan genus *Lepas*, not adhering by the testaceous base of the shell

or enveloped by other substances, but affixed to marine bodies, generally in numerous groups, by a tough membranous peduncle, sometimes a foot long; the shell is very flat, composed of five valves, two placed on each side faintly striated, the fifth or dorsal one smooth, with sulcated sides, longer and narrower than the others, all of them united together and kept in their proper position by a thin membrané.

Anatifera lævis Anatifera dentata
 villosa striata
 Anatifera vitrea.



POLLICIPES

LEPAS POLLICIPES.—*Linnaeus*.

Mawe's Linn. f. 8, pl. 2.



DR. LEACH established this genus, which is easily distinguished from others somewhat resembling and allied to it. The shell consists of thirteen or more valves, the smallest at the sides, which are very flat and compressed, the peduncle short, wrinkled, rigid, and often covered with small scales like shagrine.

Pollicipes cornucopia Pollicipes mitella
 Pollicipes scalpellum.



CINERAS.

CINERAS VITTATA.—*Leach.*

A SHELL consisting of five narrow valves so widely placed that they do not cover the whole of the animal, to compensate for which, they are inclosed in a membranous bag, a continuation of which forms the peduncle; this is of a greenish colour with six longitudinal black stripes, three on each side; it has an anterior opening for the passage of the animal's arms.

Cineras vittata.



OTION.

LEPAS AURITA.—*Linn.**Wood's Conchology, f. 4, pl. 12.*

SHELL with only two testaceous valves, small, semilunar and separated, inclosed in a membranous bag, as in the preceding genus, but terminated in two tubes or ears at the back part, and the centre aperture admitting the passage of the animal's tentaculæ, the singular form of which prevents its being blended

with the *G. Cineras* without a further examination of its structure.

Otton Cuvieri

Otton Blainvillii.

ASPERGILLUM.

SERPULA AQUARIA.—*Linnaeus*.

Burrows, pl. 22, fig. 3.



IN separating this shell from the Linnæan *Serpulæ*, La Marck has been guided, as in every other instance, by the distinct organization of the animal; and though the inhabitant of the *Aspergillum* had not been seen by him, the difference of its shell fully authorizes his having distinguished it from the *Serpulæ*, and assuming that they cannot be the same.

THIS elegant and very singularly formed shell is a testaceous tube, (La Marck calls it a testaceous sheath), somewhat curved, though in most instances nearly straight, gradually tapering towards, and open at, the upper extremity, becoming somewhat club-shaped towards the lower end, which is closed by a convex disk or cover, perforated by numerous small holes; and some-

times with a small lengthened fissure in the centre; it has a waved testaceous subtubular fringed border projecting beyond the periphery of the outer circle. On the side of the tube, near its extremity, are two permanently fixed valves, leaving an open fissure between them: the exterior of the tube of some species is incrustated with sand.

LA MARCK considers this shell an equivalve bivalve allied to the genus *Fistulana*, in which, however, the shell it incloses is detached and free, while in the *Aspergillum* it adheres to the sheath, completing, by the two fixed open valves, a part of the tube that incloses the animal. He remarks, that it is no doubt an error to suppose that this shell is ever fixed by the open end, which, like the *Clavagella*, and *Fistulana*, must necessarily be open for the egress of the animal. He describes four species. It is known to conchologists in England by the familiar name of the Watering-pot shell.

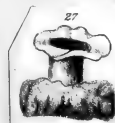
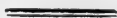
A FIFTH, and most extraordinary species, was discovered and brought to England by the Earl of Mountnorris. The tube is of a considerable circumference, almost straight, and nearly of an uniform size during its whole length, which sometimes reaches upwards of twelve

inches. At the *lower* extremity of it, near the base, are three equidistant rows of waved testaceous frills or ruffles, with a narrow space between them; the *upper* end terminated with a perforated disk, as in the other species. Among many unique and nondescript shells in the late Earl Tankerville's collection, is an example of this rare species.

IN the above description, the writer has reversed the position of the shell, according to La Marck's idea, having strong grounds to believe the open end always to be downwards in the sandy places in which, at low water, this shell is found.

[diæ

Aspergillum Javanum Aspergillum Novæ Zeylan-
 vaginiferum agglutinans.



CLAVAGELLA.

Figured in Sowerby's Genera of Shells, No. 13.

No recent examples of this genus have yet been seen by La Marck, who considers the Clavagella an intermediate species between the Aspergillum and the Fistulina, differing from the former by having only one

external fixed valve, the other free and internal; and from the latter, which has no perforations at the larger extremity. This shell has also an appearance of small projecting tubes at one extremity round the disk, similar to those of the *Aspergillum*. Sowerby in his *Genera of Shells*, No. 13, has described the only recent species of this genus supposed to be known, under the name of

Clavagella aperta.

FISTULANA.



Encycl. Method. pl. 167, fig. 17, 22.

LA MARCK asserts a singular fact with respect to this genus. He, like all other naturalists, had considered these tubes, as well as those of the *Aspergillum* and *Clavagella*, which inclose the animal, to be the shells themselves; but has now ascertained them to be quite distinct. The *Fistulanæ* have their shell free and detached, within the sheath, and neither of the valves fixed into the partition of the tube, which is most generally testaceous, closed, and retort-shaped at the posterior extremity, attenuated to the other end, where it is open, containing a bivalve shell, the valves of which are equal, but gaping.

THIS animal also possesses two protuberant calcareous tubes, covering parts of its body at the open end of the tube, each of which is terminated with from five to eight cup-shaped calcareous or corneous appendages, piled one above the other. It inhabits the sand, and perforates wood, stones, and sometimes shells.

Fistulana clava Fistulana gregata
 corniformis lagenula.

SEPTARIA.



SERPULA POLYTHALAMIA—*Linnaeus*.

Mart. tab. 1, fig. 1, 6, & 11.

A VERY long testaceous tube gradually attenuated to its upper end, and divided interiorly by vaulted divisions, seldom complete, the extremity of which is terminated by two slender tubes without any interior partitions. This sheath, no doubt, incloses a bivalve shell at its end; but it has not yet been found quite perfect.—The only species mentioned by La Marck is the

Septaria arenaria.



TEREDINA.

A FOSSIL genus; consisting of a testaceous cylindrical sheath, the posterior extremity closed, and exhibiting the two valves of the shell it incloses; the anterior end open.



TEREDO.

TEREDO NAVALIS.—*Linnaeus*.

THIS also, like others allied to it, is a testaceous scabbard or sheath, covering the animal, but not connected with its shell, and which ceases to exist in the Pholades. The sheath is open at both ends, and the shell it contains, being no longer fixed and adhering, closes the posterior extremity. The internal shell consists of two concave valves, each provided with a subulate piece within, at the back of which the marks of the two valves described in the second species are very visible. At the interior orifice of the sheath, the animal presents two small tubes, similar to the genus *Sep-taria*. They commit great havoc by destroying the planks of ships, piles of embankments, &c.

LA MARCK makes no mention of the enormous species so ably described by Sir Everard Home, and called

T. Gigantea, which sometimes exceeds four feet in length, and several inches in circumference.

Teredo navalis

Teredo palmulatus:

PHOLAS.

PHOLAS.—*Linnaeus*.



THIS well known shell is described by La Marck as a bivalve, but without any tubular sheath inclosing it, though very similar in form to those which have.—It has one or more accessory valves, either at the hinge or above it. The inferior, or lower margin of the valves, recurved outwardly.

In this shell, the valves being sufficiently large to protect the greater part of the animal, it does not require, as in the preceding genera, a sheath to defend their very long bodies. The Pholas pierces stones, chalk, and wood, from whence it cannot remove itself.

Pholas dactylus	Pholas silicula
..... orientalis	..... costata
..... candida	..... crispata
..... dactyloides	..... callosa

Pholas clavata.

GASTROCHÆNA.



MYA DUBIA.

Pennant, 4, pl. 44, f. 19.

A SHELL nearly allied to the *G. Pholās*, being like it a Borer; it is generally found in madreporæ; but, not having the accessory valves, it necessarily constitutes a new genus. Shell bivalve, equivalve, almost wedge-shaped, widely gaping, the anterior aperture very large, oval, and oblique, the posterior extremity nearly closed; hinge linear, marginal, and without teeth.

Gastrochæna cuneiformis *Gastrochæna mytiloides*
Gastrochæna modiolina.

SOLEN.

SOLEN VAGINA.—*Linnaeus.**Chem. 6, t. 4, f. 26.*

WITH a few shells separated which were confounded with this genus by other authors, it now stands defined by La Marck as a bivalve transversely oblong, extremely wide; while that part, which would by ma-

ny be considered the width, is in fact the length of the shell, and is consequently very small. The two valves are equal, and when closed resemble a flattened cylinder, truncated at both ends, sometimes a little curved; they are united by a hinge, more frequently lateral than in the middle of the lower margin, and sometimes it is situated very near one of the extremities. When open, the shell exhibits two or three small recurved teeth, often placed at the extreme edge of the truncated extremity, but more frequently at a short distance from it; they join laterally when the valves are closed, but do not enter the cavities apparently formed to receive them. The apices are very small and scarcely perceptible; the ligament external and near the hinge: in some species there is a callosity to which the ligament is attached.

THE Solenes inhabit the sand of the sea shore, which they sometimes penetrate to the depth of two feet in a verticle direction, and there remain stationary; the animal only quitting the shell and returning to the surface in search of food, which it effects by an extension of the muscular foot affixed to the further extremity of the shell. Some species have their valves much longer, narrower, and flatter at the extremities, as the Solen Diphos, (*S. Rostratus* of La Marck), in which the callosities at the hinge are also very visible.

Cardinal teeth contiguous to the anterior side.

Solen vagina	Solen vaginoides
..... corneus	..... siliqua
Solen ensis	

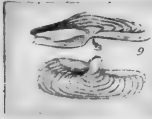
Cardinal teeth somewhat distant from the anterior side.

Solen pygmæus	Solen cultellus
..... ambiguus	..... planus
Solen minutus.	

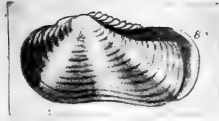
Cardinal teeth (or hinge) nearer the middle than the anterior side.

Solen legumen	Solen constrictus
..... Dombeyi	..... coarctatus
..... Javanicus	..... strigilatus
..... Caribæus	..... radiatus
..... antiquatus	..... violaceus
Solen rostratus.	





PANOPEÆ.

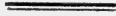


MYA GLYCIMERIS.—*Linnaeus*.

Chem. 6, t. 1, 3, f. 25.

THIS genus is nearly allied to the *G. Solen*. The more prominent apices of these shells, and the situation of the ligament of the valves prevent their being classed with the *Myæ*. Shell equivalve, transverse; unequally gaping at the sides; a conical primary tooth on each valve, at the side of which is a compressed callosity, short and ascendant, not projecting externally; ligament external, on the longest side of the shell, attached to the callosities, or nymphæ.

Panopæa Aldrovandi



GLYCIMERIS.



MYA SILIQUA.—*Linnaeus*.

Chem. tab. 11, page 192, fig. 1934.

THE few species of this genus yet known have been blended by previous authors with the *Myæ*, from which their hinge distinguishes them: they are allied to the *Solen* and *Saxicava*; from the first of which they

differ, having teeth at the hinge, and from the latter by the ligament being placed on the shortest side of the shell, which is transverse, widely gaping on either side; hinge callous without teeth, with externally projecting callosities.

Glycimeris margaritacea.



MYA.

MYA TRUNCATA,—*Linnæus.*

Chem. 6, t. 1, f. 12.

THESE shells are marine bivalves, transverse, inequilateral, not always equivalve, gaping at the two extremities, one of which is often obtusely truncated. Hinge with a very singular large compressed spoon-shaped tooth, rising perpendicularly from the plane of the left valve, and fitting into the entrance of the primary cavity corresponding with it on the opposite valve, when both are closed; ligament interior, short, thick, and attached to the projecting tooth on one side, and to the cavity on the other. These shells remain concealed in the sand, through which they protrude a long membranous tube, enveloping two smaller ones.

Mya truncata

Mya erodona

.... *arenaria*

.... *solenimyalis.*



ANATINA.

SOLEN ANATINUS,—*Linnaeus*.*Chem.* 6, t. 6, f. 46, 48.

THE *Anatinæ* are very distinct from the *Myæ*, or the *Solenes*, with both of which they have been blended by former writers. Shell thin, extremely fragile, semi-transparent, subequivalve, gaping at one or both sides, much inflated at one end, resembling a duck's bill; a spoon-shaped tooth on each valve projecting internally, beneath which is placed a curved rib running towards the interior of the shell; sometimes a closed fissure or suture extends from the apex, giving the appearance of a second rib. These shells appear to connect the *Myæ* and *Mactræ*, and form a transition to the *G. Lutraria*.

<i>Anatina laterna</i>	<i>Anatina trapezoides</i>
..... <i>truncata</i>	..... <i>rugosa</i>
..... <i>subrostrata</i>	..... <i>imperfecta</i>
..... <i>longirostris</i>	..... <i>myalis</i>
..... <i>globulosa</i>	..... <i>rupicola</i> .





LUTRARIA.

MYA OBLONGA.—*Gmelin.**Gualter, t. 90, f. A. 2.*

THIS genus is perfectly distinct from the *G. Mactra*, as it wants the lateral teeth, and by its affinity to the *G. Anatina* presents a natural transition from the *G. Mya*. Shell inequilateral transversely oblong or rounded, gaping at the lateral extremities; hinge with one tooth, as it were folded or plaited in two, one side of which is plain, with an opposite hollow to receive it; no lateral teeth, ligament interior and fixed in the hollow cavities of the primary teeth.

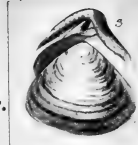
Shell transversely oblong.

Lutraria solenoides *Lutraria elliptica*
Lutraria rugosa.

Shell orbicular or subtriangular.

Lutraria compressa *Lutraria papyracea*
 *piperata* *plicatella*
 *tillinoides* *crassiplica*
 *candida* *complanata.*

MACTRA.

MACTRA SOLIDA.—*Linnaeus*.*Lister, t. 253, f. 87.*

THE Mactrae, separated from the Lutrariæ, now constitute a numerous and well defined genus. They are marine shells, some of a large size, almost always subtriangular, slightly gaping at the sides, either smooth on the exterior or transversely ribbed. The character of the hinge is very singular; on each valve, beneath the apex, is a compressed tooth, bent or angular, like two divergent pieces, at the side of which is a subcordiform oblique cavity, to which the ligament is attached. There are also two lateral teeth, compressed and inserted, one of them more or less near the cavity of the ligament, and the other near to the primary tooth. In some species, where the cavity of the hinge is very large, the primary tooth is oblique, and almost obsolete; but the lateral teeth always exist.

Mactra gigantea	Mactra Helvacea
..... Spengleri	..... grandis
..... striatella	..... stultorum
..... carinata	..... maculosa

Mactra straminea	Mactra ovalina
..... australis	..... alba
..... violacea	..... solida
..... fasciata	..... castanea
..... turgida	..... rufa
..... plicataria	..... squalida
..... rufescens	..... Brasiliana
..... maculata	..... donacina
..... subplicata	..... depressa
..... triangularis	..... lilacea
..... lactea	..... trigonella
..... abbreviata	..... deltoides

Mactra crassatella.



CRASSATELLA.

MACTRA STRIATA.—*Gmelin.*

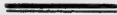
Chemnitz, 6, tab. 22, fig. 222, 223.

A GREAT affinity exists between this genus and those of the *Mactra* and *Lutraria*, it having, like them, the ligament of the valves internal, and attached to the primary cavities of each valve, but when closed they fit exactly, and do not gape, as in the above genera.— In some species the ligament is partially visible on the

exterior, but less so than in the *G. Amphidesma*.—Shell inequilateral suborbicular; valves sometimes attenuated at one end; two divergent primary teeth, with a cavity at the side; lateral teeth obsolete; ligament internal, inserted in the cavity of the hinge on either side of the valves.

<i>Crassatella Kingicola</i>	<i>Crassatella subradiata</i>
..... <i>donacina</i>	..... <i>contraria</i>
..... <i>sulcata</i>	..... <i>cuneata</i>
..... <i>rostrata</i>	..... <i>erycinæa</i>
..... <i>glabrata</i>	..... <i>cycladea</i>

Crassatella striata.



ERYCINA.



THE equivocal character of these shells renders it very difficult to judge of their hinge. La Marck only mentions one species, not having those before him which he had described in the *Ann. du Musée*. Shell transverse, subinequilateral, equivalve, rarely gaping; two unequal divergent primary teeth, with a cavity between; two short, oblong, lateral, compressed, inserted teeth; ligament interior, fixed in the cavity between the primary teeth.

Erycina cardioides.



UNGULINA.

La Marck's Cabinet.

DAUDIN established this genus, which is remarkable from the cavity receiving the ligament having the appearance of being divided into two, the one at the end of the other; the ligament, though internal, is partially visible outside, from the almost marginal situation of the cavities in which it is placed; one short primary subbifid tooth on each valve. Shell with external ribs or grooves on the exterior of the valves, and tinted with red within.

Ungulina oblonga *Ungulina transversa.*



SOLEMYA.

Encycl. Meth. plate 225, fig. 4.

THE genus *Solenimya*, as it should properly be called, at first sight appears to resemble the *Modiola*; nevertheless, its characters bear a greater affinity to the *Solenes*, and a yet greater to the *Anatinae*. Shell thin, transversely oblong, cylindrical, or compressed, obtuse at the extremities; apices flat and hardly visible, one

compressed, dilated, and very oblique; tooth on each valve slightly concave beneath to receive the ligament, which is partly internal, and partly, external; valves a little gaping at the upper side, and covered with a brown rayed epidermis, terminating round the margin in a fringed or deep ragged edge.

Solenimya australis *Solenimya Mediterranea.*

AMPHIDESMA.

TELLINA LACTEA.—*Linnaeus.*

Sowerby's Genera, No. 9, plate 3.



LA MARCK, on his first examination of the species of this genus, called it *Donacilla*, considering them to be allied to those of the *G. Donax*; but, on a subsequent investigation, he has determined to constitute the present genus of them, as they possess very peculiar characters, and are quite distinct from all other bivalves, particularly in having the valves connected by *two* ligaments. Shell generally small, transverse, inequilateral, suboval or rounded, occasionally a little gaping at the sides, and, as Sowerby observes, there is a distinct flexuosity in the valves of the larger species. Hinge with one or two teeth, and a narrow cavity for the interior ligament; the other ligament short and external.

Amphidesma variegata	Amphidesma flexuosa
..... donacilla	..... prismatica
..... lactea	..... phaseolina
..... cornea	..... corbuloides
..... albella	..... glabrella
..... lucinalis	..... purpurascens
..... Boysii	..... nucleola
..... tenuis	..... physoides.



CORBULA.

Encyl. Method, pl. 230, fig. a, b, c.

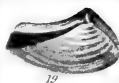
THIS genus approximates those of *Crassatella* and *Ungulina*, but is eminently distinguished from them by the inequality of the valves, and the strong primary elevated tooth. Shell regular, inequivalve, inequilateral; only slightly, if at all, gaping; one primary tooth in each valve, conical, curved, and ascendant; at the side a cavity; no lateral teeth. Ligament interior, placed in the cavities.

<i>Corbula australis</i>	<i>Corbula Taitensis</i>
..... <i>sulcata</i>	..... <i>nucleus</i>
..... <i>erythrodon</i>	..... <i>impressa</i>
..... <i>ovalina</i>	..... <i>porcina</i>

Corbula semen.

[And four fossil species.]

PANDORA.

TELLINA INEQUIVALVIS.—*Linnæus*.*Sowerby's Genera, No. 2, pl. 6.*

THE hinge of the Pandora bears some resemblance to that of the Placuna, but the shells of this genus have two muscular impressions, and are more nearly allied to the Corbula. Shell inequivalve, inequilateral, transversely oblong; the upper valve flattened, the lower convex; two primary teeth, divergent and unequal, on the upper valve; two oblong corresponding cavities on the lower: ligament interior.

Pandora rostrata

Pandora obtusa.

SAXICAVA.

MYTILUS PHOLADIS.—*Linnæus*.*Muller 3, tab. 87, f. 1, 3.*

THESE shells inhabit holes pierced by the animal in rocks or stones, from which they cannot remove, resembling, in that respect, the Pholades. Shell bivalve, transverse, inequilateral, obtuse, and gaping at both

ends. Hinge with two distant tubercles, or obsolete teeth: ligament exterior.

Saxicava rugosa	Saxicava pholadis
..... gallicana	..... australis
Saxicava veneriformis.	

PETRICOLA.



VENUS LYTROPHAGA.—Gmelin.

Chem. 2, t. 13, f. 15.

THE shells of this genus are borers, at least such as are known: they are bivalves, transverse, inequilateral; upper side narrowed and a little gaping; lower side rounded. Hinge with two teeth on each valve, but sometimes with only one.

Petricola lamellosa	Petricola rocelaria
..... ochroleuca	..... exilis
..... semilamellata	..... ruperella
..... lucinalis	..... chamoides
..... striata	..... pholadiformis
..... costellata	..... labagella

Petricola linguatula

VENERUPIS.

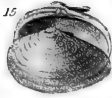
VENUS PERFORANS.

*Montague, page 127, tab. 3, fig. 6.*

THIS should be written *Venerirupis*, and is another species of Borer or *Lithophagus* shell, by most authors considered of the *G. Venus*; from which, however, notwithstanding the similarity of the hinge, it must be separated, the teeth, on a careful examination, being rather differently disposed. Shells of this family are only distinguished from the preceding genus, by having three primary teeth on one of the valves at least. Shell transverse, inequilateral; posterior side very short, anterior slightly gaping. Hinge, two teeth on the right valve, three on the left, and sometimes three on both, which are small, contiguous, parallel, and but little, if at all, divergent. Ligament exterior.

<i>Venerirupis perforans</i>	<i>Venerirupis exotica</i>
..... nucleus	..... distans
..... irus	..... crenata

Venerirupis carditoides.



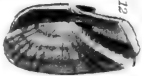
SANGUINOLARIA.

SOLEN OCCIDENS.—*Gmelin.**Mawe's Linnæus, fig. 6, plate 5.*

ALTHOUGH these shells appear nearly allied to the Solenes, with which they have hitherto been uniformly classed, they possess, however, a very distinctly marked difference, never having the transverse oblong shape, or the edge of the valves parallel to the base. The valves are elliptical, with rounded, slightly gaping extremities. The upper margin arched. Hinge with two contiguous teeth on each valve.

Sanguinolaria occidens	Sanguinolaria livida
..... rosea	..... rugosa

PSAMMOBIA.

TELLINA FERROENSIS.—*Gmelin.**Mawe's Linnæus, f. 4, p. 6.*

LIKE the Sanguinolariæ, these shells appear allied to the Solenes, gaping a little at the sides; and consequently many authors have so classed them.—They are, however, different in form, in which they more nearly resemble that of the Tellens; but besides gap-

ing slightly at the sides, they have not the irregular plait on the anterior part, though they sometimes have a symmetrical angle or pinch on that side, in each valve. Shell elliptical, transverse, or a flattish oblong oval, slightly gaping: apices projecting. Hinge with two teeth on the left valve, and one only inserted on the opposite.

<i>Psammobia virgata</i>	<i>Psammobia alba</i>
..... <i>Ferroensis</i>	..... <i>Cayennensis</i>
..... <i>vespertina</i>	..... <i>lævigata</i>
..... <i>florida</i>	..... <i>tellinella</i>
..... <i>maculosa</i>	..... <i>pulchella</i>
..... <i>cærulescens</i>	..... <i>aurantia</i>
..... <i>elongata</i>	..... <i>fragilis</i>
..... <i>flavicans</i>	..... <i>livida</i>
..... <i>squamosa</i>	..... <i>Galathea.</i>

PSAMMOTÆA.



THESE shells are only degenerated *Psammobia*æ; they no longer have three cardinal teeth, (two on one valve and one on the other), as the left valve of the *Psammotæa* only presents one tooth, and sometimes one of the valves is without a tooth, the other exhibiting two. Shell transverse, oval, or oblong; gaping a little

at the sides, one primary tooth on each valve, though sometimes only on one of them. Ligament exterior, attached to callosities at the hinge, and without the irregular plait of the *Tellina*.

<i>Psammotæa violacea</i>	<i>Psammotæa serotina</i>
..... zonalis	..... candida
..... pellucida	..... tarentina
<i>Psammotæa donacina</i> .	

[One fossil species.]



TELLINA.

TELLINA RADIATA.—*Linnaeus*.

Chem. 6, tab. 11, fig. 100.

WITH a few divisions, this genus remains as *Linnaeus* had arranged it. Shell transverse or orbicular, in general flattened, the anterior side angular, exhibiting at the margin a flexuous and irregular plaited or twisted appearance. One or two primary teeth on the same valve, two lateral teeth, often distant: ligament quite external. (*La Marck* has not mentioned, that upon the edge of the front side of either valve, in some species, are rows of serrated teeth, running from the apex to the margin, as in the *T. Foliacea* and *T. Spengleri*). The valves are not always of an equal size, or exactly uniform, being

sometimes more convex on one side than on the other, and the striæ occasionally running in different directions in each: they are sometimes quite smooth, and others have imbricated scales. The valves in some species are much more twisted than in others.

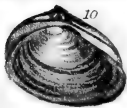
Shell transversely oblong.

Tellina radiata	Tellina elliptica
..... unimaculata	..... albinella
..... semizonalis	..... margaritina
..... maculosa	..... strigosa
..... virgata	..... planata
..... staurella	..... punicea
..... crucigera	..... depressa
.. . . Spengleri	..... pulchella
..... rostrata	..... fabula
..... latirostra	..... tenuis
..... sulphurea	..... exilis
..... foliacea	..... donacina
..... operculata	..... nitida
..... rosea	..... scalaris
..... chloroleuca	..... psammetella

Shell orbicular, or rounded oval.

Tellina remies	Tellina striatula
..... sulcata	..... scobinata

Tellina crassa	Tellina decussata
..... lævigata	..... Brasilliana
..... linguafelis	..... obliqua
..... rugosa	..... umbonella
..... lacunosa	..... deltoidalis
..... gargadia	..... nymphalis
..... pristis	..... solidula
..... multangula	..... bimaculata
..... polygona	..... sexradiata
..... capsoides	..... ostracea



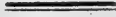
TELLINIDES.

In the French Museum,

LA MARCK gives this as the type of a genus which cannot properly be united to any of its congeners: having lateral teeth, it differs from the *Psammobia*; by not having the valves twisted, it is distinguished from the *Tellina*; the valves also closing, and their interior having fascial muscular impressions, render it distinct from the *Lucina*. Shell transverse, inequilateral, a little flattened, slightly gaping at the sides: apices small, not swelled; no irregular plait at the margin. Hinge with two divergent teeth on each valve, two lateral teeth

nearly obsolete, the posterior one placed near the primary tooth on one valve.

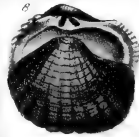
Tellinides Timorensis.



CORBIS.

VENUS FIMBRIATA.—*Linn.*

Sowerby's Genera, No. 2, plate 3.

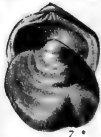


CUVIER constituted this genus, having discovered that the organization of the animal differed from those with which it had previously been classed. Bruguiere and La Marck had joined these shells with the *Lucinæ*, but the latter has now followed Cuvier in separating them. Shell transverse, equivalve, no flexuosity; apices curved inward, opposed to each other; two primary and two lateral teeth, the posterior one nearest to the hinge; muscular impressions simple, valves sometimes convex, strongly ribbed transversely, longitudinally striated, margins serrated, and closely interlocking.

Corbis fimbriata

[And two fossil species.]





LUCINA.

VENUS JAMAICENSIS.

Chem. 7, p. 24, t. 39, fig. 408, 409.

THE hinge of the shells of this genus seems to ally them to the Tellens, particularly on account of the lateral teeth; and though they also in many species possess a distinctly marked angular depression on the shell, it is never flexuous, which circumstance probably induced Linnæus to class them with the Veneres. Shell suborbicular, inequilateral; small pointed apices. The hinge very variable, but usually with two divergent primary teeth, one bifid, which change or become obsolete with age; two lateral teeth, the posterior one nearest the hinge; two muscular impressions very widely separated, the posterior one prolonged in a small band sometimes extending to the centre of the valve.

Lucina Jamaicensis	Lucina concentrica
..... Pennsylvanica	..... divaricata
..... edentula	..... carnaria
..... mutabilis	..... scabra
..... radula	..... reticulata

Lucina squamosa	Lucina sinuata
..... lactea	..... pecten
..... undata	..... lutea
..... circinaria	..... digitalis
..... columbella	..... globularis.

DONAX.

DONAX SCORTUM.—*Linnaeus*.

Mawe's Linn. f. 1, pl. 9.



SHELLS of this genus are so singular in their form, that they are immediately recognized; they are transverse, very inequilateral, almost triangular, a little flattened; the anterior side very much shortened, obtuse, and appearing truncated, giving the shell the form of a wedge; valves equal, a little gaping at the front side, and in many species dentated or finely crenulated on the interior margin. Another very characteristic distinction of this genus is, its having at the hinge, besides the primary teeth, one or two lateral teeth a little distant and separated from the cardinal ones, similar to those of the *Mactrae*, *Lucinae*, *Tellinae*, &c. In the *G. Venus*, *G. Cytheria*, &c, the shortest side of the shell is always the posterior, and the longest and largest hav-

ing the ligament attached to it, is the anterior; while in the *Donax*, it is exactly the reverse, the ligament being affixed to the shortest side as in the *Tellens*, to which consequently they are more nearly allied than to the *G. Venus*, though without the flexuous plait.

Internal margin of the Valves smooth, or nearly so.

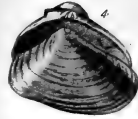
<i>Donax scortum</i>	<i>Donax granosa</i>
..... <i>pubescens</i>	..... <i>columbella</i>
..... <i>compressa</i>	..... <i>veneriformis</i>
..... <i>cuneata</i>	..... <i>australis</i>
..... <i>deltoides</i>	..... <i>epidermia</i>
..... <i>radians</i>	..... <i>bicolor</i>
..... <i>abbreviata</i>	..... <i>vittata</i>

Donax triquetra.

Internal edge of the Valves distinctly dentated or crenulated.

<i>Donax ringens</i>	<i>Donax meroe</i>
..... <i>rugosa</i>	..... <i>scripta</i>
..... <i>Cayennensis</i>	..... <i>trunculus</i>
..... <i>elongata</i>	..... <i>flabagella</i>
..... <i>denticulata</i>	..... <i>cinatinum</i>
..... <i>cardioides</i>	..... <i>Martinicensis</i>

CAPSA.

DONAX LÆVIGATA.—*Gmelin.**Sowerby's Genera, No. 10, plate 3.*

THESE shells are rather inequilateral, having their ligament on the short side, as in the preceding genus: they belong to the G. Tellinides, although without lateral teeth; they are also allied to the G. Psammobia, and to certain Tellinæ, by the similarity of the cardinal teeth; but they scarcely gape at the sides, and have not the flexuous bend of the Tellens. Shell transverse, equivalve, and closed. Hinge with two teeth on the right valve, one inserted bifid tooth on the other; no lateral teeth: ligament external.

Capsa lævigata Capsa Braziliensis.

 CRASSINA.
VENUS DANMONIENSIS.—*Montague.**Sowerby's Genera, No. 4, pl. 3, fig. 1, 2, 3.*

THIS shell resembles a small Crassatella in appearance, being thick and solid, and the valves perfectly closing together in every part; but the position of the ligament distinguishes it. Nor should it be confounded with the G. Venus, since it has not more than two

teeth on each valve, and even appears to have but one, very large, on the left valve, the other projecting but slightly. Shell orbicular, transverse, equivalve, subinequilateral, and closed. Hinge with two strong divergent teeth on the right valve, and two very unequal on the other. Ligament external, and placed on the longest side.

SOWERBY, in his *Genera of Shells*, properly calls this genus *Astarte*, several species having been described under that name previous to La Marck's adopting that of *Crassina*.

Crassina Danmoniensis.



CYCLAS.

TELLINA CORNEA.—*Linn.*

Lister, Conch. tab. 159, fig. 14.

SHELLS of this genus are small, of a very convex oval form; valves thin, and always without three primary teeth on either of them; apices never eroded or decorated: some species are so thin and fragile, as to be transparent, the valves smooth, or transversely striated. Shell transverse, equivalve; apices protuberant;

primary teeth very small, almost obsolete, sometimes two on each valve, of which one is plaited in the middle on the one valve, and sometimes two plaited or folded teeth on the other. These shells inhabit fresh waters.

Cyclas rivicola	Cyclas obtusalis
..... cornea	..... fontinalis
..... lacustris	..... australis
..... obliqua	..... sulcata
.. . . . calyculata	..... striatina

Cyclas Sarratogea.

CYRENA.

TELLINA FLUMINEA.—*Gmelin.*

Sowerby's Genera No. 5, pl. 2.



THESE shells inhabit rapid rivers and streams, and have been classed with the preceding genus, from which they are however distinct, having three cardinal teeth on each valve, and also lateral teeth. They are thick, solid shells; sometimes of a great size: the apices eroded or carious; covered on the other parts with a green or brownish epidermis. Ligament exterior, and placed on the largest side.

Lateral Teeth, serrated or divided.

Cyrena trigonella	Cyrena fuscata
..... orientalis	..... fluminea
..... cor	..... violacea.

Lateral Teeth, entire.

Cyrena depressa	Cyrena Bengalensis
..... Caroliniensis	..... Zeylanico.

[One fossil species.]



GALATHEA.

VENUS PARADOXA.

Sowerby's Genera, No. 3, pl. 1.

THIS elegant shell inhabits fresh water rivers, and in some respects is nearly allied to the Cyrenæ, from which however the divergent form of its primary tooth distinguishes it. Shell equivalve, subtriangular, primary teeth furrowed, two on the right valve joined at the base, three on the other valve, placed triangularly, the intermediate one being advanced, separate, thick, and callous; the muscular impressions are lateral, and appear double on each side; shell covered

with a greenish epidermis, beneath which the surface is of a milk white, highly polished, with from two to four violet rays, diverging from the apex to the margin, which is slightly tinged with violet.

SOWERBY has very properly changed the name of this genus to that of *Potamophila*, *Galathea* being the name given by Fabricius, (and adopted by La Marck,) to a genus of Crustacea.

ONLY one species is at present known. A beautiful example of this rare shell is in the Tankerville Collection; and the Provost of Eton has also a very fine specimen.

Galathea radiata.

CYPRINA.

VENUS ISLANDICA.—*Linnaeus.*

Pennant, pl. 53, f. 47.



THE Cyprinæ are in general of a large size, much resembling the *Veneres*, but are distinguished from them by having one impressed lateral tooth on the front side, sometimes obsolete; the *Nymphæ* or callo-

sities of the hinge large, arched, terminated near the apices by a cavity sometimes very deep; ligament external, partly fixed beneath the apices. From the shells of this genus possessing a lateral tooth, though sometimes obsolete, and being covered with an epidermis, they are conjectured to inhabit rivers at their junction with the sea. Shell equivalve, inequilateral, of an oblique heart-shape. Apices obliquely curved, three unequal primary teeth meeting at their bases, and a little divergent upwards.

Cyprina tenuistria *Cyprina Islandica*.

[And six fossil species.]



CYTHERIA.

VENUS CASTA.—*Gmelin*.

Chemnitz 6, tab. 33, fig. 346.

THIS genus, notwithstanding the number of the species, was blended with the *G. Venus* of Linnæus, contributing to render that an overgrown and badly defined family. La Marck observes that a great difficulty exists in discovering the characters of some of the species, the shades of difference between them being so extremely slight; he however has pointed out,

as a guide to distinguish them from the *G. Venus*, that they all have four primary teeth on one valve, and only three united on the other, with an isolated cavity, oval, and parallel to the margin, the lateral teeth divergent to the summit.

THEY are all marine shells, solid, regular, equivalve, inequilateral, apices equal, recurved and slightly projecting. Four primary teeth on one valve, and three on the other, with a distant cavity parallel to the edge, not at all connected with those which receive the cardinal teeth, they being placed in a different direction.

Internal Margin of the Valves very entire.

Anterior cardinal Tooth, with a striated canal, or its Sides uneven.

Cytheria lusoria	Cytheria graphica
..... petechialis	..... morphina
..... impudica	..... purpurata
..... castanea	..... casta
..... zonaria	..... corbicula
..... meretrix	..... tripla.

*Anterior cardinal Tooth without a striated canal,
and entire.*

Cytheria gigantea	Cytheria Venetiana
..... erycina	..... juvenilis
..... lilacina	..... rufa
..... impar	..... Guiniensis
..... erycinella	..... Dione
..... pectoralis	..... Arabica
..... planatella	..... trimaculata
..... florida	..... immaculata
..... nitidula	..... pellucida
..... Chione	..... hepatica
..... maculata	..... lucinalis
..... citrina	..... lunaris
..... albina	..... lactea
..... lata	..... exoleta
..... mactroides	..... lincta
..... trigonella	..... concentrica
..... sulcatina	..... prostrata
..... Hebræa	..... interrupta
..... castrensis	..... tigerina
..... ornata	..... punctata
..... picta	..... umbonella
..... tigrina	..... undatina

Cytheria scripta	Cytheria pulcaris
..... numulina	..... mixta
..... muscaria	..... abbreviata

*The internal Margin of the Valves crenulated, or
dentated.*

Cytheria pectinata	Cytheria plicatina
..... gibbia	..... flexuosa
..... ranella	..... macrodon
..... divaricata	..... lunularis
..... testudinalis	..... squamosa
..... cuneata	..... cardilla
..... placunella	..... cygnus
..... rugifera	..... dentaria

[Nine fossil species.]

VENUS.

VENUS PUERPERA.—*Linn.*

Chemnitz 6, tab. 36, fig. 388, 389.



10

THIS genus has been considerably diminished in number from that so called by Linnæus, who had blended with it many other shells, allied to or resembling the Veneres, but characteristically distinct; it nevertheless remains a very numerous, varied, and beauti-

ful family; consisting of such shells only, as have three primary teeth on each valve, the lateral ones divergent to the summit. Ligament external, covering the escutcheon. This genus is not in form easily distinguished from the G. Cytheria, though generally more transverse than orbicular; the hinge however marks the difference most clearly. They are marine shells, free, regular, and beautifully varied in their designs and coloring; they inhabit the sandy shores, buried to a small depth below the surface, and are particularly numerous in warm climates.

Internal Margin of the Valves crenated, or dentated.

Shells with lamellar Striæ.

Venus puerpera	Venus verrucosa
. reticulata	..... rugosa
.... pygmæa	..... casina
.. . . . corbis	..... crebriscula
..... crenulata	..... plicata
..... discina	..... cancellata

Venus subrostrata.

Without lamellar Striæ.

Venus granulata	Venus pectorina
-----------------	-----------------

Venus marica	Venus sulcaria
..... cingulata	..... textile
..... cardioides	..... texturata
..... grisea	..... geographica
..... elliptica	..... rariflamma
..... Dombeyi	..... decussata
..... mercenaria	..... pullastra
..... lagopus	..... glandina
..... gallina	..... truncata
..... gallinula	..... retifera
..... pectinula	..... anomala
..... sulcata	..... galactites
..... lamellata	..... exilis
..... exalbida	..... scalarina
..... rufa	..... Scotica
..... dorsata	..... aurea
..... hiantina	..... virginea
..... crassisulca	..... marmorata
..... corrugata	..... ovulæa
..... Malabarica	..... laterisulca
..... papilionacea	..... callipyga
..... adpersa	..... opima
..... punctifera	..... nebulosa
..... turgida	..... phaseolina
..... literata	..... carneola

Venus florida	Venus flammiculata
..... petalina	..... conularis
..... bicolor	..... strigosa
..... floridella	..... aphrodina
..... catenifera	..... Perronii
..... pulchella	..... aphrodinoides
..... sinuosa	..... elegantina
..... tristis	..... flammea
..... rimularis	..... undulosa
..... vulvina	..... pumila
..... vermiculosa	..... ovata

Venus inquinata

[There are also six fossil species.]



VENERICARDIA.

Sowerby's Conch. No. 9, tab. 50

LA MARCK had only seen one recent species of this genus, which he describes as greatly resembling the *G. Venus*, but having only two oblique cardinal teeth on each valve. Shell equivalve, inequilateral, suborbicular, the sides most frequently with rayed longitudinal ribs, two oblique primary teeth turned in the same direction.

Venericardium australis. [And ten fossil species.]

CARDIUM.

CARDIUM.—*Linn.**Mawe's Linnæus, plate 7.*

THIS beautiful and interesting family has been so well defined by Linnæus, that La Marck has not separated any of them. Similar to the *G. Venericardium* and *G. Pecten*, the convexity of their valves is furnished with numerous longitudinal ribs, more or less elevated, armed with spines, hollow scales, or marked with striæ; the interior partly smooth and only grooved at or near the margin. In all the species, the connecting ligament of the valve is exterior, very short, and the two muscular impressions but slightly marked. Shell equi-valve, subcordiform; apices protuberant; hinge with four teeth on each valve, the two primary ones oblique and near together, articulating with the corresponding teeth on the other valve; two lateral inserted distant teeth. They inhabit the sea shore, concealed at a small depth in the sand. La Marck makes two divisions of them: the first is distinguished by having the anterior side as large or larger than the posterior, and no distinct angle at the apices; the second, by

possessing carinated or angular umbones, and the posterior side being often much larger than the anterior.

IN the second division, La Marck has placed the *Cardium cardissa*; and similar species of *Cardia*, having their valves angularly flattened, and being, when closed, in the shape of a compressed heart; forming a remarkable distinction from other bivalve shells, in which the depression is always in the opposite direction.

IT is difficult to imagine that these species are inhabited by the same animal that constructed the *Cardium costatum*, so amazingly do they differ from it in form. La Marck, however, does not make any observation on the subject, and has not even formed a separate division of them.

No particular Angle at the Umbones, and the anterior side at least as large as the posterior.

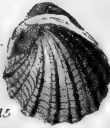
<i>Cardium costatum</i>	<i>Cardium Brasilianum</i>
..... <i>Indicum</i>	..... <i>apertum</i>
..... <i>ringens</i>	..... <i>papyraceum</i>
..... <i>Asiaticum</i>	..... <i>bullatum</i>
..... <i>tenuicostatum</i>	..... <i>ciliare</i>
..... <i>fimbriatum</i>	..... <i>echinatum</i>

Cardium pseudolima	Cardium lævigatum
..... aculeatum	..... biradiatum
..... erinaceum	..... eolicum
..... tuberculatum	..... pectinatum
..... isocardia	..... rusticum
..... muricatum	..... edule
..... angulatum	..... Groenlandicum
..... marmoreum	..... latum
..... elongatum	..... crenulatum
..... ventricosum	..... exiguum
..... rugosum	..... minutum
..... sulcatum	..... roseum
..... serratum	..... scobinatum.

Umboes carinated or angular, the posterior side often much larger than the anterior.

Cardium unedo	Cardium hemicardium
..... medium	..... cardissa
..... fragum	..... inversum
..... retusum	..... Junoniæ
..... tumoriferum	..... lineatum.

[There are also fourteen fossil species.]



CARDITA.

CHAMA ANTIQUATA.—*Linnæus*.*Mawe's Linn. pl. 12, fig. 4.*

THIS genus was included by Linnæus with the Chamæ, from which however it essentially differs, the teeth being of another form, valves always equal, and the shell never affixed by its lower valve to other bodies. It is nearly allied to the *G. Venericardia*, from which some species are with difficulty distinguished without a careful examination of the position of the two teeth: it is a marine shell, and some species are said to spin a byssus by which the animal attaches itself to marine substances. Shell regular, equivalve, inequilateral; the greater number of species appearing longitudinal, from the great elongation of the anterior side. Hinge with two unequal teeth, one short, straight, and placed beneath the umbo, the other oblique, marginal, and prolonged, inserted into a corresponding fossule: valves more or less strongly ribbed, smooth, or imbricated; internal margin crenated or plaited.

Shell subcordiform or oval, more transverse than longitudinal.

Cardita sulcata	Cardita intermedia
..... ajar	..... trapezia
..... turgida	..... bicolor
..... squamosa	..... depressa.

Shell more longitudinal than transverse.

Cardita phrenetica	Cardita concamerata
..... crassicosta	..... sinuata
..... rufescens	..... aviculina
..... calyculata	..... citrina
..... subaspera	..... sublævigata
..... nodulosa	..... corbularis

Cardita lithophagella.

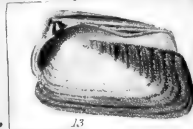
[There are also four fossil species.]

CYPRICARDIA.

CHAMA CORALLIOPHAGA.—*Gmelin.*

Chem. 10, plate 359, tab. 172, fig. 1673, 1674.

THIS genus has also been separated from the Chamæ by La Marck: it nearly approximates the preceding genus in general form, but may be easily distinguish-



ed from it, by having three teeth beneath the apices, like those of the *G. Venus*, in addition to the callous lengthened tooth or ridge. Shell marine, equivalve, inequilateral, obliquely or transversely elongated; valves finely striated, never ribbed; hinge with three teeth beneath the umbo, and one lateral elongated tooth, or callous ridge.

Cypricardia Guinaica Cypricardia rostrata
 angulata coralliophaga.

[Three fossil species.]

HIATELLA.



MYA ARCTICA.—SOLENI MINUTUS.—*Linn.*

Chem. 6, t. 6, f. 51, 52.

A GENUS established by Daudin and unknown to La Marck, who is of opinion, from the type given, that it more nearly approximates to the *Carditæ*, (although the shell gapes), than to the *Solenes*, with which Linnæus had classed it. Shell very inequilateral, transverse, and gaping at the upper part. Hinge with a small tooth on the right valve, and two rather larger oblique teeth on the left, ligament exterior.

Hiatella arctica.

ISOCARDIA.

CHAMA COR.—*Linnaeus*.*Sowerby's Genera, No. 7, pl. 2, fig. 1, 2.*

THE shells constituting this genus have been separated from the *G. Chama* of *Linnaeus*, and the *G. Cypricardia* and *G. Cardita* of *La Marck*; not only on account of the peculiar shape of the cardinal teeth, but also of the singular and graceful curvature of the umbones, which are spirally turned on either side, in the form of a fool's cap; from whence is derived the familiar English name of the type of this genus. Shell equivalve, heart-shaped, globose; the umbones distant and spirally recurved to the side of each valve; two flat primary teeth, one of which is bent and inserted under the umbo; a lateral prolonged callosity or lengthened tooth; ligament external and forked on one side.

THE *Isocardia Moltkiana*, (*Sowerby's Genera, No. 7, plate 2, fig. 3.*), may be mentioned as the most elegant and illustrative species of this genus; it is also a very rare shell.

Isocardia cor *Isocardia semisulcata*

Isocardia Moltkiana.—[And one fossil species.]



CUCULLÆA.

ARCA CUCULLUS.—*Linn.**Sowerby's Genera, No. 4, pl. 6, fig. 1, 2, 3.*

THIS genus very nearly resembles the *G. Arca* of Linnæus, from which La Marck has separated it, in consequence of several manifest distinctions of structure. The shape is more gibbous or trapeziform; anterior side truncated obliquely, and the hinge (which in young shells is similar to that of the *Arca*) by growth or age becomes displaced, or appears obsolete, exhibiting parallel ribs, which terminate it, and give the teeth a more horizontal appearance than in the *G. Arca*, as it now stands defined by LaMarck; another very remarkable distinction is the muscular impression within, to one side of which is an ear-shaped testaceous appendage, placed at an angle with the anterior surface, and forming a chamber or division. Shell equilateral, rhomboidal, heart-shaped, truncated at one end, and very globose; umbones distant and separated by the angular groove or area of the ligament, which is altogether external. Hinge linear, straight, with small transverse teeth, having at its extremity from two to five parallel ribs.

LAMARCK does not mention that the valves are marked with minute and strong longitudinal striæ, one valve often overlapping the opposite one, and that the margins of them are crenulated. The different size of the valves has induced collectors to suppose examples of this shell not true pairs; but it is a character peculiar to them and some of the *G. Arca*, though not constantly observable in all the species.

Cucullæa auriculifera.

[One fossil species.]

ARCA.

ARCA NOË.—*Linn.*



Chemnitz 7, tab. 53, fig. 509.

THE *Arcæ*, as they are now established by LaMarck, form a numerous and well defined genus, easily known by their general resemblance to the hull of a ship, and they are on a slight examination readily distinguished from their congeners. The *G. Arca* of Linnæus is now subdivided into four:—*Cucullæa*, *Arca*, *Pectunculus*, and *Nucula*; each of which possesses a strong distinctive character, and renders their separation from each other necessary. Shells of the present genus are transverse, subequivalve, inequilateral, apices distant,

separated by the angular area or channel of the ligament, which is always external. Hinge in a right line, without ribs at the extremities as in the Cucullæa, and furnished with numerous acute teeth alternately inserted between others on the opposite valve: in many species the valves when closed gape in the centre, occasioned by the wide flexuous curve of their outer margins, and sometimes one valve overlaps the other. They are said to spin a byssus, and are covered with a lamellar or velvet-like epidermis, frequently ending in a deep fringe at the margin. Valves longitudinally ribbed, imbricated, smooth, granulated, or finely striated.

It might perhaps be advisable to distinguish the species of *Arca* which gape, and certainly spin a byssus, from those which have their valves closed at every part, and probably are never affixed by a byssus to marine bodies.

Superior Margin not crenulated within.

<i>Arca tortuosa</i>	<i>Arca sinuata</i>
.... <i>semitorta</i>	.... <i>avellana</i>
.... <i>Noæ</i>	.... <i>cardissa</i>
.... <i>tetragona</i>	.... <i>ventricosa</i>
.... <i>umbonata</i>	.... <i>retusa</i>

Arca sulcata Arca lactea
 ovata trapezina
 barbata pistachia
 fusca pisolina
 Magellanica cancellaria
 Domingensis callifera
 Arca irudina.

Superior Margin crenulated within.

Arca Helbingii Arca Indica
 scapha senilis
 antiquata Brasiliana
 rhombea corbicula
 granosa squamosa
 auriculata Cayenensis
 inequalvis bisulcata

[And nine fossil species.]

PECTUNCULUS.

ARCA GLYCIMERIS.—*Linnaeus.*

Mawe's Linn. pl. 13, f. 7.



THESE shells were blended by Linnaeus with his *G. Arca*, to which in some respects they appear allied; nevertheless, their constant form, and the character of

the hinge, render it necessary to constitute a distinct genus of them. They are distinguished from the *Arca* by the orbicular compressed shape of the valves, (which by age become extremely thick and ponderous, often attaining a very large size), and particularly by the hinge, in which the teeth are less numerous, thicker, more separated, and placed in an arched or curved position round a part of the inner margin. The valves never gape, nor does the animal attach itself by a byssus.— The apices are small and distant, divided by an angular channel, in which the ligament is inserted. The valves have often rayed longitudinal ribs, covered with a velvet-like epidermis, and the interior margin crenulated. The centre teeth of the hinge appear nearly obsolete or worn down.

Longitudinal distant furrows, and often in addition fine striæ, either transverse or longitudinal.

Pectunculus glycimeris	Pectunculus angulatus
..... pilosus	..... stellatus
..... undulatus	..... pallens
..... marmoratus	..... violacescens
..... scriptus	..... zonalis
..... pennaceus	..... striatularis
..... rubens	..... nummarius

Longitudinal, projecting, radiating ribs, with or without transverse striæ.

Pectunculus castaneus Pectunculus pectinatus
 pectiniformis radians

Pectunculus vitreus.

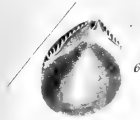
[There are also nine fossil species.]



NUCULA.

ARCA PELLA.—Linn.

Chem. 7, tab. 53, fig. 550, 551.



THIS genus appears to form an evident transition to the *G. Trigonina*, and is the last division LaMarck has made of the genus *Arca* of Linnæus; from which, and the two other divisions, it differs, particularly in consequence of the ligament being partially inserted internally, without the angular groove on the exterior of the valves. Shell small, subtriangular, ovate, striated transversely, somewhat beaked at the anterior end: apices contiguous, and curved backward; ligament marginal, partly internal, no angular channel. Hinge linear, many teeth, with an oblique projecting spoon-shaped cavity in the centre of it, to which the ligament is attached.

The valves are more or less pearly within, as are also those of the *Trigonieæ*, and evidently indicate an alliance with the *Naiades*. LaMarck has not thought it necessary to make a separate genus of those which have the margins entire.

<i>Nucula lanceolata</i>	<i>Nucula Nicobarica</i>
..... <i>rostrata</i>	..... <i>obliqua</i>
..... <i>pella</i>	..... <i>margaritacea</i> .

[Four fossil species.]



TRIGONIA.

Ann. du Mus. 4, p. 355, pl. 67, f. 2.

THE only recent example of this shell known to LaMarck is the *Trigonion margaritacea*, a shell brought from King's Island, New Holland, by Peron. The generic description of this shell allies it in some degree to the *Cardia* and *Cardita*, but more particularly connects it with the *G. Castalia*. From the locality of the fossil species it is supposed to inhabit the sea in very deep places. Shell equivalve, inequilateral, subtriangular, sometimes suborbicular; cardinal teeth oblong, flattened at the sides, divergent, and grooved transversely; of which two on the right valve are grooved

on both sides, and in the other, four are grooved only on one side; ligament exterior and marginal.

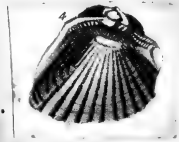
ANOTHER recent species of this very rare shell exists in the late Earl Tankerville's splendid cabinet.

Trigonia pectinata.

[There are fifteen fossil species.]

CASTALIA.

In the cabinet of the Marquis de Drée.



LAMARCK having seen only one species of this singular fresh water shell, has given it as the type of his genus *Castalia*; it greatly resembles the *G. Trigonia*, but the lamellar teeth are different in number and position, and more like those of the *G. Unio*; it cannot however properly be classed with either, as it occupies an intermediate station between the two. Shell equivalve, inequilateral, subtriangular, apices eroded, and curved towards the posterior side; hinge with two lamellar teeth, transversely striated, one of them posterior, distant, shortened, and subtrilamellar; the other anterior, lengthened and lateral: ligament exterior. The substance is nacreous: valves with longitudinal flat ribs,

transversely striated, but not extending to the upper margin, and covered with a brown epidermis.

THIS shell appears to inhabit fresh waters, and indicates that the Trigoneæ form a transition from the Arcaceæ to the Naiades.

Castalia ambigua.



UNIO.

MYA MARGARITIFERA.—*Linn.*

Wood's Conchology, plate 23, fig. 1, 2, 3.

LINNÆUS included this genus in the *G. Mya*, which consists entirely of marine shells, while the true Unions are fresh water shells, and quite distinct from them in their form, hinge, and position of the ligament. The external appearance of the *Unio* greatly resembles the *G. Anodon*, and is nearly allied to it in many other respects, but it attains a much greater solidity, and the formation of the hinge is most clearly different, having a short cardinal tooth on each valve, generally single on the left side, and divided on the right into two lobes, with a lengthened lateral tooth, compressed, canaliculated, extending along, and occupying

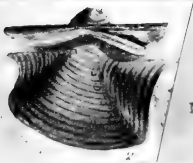
a considerable space beneath the margin, on the inferior side; the two teeth interlock when the valves are closed. The substance of these shells is nacreous, and their exterior covered with a brown or green epidermis, the apices eroded or carious. They inhabit the mud of rivers, placed with their apices downwards; some species have their valves slightly gaping; and some produce fine pearls.

Cardinal Tooth short, not lamellar or substriated.

Unio sinuata	Unio carinifera
.... elongata	.... Georgina
.... crassidens	.... clava
.... Peruviana	.... recta
.... rariplicata	.... naviformis
.... purpurata	.... glabrata
.... ligamentina	.... nasuta
.... obliqua	.... ovata
.... retusa	.... rotundata
.... rarisulcata	.... littoralis
.... coarctata	.... semirugata
.... purpurascens	.... nana
.... radiata	.... alata
.... brevis	.... deladonta
.... rhombula	.... sulcidens.

Cardinal Tooth compressed, elevated, and often lamellar.

Unio rostrata	Unio luteola
..... pictorum	..... marginalis
..... Batava	..... angusta
..... corrugata	..... manca
..... nodulosa	..... cariosa
..... varicosa	..... spuria
..... granosa	..... australis
..... depressa	..... anodontina
..... Virginianum	..... suborbiculata.



HYRIA.

MYA SYRMATOPHORA.—*Gmelin.*

Swainson's Exotic Conchology.

THE genus *Hyria* is very distinct from the preceding genus, not only in general form, but in the shape of the cardinal tooth, particularly that of the right valve. They much resemble the *Aviculæ* in shape, and probably inhabit lakes, rather than rivers. The cardinal, or posterior tooth, is divided into many lamellar plaits or pieces, the centre ones very small, and presenting the appearance of an assemblage of divergent, and very unequal sized

flakes: this compound tooth is not erect, but slopes in an inclined position towards the posterior side. The substance of the shell is solid, and beautifully pearly. Shell equivalve, obliquely triangular, auriculated, base truncated and straight: hinge with two projecting teeth, the one posterior or cardinal, divided into numerous divergent parts, the anterior ones smaller, and the others, anterior or lateral, being very long and lamellar; ligament linear and external. This genus, with that of Dr. Leach's *Dipsas*, form the transitions to the genus *Anodon*.

Hyria avicularis

Hyria corrugata

ANODONTA.

MYTILUS CYGNEUS.—*Linn.*

Swainson's Exotic Conchology.



THE genus *Anodon*, as it properly should be called, has been separated from the *G. Mytilus* of Linnæus: it consists of fresh water shells, so nearly allied to the *G. Unio* that they cannot easily be distinguished from them without a careful examination of the hinge, which in this genus wants the cardinal and lateral teeth, and merely presents a smooth internal rim round the edge, terminated at the anterior end by a sinus or

notch, in which the anterior extremity of the ligament is sunk or attached; their apices, like those of the Unio, are eroded. The substance of the shell is pearly, and covered with a false epidermis; the valves are generally very thin, concave, and attain occasionally a great size. Shell equivalve, transverse, inequilateral, two distinct muscular impressions; ligament external, insinuated at the anterior extremity into the sinus of the cardinal ridge.

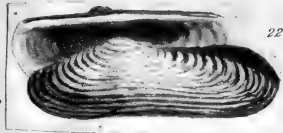
It inhabits ponds and lakes, and the animal is supposed to be viviparous.

No distinct angle at the posterior extremity of the cardinal line

Anodon cygnea	Anodon rubens
....., anatina	..... crispata
..... sulcata	..... uniopsis
..... fragilis	..... Pennsylvanica
..... cataracta	..... intermedia

With a distinct angle at the posterior extremity of the cardinal line.

Anodon trapezialis	Anodon glauca
..... exotica	..... sinuosa
Anodon Patagonica	



IRIDINA.

Sowerby's Genera, No. 7, pl. 3.

THE *G. Iridina* so closely resembles the *G. Anodon*, that it has only been separated from it in consequence of the hinge being attenuated near the middle, and having small tuberculated knobs irregularly distributed along its whole length, without any other appearance of articulation. The substance of the shell is rather thick and always more solid than the *Anodon*; it has a brilliant rose-colored pearly hue, the interior more particularly iridescent; it inhabits the rivers of warm countries. Shell equivalve, inequilateral, transverse, with small apices, recurved but nearly erect; muscular impressions, similar to those of the *Anodon*: hinge linear, attenuated near the middle, and its whole length, appearing as if notched by frequent unequal tuberculations; ligament external and marginal.

AN example of this very rare shell, which Sowerby has figured and named *Iridina elongata*, is in the Provost of Eton's collection, and another in the late Earl of Tankerville's cabinet.

Iridina exotica.



DICERAS.

A FOSSIL genus nearly approximating the genus *Chama* from which it differs by being regular, equivalve, never attached by the lower valve, and the distinct character of the hinge. Only one species known to LaMarck.



CHAMA.

CHAMA LAZARUS.—*Linn.*

Sowerby's Genera, No. 7, pl. 1, fig. 3.

LaMARCK has separated these shells from the *G. Chama* of Linnæus, and associated in this genus such of them *only* as possess a thick oblique transverse tooth, resembling a lengthened callosity, in general crenulated or grooved, fitting into a corresponding cavity in the lower valve: the shell is inequivalve, irregular, heavy, rough, scaly or spinous; having the faculty of affixing itself to other bodies, or to each other, by means of its lower valve. Apices unequal and recurved: hinge, one thick oblique tooth, subcrenated, articulating into a cavity of the opposite valve; two distant lateral muscular impressions; ligament external and inserted. The characters of these shells in some respects ally them to the *G. Dicerias*, and in others to the *G. Etheria*.

Umboes turning from the left to the right.

Chama lazarus	Chama florida
..... damæcornis	..... limbula
..... gryphoides	..... æruginosa
..... crenulata	..... asperella
..... unicornis	..... decussata.

Umboes turning from the right to the left.

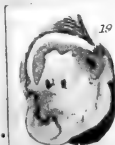
Chama arcinella	Chama albida
..... radians	..... ruderalis
..... cristella	..... croceata

Chama Japonica

[There are also eight fossil species.]

ETHERIA.

Sowerby's Genera, No. 1, pl. 1.



THIS shell has never before been described by any author on Conchology, and probably has escaped the naturalist's researches, from its inhabiting the sea at a great depth, where it is attached to the rocks by the lower valve. In consequence of the irregularity of the shape, its general appearance is that of an oyster; it how-

ever is more nearly allied to the *G. Chama*, possessing, like the species of that genus, two separate lateral muscular impressions, with the faculty of affixing itself by the lower valve, and in fact has only been separated from it by not having any tooth at the hinge, and by the substance of the shells, having a pearly appearance, and being lamellar, as in the oyster. They are of considerable size, and of an extremely irregular form, occasioned by the lower valve adapting itself to the shape of the body to which it is affixed. The interior of the valves is covered with very singular hollow globular, irregularly formed concretions, beneath the pearly coating, which may probably be only accidental. It has also a subcylindrical callosity attached to the base of the shell, which does not exist in the second species described by Lamarck. Shell irregular, inequivalve, adhering by the lower valve: apices short, and appearing as it were forced into the base of the valves. Hinge without teeth, waved, subsinuous, unequal; two lateral and oblong muscular impressions: ligament external, winding, and partly penetrating the shell.

SPECIMENS of this very rare shell exist in the Provoost of Eton's cabinet, and in that of the late Earl Tankerville.

Shells with an oblong callosity on the base of the valve.

Etheria elliptica Etheria trigonula

Shells without an incrusted callosity at their base.

Etheria semilunata Etheria transversa.

TRIDACNA.

CHAMA GIGAS.—Linn.



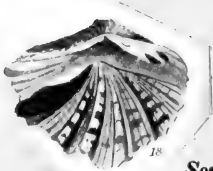
Mawe's Linnæus, pl. 12, fig. 1.

THE Tridacnæ were confounded by Linnæus with the genus Chama, which are irregularly formed shells, with one tooth only, and always attached to other substances by the lower valve, from which these are most distinct, being equivalve, the hinge with two teeth, and the animal affixed to other bodies by a mass of filiform tendons: other distinctive characters equally observable, are, that the valves possess longitudinal ribs, armed with broad vaulted scales at equal distances, more or less elevated, the outward edges waved and interlocking with each other; its posterior slope always gapes, and is generally crenated, through the aperture of which passes a bundle of tendinous fibres, by which the animal

affixes itself to rocks, and remains suspended, notwithstanding the magnitude and weight these shells sometimes attain, having been found weighing five hundred pounds, and measuring several feet in length, a size unequalled by any other testaceous body. The animal is said to produce very fine pearls, but there is no nacreous appearance on the valves. Shell regular, equi-valve, inequilateral, transverse, posterior slope heart-shaped and widely gaping: hinge with two teeth, compressed, unequal, and inserted; valves with broad rounded longitudinal ribs, armed with scales more or less vaulted; ligament exterior, and placed on the longest side.

Tridacna gigas	Tridacna crocea
..... elongata	..... mutica
..... squamosa	..... serrifera

[And one fossil species.]



HIPPOPUS.

CHAMA HIPPOPUS.—Linn.

Sowerby's Genera, No. 13, pl. 1. fig. 1.

LAMARCK has distinguished this from the preceding genus, (which it nearly approximates), from the cir-

cumstance of its having the posterior slope closed, or nearly so, and the inner margins dentated at that part, and *occasionally* interlocking with the opposite valve; from which it may be inferred, that the animal inhabiting this shell does not suspend itself by a tendinous byssus: nor does it ever attain so large a size as the *Tridacna*, seldom exceeding eight or nine inches in length. The ribs are armed with small tubular spines, or imbrications, never resembling arched or vaulted scales. Only one species is known. Shell equivalve, regular, the posterior side heart-shaped and closed, or nearly so, with dentated edges: hinge having two teeth, compressed, unequal, anterior, and inserted; ligament external and marginal.

It appears doubtful whether this species attaches itself by a tendinous byssus or not, although LaMarck seems to consider it impossible. Many genera of shells, known to spin a byssus, present no greater passage for it than the *Hippopus maculatus*, which in almost all the examples the writer has examined is by no means entirely closed at its posterior slope.

Hippopus maculatus.



MODIOLA.

MYTILUS MODIOLUS.—*Linnæus*.*Mawe's Linn. pl. 16, fig. 1.*

LINNÆUS and other writers have blended this genus with that of the *G. Mytilus*. Lamarck has however pointed out sufficiently strong characteristic distinctions to authorize their being formed into a separate genus. The shape of the shell is more transverse than longitudinal; the umbones not being absolutely terminal, it is rarely attached by a byssus to other substances, though it has the faculty of spinning one, in common with the *G. Mytilus*, like which also, the valves slightly gape; the cardinal ligament is almost wholly interior, and occupies a marginal canal. Shell subtransverse, equivalve, regular, the posterior side very short; apices almost lateral, and inclined to the shortest side: hinge lateral and linear, without teeth; cardinal ligament almost entirely internal, affixed to a marginal gutter; a muscular impression, sublateral, lengthened, and hatchet-shaped.

Modiola papuana

..... tulipa

..... albicosta

Modiola Guyanensis

..... Adriatica

..... pulex

Modiola vagina	Modiola discrepans
..... picta	..... discors
..... sulcata	..... trapezina
..... plicatula	..... cinnamo mea
..... semifusca	..... silicula
..... securis	..... plicata
..... purpurata	..... semen
..... barbata	..... lithophaga

Modiola caudigera.

[There are also five fossil species.]

MYTILUS.

MYTILUS EXUSTUS.—Linn.

Mawe's *Linnaeus*, plate 16, fig. 2.



THE genus *Mytilus* now consists of such examples of the Linnæan *Mytili*, as are regular, equivalve, and longitudinal shells; of a solid and not lamellar substance, (as in the Oyster); with pointed apices at the inferior end, nearly straight or slightly curved; and attached to other substances by a byssus of a short thick texture; the cardinal ligament lateral, and a considerable portion of it internal, by which, as well as the different position of the apices, it is easily distinguished from

the preceding genus. Shell with one lengthened, sub-lateral, club-shaped muscular impression: hinge lateral, and most generally indented. Lamarck mentions, that, towards the end of autumn, small crabs (Pinnothères) seek shelter from danger within these shells, without injuring or molesting the animal.

Shells longitudinally grooved.

Mytilus Magellanicus	Mytilus exustus
..... erosus	..... bilocularis
..... crenatus	..... ovalis
..... decussatus	..... ustulatus
..... hirsutus	..... Domingensis

Mytilus Senegalensis.

Shells without longitudinal grooves.

Mytilus elongatus	Mytilus afer
..... latus	..... achatinus
..... zonarius	..... unguaris
..... canalis	..... planulatus
..... ungulatus	..... borealis
..... violaceus	..... angustanus
..... opalus	..... corneus
..... smaragdinus	..... Galloprovincialis
..... perna	..... edulis

Mytilus abbreviatus	Mytilus incurvatus
..... retusus	..... lineatus
..... Hesperianus	..... lacunatus

[And two fossil species.]

PINNA.

PINNA RUDIS.—*Linn.*

Mawe's Linnæus, plate 17.



THIS genus has not undergone any division or alteration by Lamarck. The shells of it are marine, sometimes attaining upwards of two feet in length, fragile, of a longitudinal form, narrowed to a point at the base, in the figure of an acute angled triangle, the upper end open and truncated or rounded; valves convex, armed with tubular spines, vaulted scales, imbrications, or striæ; some with an angle longitudinally placed at the sides; in other species, the valves are rather rounded at the upper end, and in the shape of an expanded fan: the ligament of the hinge is marginal, external, and so extremely narrow and confined, that the valves are capable only of a very limited expansion, and appear as it were soldered together. The

substance of the shell is solid, but thin, foliaceous, and in many species almost transparent. The animal suspends itself to rocks or other substances by an abundant byssus of a fine silky texture, with which various articles of dress have been fabricated. Shell subequi-valve, flattened, no particular opening for the byssus: hinge lateral, linear, and marginal.

A most singular and elegant species of *Pinna* exists in the late Earl Tankerville's cabinet, having each valve on the hinge side strongly serrated longitudinally, and in many other peculiarities differing from any species hitherto described.

<i>Pinna rudis</i>	<i>Pinna muricata</i>
..... <i>flabellum</i>	..... <i>pectinata</i>
..... <i>seminuda</i>	..... <i>saccata</i>
..... <i>angustina</i>	..... <i>varicosa</i>
..... <i>nobilis</i>	..... <i>dolabrata</i>
..... <i>squamosa</i>	..... <i>ingens</i>
..... <i>marginata</i>	..... <i>vexillum</i>

Pinna nigrina.

[And one fossil species.]

CRENATULA.

OSTREA PICTA.—*Gmelin.**Sowerby's Genera, No. 8, plate 4.*

THE *Crenatulæ* constitute a very remarkable genus, somewhat resembling the *G. Mytilus*, but by the great similarity of the hinge approaching nearer to the *G. Perna*: there is however this peculiar distinction, that in the *Crenatula* the hinge is composed of slightly concave callous crenulations, which *receive* the ligament, while in the *Perna* it consists of parallel truncated linear teeth, (or rather rib-like joints), corresponding and opposed to the opposite ones, the ligament being inserted *only* in their interstices. Shells of this genus are thin and extremely delicate; of a foliated texture, resembling the *Placunæ*, *Aviculæ*, &c. more or less irregularly formed; valves flattened, foliaceous, no distinct opening for the byssus: hinge linear, marginal, with concave callous crenulations, in which the ligament is inserted.

<i>Crenatula avicularis</i>	<i>Crenulata bicostalis</i>
..... <i>modiolaris</i>	..... <i>viridis</i>
..... <i>nigrina</i>	..... <i>mytiloides</i>
<i>Crenatula phasianoptera.</i>	



PERNA.

OSTREA EHIPPIUM.—*Linn.**Sowerby's Genera, No. 8, plate 5,*

It appears extraordinary that Linnæus should have classed these shells with the *G. Ostrea*, as the hinge is so peculiar to themselves, and the byssus by which the animal affixes itself, renders their separation natural and expedient. The *G. Perna* nearly resembles the *G. Crenatula*, though very distinctly and in many respects differently characterized: the shells are sub-equivalve, flat, somewhat misshapen, of a lamellar structure, the margins frequently thin and foliaceous; a linear marginal hinge composed of sulcated transverse parallel teeth, or joints, not alternating with the opposite ones, but opposed to them, in the interstices of which the ligament is insinuated; the posterior sinus a little gaping, and placed beneath the extremity of the hinge, through which the byssus passes; apices small, almost equal, and situated at one extremity of the hinge: the substance of the shell although solid, is formed of flaky portions, not adhering closely to each other, and giving it a foliaceous appearance.

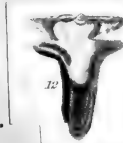
Perna ehippium	Perna canina
..... obliqua	..... marsupiom
..... isognomon	..... sulcata
..... avicularis	..... vulsella
..... femoralis	..... nucleus.

[And two fossil species.]

MALLEUS.

OSTREA MALLEUS.—*Linnaeus.*

Sowerby's Genera, No. 6, plate 2.



THE genus *Malleus* of Lamarck, like the preceding, was by Linnæus included in the *G. Ostrea*, it in some respects approximates the *Perna*, but the hinge is very different, and more nearly resembles that of the *Avicula*, though it cannot be mistaken for it, both being without the sulcated teeth or joints at the hinge; but the conical cavity, situated under the apices of the *Malleus*, and crossing the angle of the ligamental slope, decidedly distinguishes it from the *Avicula*; the valves also, though irregular, are of the same size, without any notch or sinus on either side, which is not the case in the *G. Avicula*. The singular long pickaxe shape of the base of these shells is very remarkable; they possess no elegance

of structure or beauty, being rough and irregularly formed, the substance lamellar and foliaceous; they are attached by a byssus passing through an opening at the posterior side of the apices, and at the base of the shell is an open channel formed by the partitions of the valves; the ligament is nearly external, inserted between the slope of the hinge; the principal cavity of the interior surface is somewhat pearly. Shell linear, oblong, valves flexuous, distorted, and with long transverse lobes on either side of the apices. The white variety is the most rare and valuable; the common sort *M. vulgaris* is black.

Malleus albus	Malleus vulsellatus
..... vulgaris	..... anatinus
..... normalis	..... decurtatus.



AVICULA.

MYTILUS HIRUNDO.—*Linn.*

Sowerby's Genera, No. 14, plate 3.

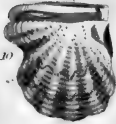
LAMARCK has separated this from the *G. Mytilus* of **Linnæus**. The form of the shell is scarcely less remarkable than that of the *Malleus*, although of quite a distinct character. The principal part of the shell con-

taining the body of the animal, is obliquely attached to a long, straight, transverse base, and resembles a bird's wing; the two extremities of the base (which are frequently elongated and of unequal length), may be compared to the tail; so that the shell when but partially expanded, presents the appearance of a bird flying, from which fanciful resemblance Lamarck has derived the name of this genus. Shell inequivalve, with a sinus or singular notch in the left valve, through which the byssus passes: hinge linear, with one primary tooth on each valve, beneath the apices, which are oblique, small, and not projecting. The shell is generally thin and very fragile, the interior part pearly in the centre, with a broad black border surrounding it, and the margin terminated in a fringe occasioned by the epidermis or foliaceous texture of the exterior.—Sowerby has united this genus with the following.

Avicula macroptera	Avicula Tarentina
..... lotorium	..... Atlantica
..... semi-sagitta	..... squamulosa
..... heteroptera	..... papilionacea
..... falcata	..... costellata
..... crocea	..... physoides

Avicula virens.

[There are also two fossil species.]



MELEAGRINA.

MYTILUS MARGARITIFERUS.—*Linn.**Sowerby's Genera, No. 14, pl. 4.*

A VERY great affinity exists between this genus and the preceding, from which, however, it is distinguished by being equivalve, always without the elongated transverse base, or the cardinal tooth, and by the form of the shell, which is orbicular, and frequently eight inches in diameter: in addition to these distinctions, the sloping sides of the opening, admitting the passage of the byssus, is perceptible on both valves, which is never the case with the *G. Avicula*, where a notch answers the same purpose: the exterior of the valves is less smooth, and generally covered with scales. Hinge linear and without teeth, their substance solid, very thick, and of a brilliant pearly appearance, from which many elegant trinkets are made: and the extravasation of the liquor destined to the periodical augmentation of the shell, produces those isolated deposits of nacreous matter called pearls, the finest of which are found in the *Meleagrina margaritifera*, the type of this genus, commonly called the mother-of-pearl oyster. Sowerby has united it with the *Avicula*; and mentions the existence of some fossil species in the London clay, and strata identical with it.

Meleagrina margaritifera *Meleagrina albina*.

PEDUM.

OSTREA SPONDYLOIDEA.—*Gmelin.**Sowerby's Genera, No. 2, pl. 1.*

THE *G. Pedum*, from the singularly sloping notch in the lower valve, for the passage of the byssus, evidently is allied to the *G. Avicula*, and *G. Meleagrina*; it also indicates the approach of the *G. Plagiostoma* and *G. Lima*, though very distinct from either. The shell is of a regular form, its lower valve, in which is a sinus for the byssus, is turned up at the margins, being thickened and angular, and somewhat resembles a fire shovel in shape; the upper valve, the edge of which is smooth and sharp, without any angle, falls within the lower. Hinge without teeth, and the ligament connecting it partly exterior, as in the *Spondylus*. The French trivial name for this shell is *La Houlette*, from its resemblance to their shepherd's crook or hoe. Shell inequivalve, a little eared, inferior valve gaping, apices distant and unequal; hinge without teeth; ligament partly external, placed in a lengthened deep narrow groove, cut in the internal division of the summits, the lower valve sloped near its posterior base. Upper valve with

fine radiating striæ, covered with minute granulations, and a false epidermis.

LAMARCK considers the sinus in the lower valve to be formed for the passage of a byssus, but from the very singular cavity on the exterior of the valve, it would rather indicate that it is the receptacle of a tendinous ligament.

Pedum spondyloideum.



LIMA.

OSTREA LIMA.

Chem. 7, tab. 68, fig. 651.

IN this genus the sinus or notch has altogether disappeared, and the valves, being thickened and gaping, form a lateral opening. The ears at the base of the shell are small, but distinctly visible; on which account this genus is placed next in succession to the *G. Pedum*, and is allied to the *G. Plagiostoma* and *G. Pecten*; with which latter genus many authors have confounded it. Shell thin, of a very delicate, white, semi-pellucid, solid substance; the valves of nearly all the species flattened, some more ventricose than others,

with longitudinal ribs, armed with vaulted scales, imbrications like a rasp, or with striæ; the margins crenulated, and closely interlocking when the valves are closed: hinge without teeth, and the cardinal cavity receiving the ligament.

Lima inflata Lima annulata
 squamosa fragilis
 glacialis linguatula.

[Five fossil species]

PLAGIOSTOMA.

Sowerby's Conchology, No. 14, pl. 77.



No recent example of this genus has yet been discovered. Lamarck apparently has assigned it this station, to connect together, as an intermediate link, the genera Lima, Pecten, Spondylus, and Podopsis. Shell sub-equivalve, free, subauriculated, cardinal base straight and transverse. Apices a little distant, the external edges of the hinge angular, straight on one side, oblique on the other: hinge without teeth, a cardinal cavity beneath the apices, partly internal, opening outwards, and receiving the ligament.

[Ten fossil species.]



PECTEN.

OSTREA MAXIMA.—*Linn.**Mawe's Linnæus, plate 14, fig. 1, 2, 4, 6.*

In this genus the apices are approximated and nearly contiguous, without any angular separation between them, and the cavity for the ligament is altogether internal. The shells of this family are extremely numerous, very beautiful, and so well known to every collector, that a minute description of them is not here requisite. The valves are regular, in general flattened, but often not equivalve, one being frequently more convex than the other, with longitudinal radiating ribs from the apex to the margin; flat, smooth, or armed with vaulted spines, imbrications, or striæ, of every possible form; the marginal edges entire, smooth, or crenulated, generally interlocking in each valve: they are auriculated, and the posterior side with the largest ear, beneath which the sinus is placed: substance solid and thin. Lamarck does not mention that in some species the flat upper valve drops into the lower to a considerable depth; nor the very dissimilar form of the *P. Pleuronectes* and its congeners, in which the valves never close, and, though ribbed within, are smooth on the exterior surface.

Shells with the ears equal, or nearly so.

Pecten maximus	Pecten rastellum
..... medius	..... turgidus
..... Jacobæus	..... flagellatus
..... bifrons	..... aspersus
..... ziczac	..... flavidulus
..... Laurentii	..... plica
..... pleuronectes	..... glaber
..... obliteratus	..... sulcatus
..... Japonicus	..... virgo
..... Magellanicus	..... unicolor
..... purpuratus	..... griseus
..... lineolaris	..... distans
..... radula	..... isabella

Shells with the ears unequal.

Pecten nodosus	Pecten lineatus
..... pallium	..... flabellatus
..... pesfelis	..... irradians
..... tigris	..... flexuosus
..... imbricatus	..... inflexus
..... histrionicus	..... dispar
..... sauciatus	..... quadriradiatus
..... opercularis	..... Islandicus

Pecten asperimus	Pecten pellucidus
..... senatorius	..... Tranquebaricus
..... aurantius	..... gibbus
..... florens	..... miniaceus
..... varius	..... pusio
..... sanguineus	..... hybridus
..... sinuosus	..... sulphureus
..... ornatus	..... lividus

Pecten hexactes.

[And twenty-seven fossil species.]



PLICATULA.

SPONDYLUS PLICATUS.—*Linnæus.*

Sowerby's Genera, No. 3, pl. 4.

THE G. Plicatula has been separated from the G. Spondylus of Linnæus, which it somewhat resembles in general appearance, but on examination proves to be quite distinct in its structure. The ligament is altogether internal, as in the Pecten; it has the primary teeth of the Spondylus, but without the ears or the prolonged beak, which are very conspicuous in that genus. The Plicatulae also possess the faculty of affixing themselves to one another, or various marine bodies, grouped together

in clusters. The valves are both of them strongly plaited within and without, closely interlocking with each other. Shell inequivalve, not eared, narrowed towards the base, superior margin round, plaited, or strongly ribbed, summits unequal, and without external facets. Hinge with two strong teeth in each valve; a cavity between the primary teeth, in which the ligament is internally inserted.

Plicatula ramosa *Plicatula cristata*
 *depressa* *reniformis*
 Plicatula australis.

[There are also six fossil species.]

SPONDYLUS.

SPONDYLUS GÆDAROPUS.—*Linn.*

Mawe's Linnæus, pl. 2, f. 1, 4.

Sowerby's Genera, No. 9, plate 1, 2.



THIS numerous and beautiful family, out of which Lamarck has only constituted one new genus, the *G. Plicatula*, (*Spondylus plicatus* of Linnæus,) has long required a distinctive arrangement of the species, all of which, with the exception of the *Spondylus regius*, were called by Linnæus, *S. Gædaropus*. Lamarck describes twen-

ty-one species, all of which possess some precisely defined difference of character, though many of them are but very slightly indicated. The *S. regius* is considered a very rare species, and has been ably described and figured in Sowerby's *Genera of Shells*. The shells of this genus are inequivalve, adhesive, attaching themselves to each other, or to stones, corals, and other marine bodies; summits unequal, the lower valve exhibiting a more or less long, flat, internal slope, divided by a groove, in which a portion of the ligament is inserted, becoming enlarged by age: valves eared, and their exterior ribbed, and armed with long recurved, or nearly straight spines, terminated in a point, or palmated. On the lower valve, which is always the largest, there are broad foliaceous laminæ, by which the shell is affixed to other substances; apices unequal, distant, and recurved inwards; margin of the valves smooth or crenulated, and closely shutting. Hinge with two strong hooked teeth on each valve articulating together, an intermediate cavity for the ligament, communicating at the base with the external groove in the summit of the lower valve, ligament interior, and a portion of it seen externally in the lower channel. They possess no locomotive power.

LAMARCK observes that the different length of the beak at the summit of the lower valve is accounted for, by the animal possessing the faculty of displacing the upper valve as it requires increase of room, and bringing it more forward towards the margin, similar to the plan he states to be adopted by the *Ostreæ*, and only observable in these two genera.

It however appears, from the very singular position of the two teeth on the valves of this shell, that they are so securely interlocked with each other, as to require considerable force to separate the valves, and which cannot be effected without breaking a portion of that part of the lower cavities, into which the teeth of the upper valve are inserted. Lamarck's assertion, therefore, that the animal of this genus, as well as that of *G. Ostrea*, possesses the power of removing the upper valve as its growth increases, is pointed out by Sowerby as quite impossible and hypothetical in either genus.

Spondylus gædaropus	Spondylus costatus
..... Americanus	..... variegatus
..... arachnoides	..... longispina
..... candidus	..... regius
..... multilamellatus	..... avicularis

Spondylus coccineus	Spondylus microlepos
..... crassisquama	..... croceus
..... spathuliferus	..... aurantius
..... ducalis	..... radians
..... longitudinalis	..... zonalis

Spondylus violacescens.

[There are also four fossil species.]

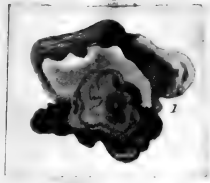
PODOPSIS.

Encycl. Method. plate 188, fig. 6, 7.

THE G. Podopsis is only known in a fossil state; it nearly approximates the Gryphæa, from which it is only distinguished by the summit of the lower valve not being recurved, though much advanced beyond the upper valve, either above or at the side. These shells are also allied to the Pectinides, by the regularity of their shape, their longitudinal striæ, and their substance not being foliaceous. Shell inequivalve, subregular, attached by the summit of the lower valve, without ears, lower valve larger and more convex than the upper, with the beak advanced above or on one side.

[Two fossil species.]

GRYPHÆA.



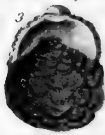
Sowerby's Genera, No. 6, pl. 5.

THIS genus, called by Lamarck Gryphæa, has hitherto been considered by other authors an Ostrea, to which in fact it bears a great resemblance; but the peculiar character of the lower valve, which is very deep and carinated, its summit terminated in a long spirally recurved beak, slightly turned to one side, the edge sharp and angular, and the circumstance of its never being attached to other bodies, or, if it is, only at one small point, clearly distinguishes it from that genus. Shell inequivalve, the lower valve large, concave, carinated, terminating in a spirally recurved beak; upper valve small and flat, fitting into the lower one at a small depth from the marginal edge. Hinge without teeth, a cardinal cavity arched and oblong, one muscular impression only on each valve. Recent specimens are rare, and only one species is at present known. In a fossil state there are many described, and their localities seem to indicate that this shell inhabits the sea at a great depth. Sowerby has reunited this genus to that of the Ostrea, pointing out strong grounds of

objection to Lamarck's separation of it. See No. 6, of his Genera of Shells.

Gryphæa angulata

[And eleven fossil species.]



OSTREA.

OSTREA EDULIS.—COMMON OYSTER.

Sowerby's Genera, No. 6, pl. 8.

THE genus *Ostrea*, as it now stands, is a very natural and well-defined association of shells. Bruguiere was the first to divide the *G. Ostrea* of Linnæus into several new genera, to which Lamarck has added others, as will be seen by an attentive comparison of the illustrative examples given to each genus in this arrangement; of which *Pedum*, *Pecten*, *Gryphæa*, and *Vulsella*, were all considered *Ostreæ* by Linnæus. And notwithstanding the numerous divisions now made, Lamarck observes, that those which have the valves plain and united, and those which have them plaited or angular, might still be made into two sections; but the irregularity of these shells renders the determination of their species often very difficult. Shell adhesive, inequivalve, irregular, summits distant, becoming

by age of a great substance, and very unequal; the superior valve of some species shifting its place as the animal requires more room, and producing a long beak on the lower valve, similar to that of the Spondylus. Hinge without teeth, ligament half internal, substance of the shell lamellar, presenting a scaly or foliaceous appearance on the exterior; apices distant, the lower one never recurved above the upper, as in the Gryphæa, and Spondyli; interior of the valves pearly, and some species produce small pearls, but of little value or beauty.

THE Ostrea appear to have the faculty of removing from one spot to another under particular circumstances. They however almost always remain fixed and immovable in one spot, and exhibit no other signs of life than that of opening their valves to receive the nutriment afforded them by the sea.

THE singular faculty possessed by this genus, as well as by that of the Spondylus, of displacing the upper valve as the shell increases in size, is exclusively peculiar to these two genera.

NOTWITHSTANDING the teeth of the hinge in the

shells of this genus are less prominent, and differently constructed from those of the *G. Spondylus*, the impossibility of the animal having the power to remove the upper valve as the shell increases in size, is equally manifest. See Sowerby's judicious observations on this genus, No. 6, of his *Genera of Shells*.

Margin of the valves plain or waved, but not plaited.

<i>Ostrea edulis</i>	<i>Ostrea ruscuriana</i>
..... <i>hippopus</i>	..... <i>Virginica</i>
..... <i>borealis</i>	..... <i>Canadensis</i>
..... <i>Adriatica</i>	..... <i>excavata</i>
..... <i>cochlear</i>	..... <i>mytiloides</i>
..... <i>cristata</i>	..... <i>sinuata</i>
..... <i>gallina</i>	..... <i>trapezina</i>
..... <i>numisma</i>	..... <i>tuberculata</i>
..... <i>lingua</i>	..... <i>rufa</i>
..... <i>tulipa</i>	..... <i>margaritacea</i>
..... <i>Brasiliana</i>	..... <i>gibbosa</i>
..... <i>scabra</i>	..... <i>australis</i>
..... <i>rostralis</i>	..... <i>elliptica</i>
..... <i>parasitica</i>	..... <i>haliotidæa</i>
..... <i>denticulata</i>	..... <i>deformis</i>
..... <i>spathulata</i>	..... <i>fucorum</i>

Margin of the valves distinctly plaited.

Ostrea cornucopiæ	Ostrea plicatula
..... cucullata	..... glaucina
..... doridella	..... fusca
..... rubella	..... turbinata
..... limacella	..... cristagalli
..... erucella	..... imbricata
..... folium	..... hyotis
..... labrella	..... radiata

[And thirty-three fossil species.]

VULSELLA.

MYA VULSELLA.—*Linn.*

Sowerby's Genera, No. 9, plate 5.



THE *G. Vulsella* approximates the *G. Ostrea*, though the leading characters are very distinct from it; their valves are always nearly of an equal size; the apices equal, though somewhat separated; and beneath them on each valve, a projecting callosity, depressed underneath, having the impression of a conical cavity, obliquely arched for the reception of the ligament. Hinge without teeth. These shells are free, longitudinal, sub-

quivalve, occasionally gaping a little at the posterior side; never attached to other bodies by the lower valve, though often found enveloped in sponge or marine fuci. The interior of the valves is pearly, and their substance solid, and sometimes semitransparent.

LAMARCK does not mention that the exterior of the valves, particularly the upper one, is armed with finely granulated or striated longitudinal rays, extending from the apex to the margin, and with one lengthened muscular impression within each valve.

Vulsella lingulata	Vulsella spongiarum
..... hians	..... mytilina
..... rugosa	..... ovata

[And one fossil species.]



PLACUNA.

ANOMIA SELLA.—*Linn.*

Mawe's Linn. pl. 15, fig. 1.

THE very peculiar form of the hinge in the shells of this genus, which on one valve is that of the letter V, the lower parts not quite joined together, with corresponding cavities on the other valve to admit them, and

their being very flat, of a thin, transparent, and foliaceous texture, with the edges generally fringed, constitute the remarkable characters of this singular shell. It is sometimes orbicular, and very flat; one of the species has the valves generally of a square form, waved on either side in large folds; and finely striated, or wrinkled longitudinally: ligament attached to the two ribs at the hinge. Interior with one muscular impression, similar to that of the *Ostrea*. The very small space between the valves when they are closed, indicates the animal inhabiting them to be of an extremely thin substance.

THIS genus immediately precedes that of the *G. Anomia*, with which it was blended by Linnæus, though it bears but little resemblance to the shells of the latter genus in form; unlike them also, it is never affixed to other bodies, and the organization of the animal is likewise perfectly distinct.

Placuna sella *Placuna papyracea*

Placuna placenta

[There is also one fossil species.]



ANOMIA.

ANOMIA EHIPPIUM.—*Linn.**Mawe's Linnæus, plate 15, fig. 5, 6.*

THE *Anomiæ* are shells without locomotive power, and the animal, like that of the oyster, lives and dies on the spot where its egg was hatched. They are irregularly formed, inequivalve shells, always affixed to marine bodies, particularly to the Oyster, (to which they appear in some respects allied), and other testaceæ, by means of a small callous stony or osseous operculum, mistaken by many persons for a third valve, but which in fact is only the dilated and thickened extremity of the tendon or interior muscle of the animal, forming a small solid elliptical ossified mass, and attached to the body on which these shells are affixed. It is so constructed as to close the hole or notch at the summit of the flattened valve, when the muscle of the animal is contracted. The perforated and smaller valve in this genus is the lower one, being always placed next, and conforming to the shape of the substance to which it is affixed. In the Oyster, the largest and most concave is the lower valve, and the contrary exists in the *G. Terebratula*, in which the

largest and most convex is pierced at the summit, and supposed to be the upper valve.

As it appears certain that it is the extremity of the muscle of the animal which is attached to the operculum, and not a ligament connecting the operculum to the larger valve, it is obvious that the *Anomiæ* differ essentially from the *Ostreæ*. Independent of this muscle, there is an interior cardinal ligament which fastens the valves together, the impression of which is easily seen. Poli describes the animal as being organized very similarly to that of the Oyster.

<i>Anomia ehippium</i>	<i>Anomia pyriformis</i>
..... patellaris	..... fornicata
..... cepa	..... membranacea
..... electrica	..... squamula

Anomia lens.

SPHÆRULITES.

Encycl. Meth. plate 172, fig. 7, 8, 9.

One species.

RADIOLITES.

Encycl. Meth. plate 172, fig. 1.

Three species.

CALCEOLA.

Knorr. Petrif. fig. 5, 6.

One species.

BIROSTRITES.

Sowerby's Genera, No. 11, plate 3.

One species.

THE above four genera are fossils, and therefore, though necessarily introduced to complete the arrangement of Lamarck's system, need only here be mentioned in the places which he has assigned to them, as forming intermediate and connecting links in the recent genera of Testaceæ, which are more immediately the object of consideration in this work.

DISCINA.



See G. Orbicula and G. Crania.

LAMARCK has named this singular shell *Discina*, from each valve presenting, near the centre, a remarkable and very distinct orbicular disk; that on the superior or upper valve is smooth and pierced, and exhibits in the centre a small papillary elevated summit, giving it the appearance of a *Patella*: it is also surrounded by a margin longitudinally marked with delicate radiating striæ. The disk of the lower margin is very white, obliquely crossed by a notch or cleft, open on both sides. Although the valves of the shell are of an equal size, they are not exactly similar, the upper one being rather more convex, and the lower without striæ round its disk. No traces of hinge, ligament, or muscular impressions, are visible. It is found affixed to stones on the British coast. This genus, Sowerby remarks, should be entirely expunged, Lamarck having constituted it, without mature consideration, from examples of the *Orbicula Norwegica*.

Discina ostreoides.



CRANIA

ANOMIA CRANIOLARIS.—*Linnæus*.*Sowerby's Genera, No. 12, pl. 4.*

LINNÆUS included this in his *G. Anomia*, from which Bruguiere first separated it, pointing out the distinguishing characters. The shell is inequivalve, nearly round, and most generally affixed by its lower or inferior valve. The three indentations or holes, which are on the internal surface of this valve, appear only to penetrate it in consequence of the violence necessarily used to detach it from the substance to which it is affixed by its external surface. Lamarck therefore does not consider them to be the apertures through which certain muscles protrude, in the manner of the *Anomia ephippium*, but merely depressions or cavities in the lower valve of the shell, while it remains attached and closely adhering to any marine body. These holes or cavities give to the shell the appearance of a death's head or skull in some respects it seems allied to the *Terebratulæ*, while the form of it, and being affixed by the inferior valve, seem to indicate an alliance to the *G. Orbicula*. But the animal being unknown, the precise genus of it cannot be determined. The writer

has seen this shell affixed to the root of the *Isis nobilis* or stony red coral, but very rarely with both the valves. In Sowerby's *Genera of Shells* this genus is very minutely described.

Crania personata.

[There are also four fossil species.]

ORBICULA.

PATELLA ANOMALA.

Muller, table 3, fig. 1, 7.

THIS shell has been mistaken for an univalve by most writers on Conchology. Poli, however, calls one of the species, *Anomia turbinata*; but subsequent investigation has proved it a bivalve: the lower valve, which is extremely thin, and closely adhering to marine bodies, had escaped the notice of former naturalists; and the upper one might consequently easily be mistaken for a *Patella*, which it nearly resembles, having a more or less pointed and elevated summit. Shell suborbicular, inequivalve, without an apparent hinge; lower valve extremely thin, flat, and adhering; upper valve subconical, summit elevated. The animal is a true *Brochio-*

poda, and only differs from the two others of this family, in consequence of the shell not being affixed by a pedicle. This genus is evidently confounded by Linnæus with that of *Crania*, as has been satisfactorily stated in the description of that genus given by Sowerby, in No. 12 of his *Genera of Shells*.

Orbicula Norwegica.



TEREBRATULA.

ANOMIA VITREA.—*Linn.*

Sowerby's Genera, No. 15, plate 2.

THE necessity of separating this genus from that of the *G. Anomia* of Linnæus, was observed by Bruguiere, and is manifest on an inspection and comparison of the two: there is no general resemblance between them, and the animals of each are very differently organized. The shell of the *Terebratula* is inequivalve, of a subovate form, and is attached to marine bodies by a short fleshy tendinous peduncle terminating in a number of byssi-form filaments passing through the hole, or sometimes only sloping cleft, at the summit of the recurved beak of the larger valve, and by which the shell is suspend-

ed and remains free, never adhering by any part of the valves themselves. The hinge has two curved teeth on the larger valve, inserted and locked into corresponding cavities in the smaller. The valves are in some species smooth, in others angular; and some have plaits, which close perfectly, giving the margins a flexuous appearance. M. de Valenciennes is of opinion, that, where the aperture is not round, and only a notch is observable, it is occasioned by the absence of two small accessory valves or pieces, which seem to complete the opening, and which frequently escape notice. The writer considers the larger and perforated valve the upper one, having seen two examples of this shell attached to marine bodies by its pedicle, in both of which the smaller valve was beneath. The animal in its structure very much resembles that of the *Lingula*, being able, like it, to extend beyond the shell two long posite arms, fringed or ciliated on one side, which, when the animal is at rest, are folded up in a double plait, with their extremities *only* curved, or rolled in a spiral form within the shell; the osseous parts, which remain attached to the lesser valve of the *Terebratula*, after the removal of the animal, are called by English collectors the springs of the shell, the pre-

cise use of which has not yet been clearly ascertained, though Lamarck considers them as supports to the animal's body. Among the many characteristic differences that exist between this genus and that of the *G. Anomia*, may particularly be pointed out, that in it the perforation is always on the smaller valve, which is attached to the opposite one by means of a *cardinal ligament*, while in the *Terebratulæ* the hole is always in the larger valve, which is connected by *teeth* at the hinge to the smaller one. From the locality of the fossil species of this genus, these shells may be presumed to inhabit the sea at a great depth. Lamarck divides this family into two sections, those having the valves smooth, and those having them longitudinally grooved. He has enumerated twelve species, but a greater number is known, though not all of them described by any author.

Shells smooth, without longitudinal grooves or striæ.

Terebratula vitrea	Terebratula pisum
..... dilatata	..... globosa
Terebratula rotunda.	

Shells longitudinally grooved.

Terebratula flavescens Terebratula sanguinea
 dentata caput serpentis
 dorsata truncata

Terebratula psittacea.

[There are also forty-seven fossil species.]

LINGULA.

PATELLA UNGUIS.—*Linn.*

Sowerby's Genera, No. 1, plate 2.



LINNÆUS certainly could only have seen one valve of this singular shell, which naturally led him into the error of supposing it an univalve of the genus Patella, particularly as there are no hinge, teeth, or other visible mode by which the valves are connected together; but it has since been discovered that they are united by means of a tubular, fleshy, or membranous peduncle surrounding the narrow part of the valves, and affixed to marine substances by the base of it, in the manner of the *G. Anatifera*; the interior of the valves also possess small callosities like those of the *Parmophora*, which have tended probably to confirm the

idea of this shell being a Linnæan Patella. It is, however, a bivalve: the valves oblong, oval, flat, truncated at the upper end, with a slight point in the centre, formed by the angular depressed rib at the back, and giving them the appearance of a duck's bill: the base of the valves, which is inserted in the fleshy peduncle, is pointed, and much narrower than the opposite patulous termination. The animal protrudes on either side of its shell a long, but not articulated, fringed arm, which is rolled within the shell in a spiral form, when contracted. Lamarck only mentions one recent species of this genus, but there are others known, though not yet described, and also several fossil species.

Lingula anatina.

HYALÆA.

ANOMIA TRIDENTATA.—Linn.



Chemnitz 8, plate 108, Vign. 13, fig. F. G.

THIS most extraordinary shell is of a thin transparent horn-like substance, its form tricuspidated, with hollow points, and finely striated transversely: the valves are united, and, as it were, soldered together, but une-

qual, one being subglobular, ventricose, and anteriorly shortened, occasioning an aperture through which the animal protrudes two wing-shaped portions of its body; the other is larger, and has its under part nearly flat. Its trivial name in this country is Venus's chariot, from a fancied resemblance to a triumphal car in miniature. Shell, corneous, transparent, globose, oval, tridentated at the posterior end; the middle part perforated, with a cleft on either side.

Hyalæa tridentata

Hyalæa cuspidata.

CLIO.

THIS is a molluscous animal without any testaceous covering, but is here placed as leading to other species of it which have shells.

Clio borealis

Clio australis.

CLEODORA.

CLIO PYRAMIDATA—*Linnaeus.*



THIS is also a molluscous animal, but the posterior end

of its body is covered by a somewhat firm cartilaginous, straight, and transparent shell, like an inverted pyramid, or in the form of a spear truncated and open at the upper part; of a distinct shape in different species, and not opened laterally, or at the posterior extremity, as in the *G. Hyalæa*.

Cleodora pyramidata *Cleodora caudata*.



LIMACINA

CLIO HELICINA.—*Linn.*

SHELL thin, fragile, and papyraceous, its whorls spiral and united in a discoid form, giving it a strong resemblance to the *G. Helix*; but in consequence of the very wide umbilicus, formed by the position of its whorls, it more nearly approximates the *G. Planorbis*. The animal of this shell has the power of receding altogether within its covering, in which it differs from the preceding genus. Lamarck considers the name of *Limacina* less applicable to this genus than that of *Helicina*, given to it by Gmelin.

Limacina helicalis.

CYMBULIA.

Ann. du Mus. 15, p. 66, pl. 3, f. 10, 12.



A **CARTILAGINOUS** shell of crystalline transparency, and firm consistency, in the form of an oblong slipper, or wooden shoe, (*sabot* of the French), truncated at the summit, with a lateral opening at the anterior end.

Cymbulia Perronii.

PNEUMODERMON.

Ann. du Mus. 15, p. 66, pl. 3, f. 10, 12.

A **MOLLUSCOUS** animal without any testaceous covering, and much resembling the *G. Clio*.

Pneumodermon Perronii.

GLAUCUS.

A **MOLLUSCOUS** animal without a shell.

Glaucus Forsteri.

EOLIS.

A MOLLUSCA without a testaceous covering.

Eolis Cuvierii	Eolis lacinulata
..... fasciculata	..... peregrina
..... minima	..... affinis.

 TRITONIA.

A MOLLUSCA without a shell.

Tritonia Hombergii	Tritonia arborescens
Tritonia coronata.	

 SCYLLÆA.

A MOLLUSCA without a shell.

Scyllæa pelagica.

 TETHYS.

A MOLLUSCA without a shell.

Tethys leporina	Tethys fimbria.
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DORIS.

A MOLLUSCA without a shell.

Doris solea	Doris stellata
..... argus pilosa
..... verrucosa	..... lævis
..... limbata	..... fusca
..... tuberculata	..... muricata
..... obvelata	..... lacera

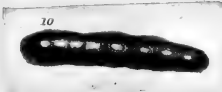
Doris atro-marginata.

 PHYLLIDIA.

A MOLLUSCA without a shell, but its back covered with a rough or coriaceous skin.

Phyllidia varicosa Phyllidia pustulosa

Phyllidia ocellata.



CHITONELLUS.

Sowerby's Genera, No. 12, pl. 2, fig. 4, 5.

THIS is also a Mollusca, on the middle of whose back are fixed in a straight line certain testaceous pieces or parts, resembling detached valves of the Chiton, but they are never quite joined or locked together while the animal is living, and do not prevent its body from moving in every direction: these valves, upon the contraction of the animal when dead, become nearly united. It may be supposed that this Mollusca, from its peculiar organization, climbs the stems of marine plants in search of subsistence, like the caterpillar, which in appearance it much resembles. Sowerby has united this genus to that of Chiton, not seeing sufficient grounds to separate them.

Chitonellus lævis Chitonellus striatus.



 CHITON.

CHITON SQUAMOSUS.—*Linnaeus.*

Sowerby's Genera, No. 12, pl. 2, fig. 1, 2, 3.

LAMARCK has made no alteration in this genus of Linnaeus; and the characters being so well defined, and possessing no variations, it cannot be confounded with, or

mistaken for, any other genus. Only six species are described by him, though many more are known to collectors in England. The principal observation Lamarck makes on this singular and well-known shell, is, that it seems more like an univalve than a multivalve, and should only be considered an elongated shell, with the testaceous portions of it transversely broken by nature, at its first formation, into a number of distinct moveable parts, in order to facilitate the animal's motion: these valves or testaceous parts, which are generally eight in number, and as Lamarck asserts sometimes only seven, and even six, are inserted at their lateral extremities into a tough ligament, which surrounds the outer margin, and firmly unites them together in their proper position. This ligament is sometimes fleshy, coriaceous, smooth, or wrinkled, covered with small scales, or beset with tufts of hair; and in one species, *C. spinosus*, it has numerous tubular, curved, long, thin, black spines. A tough internal membrane connects the under part of the valves or portions, allowing the animal to contract the shell in a globular form, or fully to expand it; in which position the edges of the valves slightly overlap each other. When these portions are all united, they form an elliptical shell, the centre part of which is more elevated than the rest; and each succeeding valve of less con-

vexity towards the margins. They are variously striated, or minutely granulated; and one extremely rare species has callous adhesions longitudinally placed along the back of the valves. Many species of Chiton are elegantly marked; the interior is generally of a green or white color; one species is, however, of a beautiful pink. They adhere to rocks covered by the sea, to tortoises, and to the backs of fishes, &c.

THE writer has carefully examined many hundred examples of this genus, each possessing eight valves, but has never seen one with a less number. Whenever such an occurrence has taken place, it should probably be considered a *lusus*, and not characteristic of a distinct species.

SOWERBY mentions that the fossil species are rare, but that detached valves are sometimes found in the calcareous sand in the neighbourhood of Paris. The *C. gigas* sometimes attains four inches in length.

Chiton gigas	Chiton spinosus
..... squamosus	..... fascicularis
..... Peruvianus	..... marginatus.

PATELLA.



PATELLA GRANATINA.—*Linn.*

Mawe's Linnæus, plate 32, fig. 4, 7.

THIS numerous and beautiful genus of Linnæus has been subdivided by Lamarck; from it he has constituted the genera Fissurella, Emarginula, Navicella, Umbrella, Pileopsis, Calyptræa, Crepidula, Parmophora, and Ancylus; each of which possesses sufficiently well-defined characters to authorize a separation, by which they may be more easily distinguished from the still widely extended family of Patellæ. As it is now arranged, it comprehends only such shells as are in the form of a wide, concave, and more or less elevated cone, terminated by an *imperforated* summit. The part of the shell to which the imperforated summit inclines, is the *anterior*, which circumstance has been clearly established from the impression of the animal's head being always visible at that part. The posterior end is always wider than the anterior; aperture generally elliptical; the summit of the shell is usually the thickest part; margin without any fissure; the exterior variously marked with striæ, longitudinal ribs, granulations, or sharp ridges, rendering the margin angular or waved, though

most frequently smooth. Lamarck does not mention, that in some species the longitudinal ribs, radiating from the summit, are continued far beyond the edge of the margin, and appear like the rays of a star. One species of the *Patella* attains an enormous size for shells of this genus, the writer having seen an example which measured six inches.

<i>Patella apicina</i>	<i>Patella Safiana</i>
..... <i>granatina</i>	..... <i>testudinaria</i>
..... <i>oculus</i>	..... <i>cochlear</i>
..... <i>barbara</i>	..... <i>compressa</i>
..... <i>plicata</i>	..... <i>granularis</i>
..... <i>laciniosa</i>	..... <i>deaurata</i>
..... <i>saccharina</i>	..... <i>Magellanica</i>
..... <i>angulosa</i>	..... <i>stellifera</i>
..... <i>barbata</i>	..... <i>vulgata</i>
..... <i>longicosta</i>	..... <i>mammillaris</i>
..... <i>spinifera</i>	..... <i>lineata</i>
..... <i>aspera</i>	..... <i>leucopleura</i>
..... <i>luteola</i>	..... <i>notata</i>
..... <i>pyramidata</i>	..... <i>Tarentina</i>
..... <i>umbella</i>	..... <i>punctata</i>
..... <i>plumbea</i>	..... <i>puncturata</i>
..... <i>cærulea</i>	..... <i>Javanica</i>
..... <i>radians</i>	..... <i>tuberculifera</i>
..... <i>scutellaris</i>	..... <i>miniata</i>

Patella viridula	Patella pellucida
..... pectinata	..... tricolorata
..... Galathea	..... australis
Patella cymbularia	

PLEUROBRANCHUS.

Ann. du Mus. 5, p. 269, pl. 18, fig. 1, 2.



AN internal dorsal shell, thin, flat, and obliquely oval. Several species of this genus are mentioned by Cuvier, with which Lamarck is unacquainted.

Pleurobranchus Peronii.

UMBRELLA.

PATELLA UMBELLATA.—*Gmelin.*

Chem. t. 10, 169, f. 1645, 1646.



GMELIN and others have classed this with the *G. Patella*, to which it bears the nearest resemblance. Subsequent discoveries have enabled naturalists to pronounce that this shell is external, though occasionally covered by the animal attached to it, the body of which it partially defends. Shell external; irregularly orbi-

cular, nearly flat, concentrically wrinkled, slightly convex, with a small pointed apex near its centre; margin very acute and sinuated; color generally a yellowish white; interior surface more or less concave, finely striated, with raised spots or granulations, the centre part with a dark chesnut-colored mark, and surrounded by a smooth border. Lamarck mentions a second species not having radiating striæ on its under surface. These shells sometimes attain several inches in diameter, and some examples possess an epidermis, which circumstance is not mentioned by de Blainville, from whose examination of this genus the above description has been given.

Umbrella Indica Umbrella Mediterranea.



P ARMOPHORUS

PATELLA AMBIGUA.

Chemnitz, 11, tab. 179, fig. 1918.

DE Blainville first pointed out the characteristic distinctions of this shell, which should be called Parmophora. It is an oblong parallelogram, nearly flat; posterior margin rounded, and rather wider than the

anterior, which is slightly truncated, and notched, with a small pointed apex, placed very near the posterior margin, and inclined backwards, to which may be added, that in appearance it somewhat resembles a single valve of the *Lingula anatina*, but having both its extremities nearly similar; the interior exhibits very strong callous muscular impressions, which are in some species marked with a blood-red color. It is commonly called the Duck's-bill Limpet by English collectors.

Parmophora australis *Parmophora brevicula*
Parmophora granulata.

[There is also one fossil species.]

EMARGINULA.

PATELLA FISSURA.—*Linn.*

Mawe's Linnæus, plate 32, fig. 1.



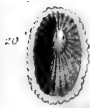
THIS is another of Lamarck's divisions of the *G. Patella* of Linnæus. The shell is conical, more or less elevated, and inclining to the anterior side, which is always the least, and opposite to the slit or fissure, elegantly cancellated with longitudinal ribs and trans-

verse striæ; a deep and narrow marginal fissure, extending nearly half way to the summit.

Most of the shells of this genus are very small; some are of an elevated, and others of a widely depressed conical form.

Emarginula fissura *Emarginula rubra*.

[And three fossil species.]



FISSURELLA.

PATELLA PICTA.—*Gmelin*.

Mart. 1, t. 11, f. 90.

THIS is another division of the Linnæan *Patellæ*: the shells are in the form of a very depressed truncated cone, elliptical or oblong, perforated at the summit; the margin thickened, and sometimes crenulated: the perforation is never perfectly round, but generally of an oblong or oval shape, and very frequently resembles a key-hole, from which circumstance they are called Key-hole Limpets by English collectors; the exterior surface longitudinally ribbed, and slightly striated transversely.

Fissurella picta	Fissurella radiata
..... nimbose	..... viridula
..... crassa	..... hiantula
..... Græca	..... pustula
..... nodosa	..... fascicularis
..... Cayenensis	..... Javanicensis
..... lilacina	..... depressa
..... rosea	..... Peruviana
..... Barbadosensis	..... gibberula

Fissurella minuta.

[There is also one fossil species.]

PILEOPSIS.
PATELLA UNGARICA.*Mart. 1, tab. 12, fig. 107, 108.*

THIS also is a separation from the Linnæan *G. Patella*. The shell is an oblique sharp pointed cone, bent forward, with a recurved, almost spiral summit, finely striated longitudinally, and slightly wrinkled transversely; aperture, a round oval; the anterior margin shorter and sharper than the posterior; the base nearly round, more or less regularly crenated, and indented; interior with a lengthened, arched, transverse, muscular impression.

IN the fossil examples of this genus, a testaceous deposit or support, apparently the result of successive accumulations, is visible upon the substance to which they are attached, leaving, as it were, the impression of the margin of the shell: as this deposit has never been observed on the spot from whence recent specimens have been removed, it may be concluded that the animal inhabiting them seldom, if ever, removes from one spot to another.

THE *P. ungarica* (commonly called the Fool's-cap Limpet in this country) and its congeners, Sowerby considers more properly to belong to the *G. Hipponix* of DeFrance. See *G. Terebratula*, No. 15, of the *Genera of Shells*

Shells not known to have the support which is observed in many fossil species of this genus.

<i>Pileopsis ungarica</i>	<i>Pileopsis intorta</i>
..... <i>mitrula</i>	..... <i>subrufa</i> .

[And four fossil species.]

Shells with a known support.

[Two fossil species.]

CALYPTRÆA.

PATELLA EQUESTRIS.—*Linnaeus*.*Mawe's Linn. pl. 32, f. 3,*

LINNÆUS and other authors considered these shells of the genus *Patella*, from which they however essentially differ. The form is conical; exterior transversely waved and foliaceous; summit vertical and imperforated; base orbicular and not much expanded: the interior cavity exhibiting a transverse funnel or tongue-shaped testaceous appendage, from which they have been called Cup-and-Saucer Limpets in this country. The last species, mentioned by Lamarck, *C. tectum-sinense*, has recently been met with by the writer, and is so singularly constructed, and so perfectly distinct from the other species of *Calyptrææ*, that it may be well to point out the peculiar character of it. The shell is formed of separate, transverse, irregular, round laminae, of an uniform size, attached to each other by the apical point or summit on the exterior of each, presenting the appearance of a number of small flat *Patellæ*, piled one on the other, apparently increasing to an indefinite number, during the life of the animal. Those

now alluded to had five distinct laminæ in one example, and six in the other.

Calyptræa extincorium *Calyptræa equestris*
 *lævigata* *tectum-sinense*.



CREPIDULA.

PATELLA FORNICATA.—*Linn.*

Mawe's Linnæus, plate 32, fig. 3.

THIS is another very distinctly marked separation from the *G. Patella*. Shell oval or oblong, a much depressed concave exterior; the spire inclined obliquely to one side; margin entire, and the opening partially closed horizontally by a partition, giving it the appearance of a half-decked boat: some have angular longitudinal ribs on the surface, others have them armed with spines or prickles; they, like the generality of shells blended by Linnæus with the *G. Patella*, seem constantly fixed to one spot, as the shape of their base is conformable to the substance on which they adhere. They never have an operculum, which distinguishes them from the *G. Navicella*.

Crepidula fornicata	Crepidula unguiformis
..... porcellana	..... dilatata
..... aculeata	..... Peruviana.

ANCYLUS.

PATELLA LACUSTRIS.—Linn.

Sowerby's Genera, No. 14.



DRAPARNAUD was the first to constitute this genus, and separate it from that of Patella, preserving the name given it by Geoffroi, which Lamarck has consequently adopted. The shell is of a thin, brittle, and membranous texture, in the form of an oblong cone, with a pointed summit inclined backward; the base oval and smooth. It is a fresh water shell, and Lamarck observes he has only provisionally placed it with the Calyptrææ: the animal's existing *in fresh water*, and habitually breathing the air, renders it very different from the inhabitant of the latter, with which it is here associated.

DRAPARNAUD has placed this genus following that of Lymnæa, to which the animal more nearly approximates in its organization.

THE third species, *A. spina-rosæ*, De Ferrusac has satisfactorily proved not to belong to this genus, and Lamarck has inadvertently continued Draparnaud's error in supposing it did. See Sowerby's Genera, No. 14,

Ancylus lacustris *Ancylus fluviatilis*

Ancylus spina-rosæ.

ACERA.

Cuvier Ann. du Mus. p. 16, pl. 10, f. 15, 16.

THE Acera is a molluscous animal without any testaceous covering external or internal, and here classed as preceding others of the same species, which have shells enveloping or covered by their bodies.

Acera carnosa.



BULLÆA.

BULLA APERTA.—*Linn.*

Chemnitz 10, tab. 146, fig. 1354, 1355.

THESE shells are nearly allied in many respects to those of the *G. Bulla*, from which, however, they must be distinguished, not being externally visible, but con-

cealed within the thickness of the mantle, and in not adhering to the animal by any muscle. This shell is besides very thin, fragile, but slightly concave, and is partially rolled inward on one side: its whorls do not present the conical projection, usually called a spire, or its axis, the part called the columella. The last evolution of the whorl is terminated by the aperture, which is very ample, thin, and expanded at the upper part. Only one species of this genus is known.

LINNÆUS had classed this genus with the *G. Bulla*, which it more nearly approximates than many other shells he had confounded with it; but the peculiarity of this shell, being entirely covered by the animal, and never externally visible, renders its separation very necessary.

Bullæa aperta.

BULLA.

BULLA LIGNARIA.—*Linn.*

Encycl. Meth. pl. 259, f. 3, A. B.



THE genus *Bulla* of Linnæus included a vast variety of the most opposite genera of shells, which Lamarck

has removed from it, and classed separately in natural groups, under the names of Bullæa, Ovula, Achatina, Physa, Terebellum; and some are comprised in the G. Pyrula, and G. Bulimus. The great confusion that formerly existed, and the manifest incongruity of blending together marine, fresh water, and land shells, which may be observed in the Linnæan G. Bulla, is now elucidated; and, by this arrangement, a very natural association is formed of each different species. The shells constituting the present G. Bulla, as it is defined by Lamarck, possess one consistent family character, viz. shell univalve, of a globose oval form, rolled up, having no columella, and without a spire; the large exterior whorl elevated above the others, giving an umbilicated appearance to the upper part of the shell; aperture open the whole length of the shell, and generally wider at the base; the outer edge sharp and smooth.

THE animal inhabiting the Bulla can altogether recede within its shell, and therefore is very distinct from that of the preceding genus, in which the shell is quite enveloped by the mantle of the animal. The thickness and coloring matter of the Bullæa, as well as their more regular convolutions; and the animal being *attached by a muscle* to its shell, all clearly tend to render the formation of the two genera necessary.

In the type of this genus, *B. lignaria*, the animal possesses a very singularly formed testaceous substance within its body, not noticed by Lamarck, and called the Gizzard by English collectors.

<i>Bulla lignaria</i>	<i>Bulla fasciata</i>
..... ampulla	..... aplustre
..... striata	..... hydatis
..... naucum	..... cornea
..... physis	..... fragilis
	<i>Bulla solida.</i>

LAPLYSIA.

LAPLYSIA DEPILANS.—*Linn.*

Encycl. Method. plate 83, fig. 1, 2.



THE name of this genus was altered by Gmelin, and some other authors, to that of *Aplysia*, from the Greek, ἀπλυσία, and must therefore be preserved, being its correct derivation: the alteration probably originated in a typographical error of former writers, which Lamarck also has overlooked. It is a molluscous animal, and may be said not to possess any testaceous covering, as the only indication of one, is more like the element

of a shell, being but a very thin yellow transparent cartilaginous substance, of an ovate form, concealed within the thickness of the fleshy shield which covers the branchiæ, and which is attached to the posterior end of the animal's back, by a point only at one side.

Aplysia depilans *Aplysia fasciata*

Aplysia punctata.

DOLABELLA.



BULLA DUBIA.—*Of some Authors.*

Encycl. Meth. pl. 83, f. 1, 2.

Sowerby's Genera, No. 16, plate 6.

THIS extraordinarily formed shell, like the *Aplysia*, (to which it is closely allied, differing only in the substance of the shell), is but the partial covering of a molluscous animal: it is difficult of description, not possessing any of the common characters which distinguish other shells. Lamarck and Cuvier consider it altogether an internal shell, and describe it as being of rather an oblong form, a little arched in the shape of an adze, one side narrower, thicker, more callous, and

nearly spiral, and the other becoming larger, flatter, and thinner; its substance is solid and brittle; the thin part semitransparent, and slightly concave.

ALL the examples the writer has seen of this shell, were covered with a thin friable brown-colored epidermis, over which the marginal edges of the posterior parts are reflected; which occurrence is not noticed by Lamarck.

It is known to English collectors by the name of *Bulla dubia*: and Sowerby mentions that there are other species besides those enumerated by Lamarck.

Dolabella Rhumphii *Dolabella fragilis*.

ONCHIDIUM.

Cuvier's Ann. du Mus. 5, p. 38, pl. 6.

A MOLLUSCA without an interior shell, or external testaceous covering. Only two species are enumerated by Lamarck but others are known to Cuvier.

Onchidium Typhæ *Onchidium Peronii*.



PARMACELLA.

Cuvier, Ann. du Mus. 5, p. 442, pl. 29, f. 12, 15.

A TERRESTRIAL mollusca, nearly allied to the Slug, and discovered by Olivier in Mesopotamia; its organs of respiration, however, are defended by a fleshy shield, in the thickness of which is a solid crustaceous body, assuming the form of a shell. In Sowerby's Genera, No. 13, plate 4, this shell is figured and described.

Parmacella Olivieri.

LIMAX.

LIMAX RUFUS.—Linn.

A NAKED terrestrial mollusca or common slug, on whose back exists a tough or fleshy shield, beneath which the animal screens its head and a portion of the body when contracted, containing, in its internal part, a small flat detached osseous substance, not exhibited on the exterior surface, and in some instances only composed of corpuscular grains, or elementary parts of bone.

Fifteen species are known, of which the following only are mentioned by Lamarck.

Limax rufus

Limax cinereus

..... albus

..... agrestis.

TESTACELLA.



Sowerby's Genera of Shells, No. 1, pl. 6.

THIS genus of mollusca is called Testacellus, by Sowerby; it is nearly allied to the Limax and Parmacella, from which, however, its organization differs, and it is also immediately distinguished by a very small shell, which covers a portion of the posterior extremity of the animal's body. It is nearly ear-shaped; slightly spiral at the summit; the aperture very wide, oval, obliquely enlarged, having the margin turned inwards. This animal, while living, remains generally beneath the surface of the ground, and is seldom seen above. Lamarck only mentions one species. Mr. Sowerby, however, has discovered a second in the neighbourhood of London, which he calls *T. scutellum*, and has given a very interesting description of it in his *Genera of Shells*, No 2;

and a third, the *T. Maugei* of de Ferrusac, has been naturalized in a garden at Bristol, but is a native of Teneriffe.

Testacellus haliotideus.



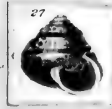
VITRINA.

Sowerby's Genera, No. 11, plate 4.

THIS mollusca, like the preceding genus, possesses a shell beneath which the animal partially contracts itself. It is small, very thin, depressed, terminated above by a short spire; the last whorl very large, and forming a wide rounded or oval opening, the left edge arched, and slightly bent inwards. Lamarck only mentions one species, but several others are known, and two of them are natives of this country. See Sowerby's description of this genus.

Vitrina pellucida.

HELIX.



HELIX POMATIA.—*Linn.*

Chem. 98, table 96, 128, fig. 1138. A. B. C.

THE shells of this genus are terrestrial, and the families of them innumerable; all parts of the globe not covered with water affording nutriment to the immense variety of different species, which every where abound. Their number, diversity, and beauty can only be equalled by some classes of Entomology, in which a similar extent of species is observable. Lamarck has pointed out the indispensable necessity of making considerable and important divisions of the *G. Helix* of Linnæus, which he has therefore separated into the genera *Helix*, *Auricula*, *Carocolla*, *Cyclostoma*, *Planorbis*, *Achatina*, *Anostoma*, *Ampullaria*, *Bulimus*, *Janthina*, *Paludina*, *Pupa*, *Lymnæa*, *Succinea*, *Sigaretus*, some of the *Naticæ*, &c. each of which possesses consistent, natural, and characteristic generic distinctions, sufficiently strong and precise, most fully to authorize their separation and distinct classification from the *G. Helix* of Linnæus, in which they were blended and confounded together in strange disorder; the marine, land, and fresh water species, so intermixed, both with regard to the habi-

tat and functions of the animal, and the form and character of the shell, that the naturalist in vain looked for those concurring testimonies, and distinguishing generic characters, by which alone he could satisfy his mind on the propriety of adopting them as his guide in classing the object under his examination, and determining its genus. The *G. Helix*, as it now stands established by Lamarck, comprehends such of the shells, so called by Linnæus, as present constant and similar generic characters in all their species, viz. their being orbicular, convex, or conoid, generally globular; aperture entire, of a greater width than length, very oblique, contiguous to the axis of the shell, having the margin of it disunited by the angle of the previous evolution or whorl; the right margin or lip thickened or reflected inwards, a circumstance which never takes place in marine or fresh water shells, whose general appearance might, in other respects, resemble that of the *Helix*. The substance of the shell is never pearly, though externally and internally highly polished: the animals conceal themselves, during the heat of the day, in damp shady places, and during winter, in the holes of trees and walls, or beneath the surface of the ground, some of them closing the aperture of their shell with a false cal-

careous operculum, protecting them from injury or intrusion, while they remain in an inactive or torpid state: and such is their tenacity of life, that the writer has received shells of this genus from the Brazils and the West Indies, closely packed in boxes, which, shortly after they were opened in this country, exhibited these animals gladly escaping from their confinement, apparently uninjured by the length of their journey, or the want of air and sustenance—It is also a well attested fact, that a portion or even the whole of this animal's head will be reproduced, after having been severed from the body, by accident or cruelty.

SHELLS thus clearly characterized cannot easily be mistaken, and may reasonably be supposed to form the testaceous covering of molluscous animals, all of which have a similar organization of parts—A fact assumed by Lamarck, as the basis of his systematic arrangement, and satisfactorily established by a host of evidence, either derived from the examination of the animal while living, or where that was not practicable, from a constant and uniform concurring similarity of structure in the shell. In this genus the naturalist may easily witness the process of the animal's forming its shelly dwelling upon the model of its naked body, com-

mencing with a thin, fragile, pellucid, viscous matter, in its first stage scarcely perceptible, but becoming, by each successive deposit or layer of testaceous coating, thicker and more solid, till the whole is completed and has attained to its full maturity.

THE propriety of Lamarck's having been guided in his arrangement of the genera of shells, by the organization of the animal inhabiting them, and not by the form of the shell only, except with a reference to the inhabitant of it, need not be more fully exemplified than in this instance, should any doubt still exist in the naturalist's mind; and in every case the study of nature would be much facilitated, by observing more narrowly the indications she furnishes for the classification of distinct genera and species, which, from being often so very slightly defined, are too frequently overlooked or neglected, and considered of less importance than they really are.

<i>Helix vesicalis</i>	<i>Helix mutata</i>
..... gigantea	..... pomatia
..... polyzonalis	..... aspersa
..... monozonalis	..... vermiculata
..... pulla	..... alonensis
..... lineolata	..... versicolor

<i>Helix naticoides</i>	<i>Helix guttata</i>
..... <i>picta</i>	..... <i>Madagascariensis</i>
..... <i>galactites</i>	..... <i>Javanica</i>
..... <i>hæmastoma</i>	..... <i>Peruviana</i>
..... <i>melanotragus</i>	..... <i>simplex</i>
..... <i>extensa</i>	..... <i>cidaris</i>
..... <i>lucana</i>	..... <i>citrina</i>
..... <i>globulus</i>	..... <i>algira</i>
..... <i>melanostoma</i>	..... <i>verticillus</i>
..... <i>cælatura</i>	..... <i>olivetorum</i>
..... <i>microstoma</i>	..... <i>planospira</i>
..... <i>maculosa</i>	..... <i>Barbadensis</i>
..... <i>Richardi</i>	..... <i>sinuata</i>
..... <i>Bonplandii</i>	..... <i>hippocastanum</i>
..... <i>planulata</i>	..... <i>bidentalis</i>
..... <i>labrella</i>	..... <i>argilacea</i>
..... <i>ungulina</i>	..... <i>vittata</i>
..... <i>pellis-serpentis</i>	..... <i>alauda</i>
..... <i>Senegalensis</i>	..... <i>arbustorum</i>
..... <i>unidentata</i>	..... <i>candidissima</i>
..... <i>cepa</i>	..... <i>nemoralis</i>
..... <i>heteroclites</i>	..... <i>hortensis</i>
..... <i>discolor</i>	..... <i>sylvatica</i>
..... <i>lactea</i>	..... <i>pisana</i>
..... <i>zonaria</i>	..... <i>splendida</i>

<i>Helix serpentina</i>	<i>Helix crenulata</i>
..... <i>Niciensis</i>	..... <i>planorbula</i>
..... <i>variabilis</i>	..... <i>macularia</i>
..... <i>fruticum</i>	..... <i>maritima</i>
..... <i>neglecta</i>	..... <i>strigata</i>
..... <i>cespitum</i>	..... <i>muralis</i>
..... <i>ericetorum</i>	..... <i>rugosa</i>
..... <i>intersecta</i>	..... <i>cornea</i>
..... <i>carthusianella</i>	..... <i>linguifera</i>
..... <i>carthusiana</i>	..... <i>incarnata</i>
..... <i>diaphana</i>	..... <i>cinctella</i>
..... <i>concolor</i>	..... <i>cellaria</i>
..... <i>velutina</i>	..... <i>nitida</i>
..... <i>obvoluta</i>	..... <i>plebeium</i>
..... <i>Cookiana</i>	..... <i>personata</i>
..... <i>pileus</i>	..... <i>hispida</i>
..... <i>papilla</i>	..... <i>rotundata</i>
..... <i>punctifera</i>	..... <i>apicina</i>
..... <i>plicatula</i>	..... <i>striata</i>
..... <i>planorbella</i>	..... <i>conspurcata</i>
..... <i>scabra</i>	..... <i>conica</i>
..... <i>cariosa</i>	..... <i>conoidea</i>

Helix pulchella.

CAROCOLLA.



HELIX GUALTERIANA.—*Linnaeus*.

Mawe's Linnaeus, pl. 29, f. 3.

THIS is the first of Lamarck's divisions of the *G. Helix* of *Linnaeus*, and though the shells composing it are very nearly allied to the *Helices*, they nevertheless offer sufficient reasons for constituting a distinct genus. Shell orbicular, more or less convex or conoid, and sometimes quite flat on the upper part, as in the *G. Gualteriana*; the circumference of its outer whorl carinated and sharp; aperture ovate, contiguous to the axis of the shell; the right lip or margin sub-angular, and frequently toothed within. They are all terrestrial shells.

Carocolla acutissima	Carocolla Madagascari-
..... albilabris	ensis
..... angistoma	..... marginata
..... labyrinthus	..... lychnuchus
..... lucerna	..... planata
..... inflata	..... planaria
..... Gualteriana	..... hispidula
..... bicolor	..... lapicida
..... Mauritiana	..... albella
	Carocolla elegans.



ANOSTOMA.

HELIX RINGENS.—*Linn.**Sowerby's Genera, No. 8, plate 1.*

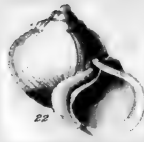
LAMARCK describes two species of this extraordinary shell, hitherto considered of the *G. Helix* by former authors, from which the peculiar structure eminently distinguishes it, and necessarily constitutes a well defined genus by itself. Shell orbicular, globose, slightly keeled; an obtuse convex spire, the last whorl turned upwards, nearly reaching the summit, and rising at the front part in a perpendicular direction from the base of the shell; the rounded aperture horizontally attached to the body whorl on the upper side, with two teeth on the columella, and three or sometimes more on the right side, and the outer lip reflected on the side not affixed to the spire: its general appearance may be said to resemble the form of an antique Roman lamp with a projecting spout.

THE only difference in the two species described by Lamarck, is the one being more globular in form than the other; there are also two small punctures, one on each side of the lip near to the spire, in the second spe-

cies named, which appear to have escaped his observation; he also describes the aperture to be of a circular form, having probably included the thin expanded portion of the lip which lies on the spire, it otherwise must be considered more semicircular than round. It is much to be regretted that the animal has not yet been examined or described, as it certainly, in its organization and habits, must differ from all other molluscæ: the formation of the shell appearing to indicate, that, on the completion of the last whorl, with the reflected, thickened, and dentated lip, the animal would be obliged to carry its dwelling with the spire downwards; while, in a younger stage of growth, it is supposed, like all other Helices, to present the spire uppermost, and inclined to one side. Sowerby concurs in this opinion, which however at present can only be considered hypothetical.

Anostoma depressa

Anostoma globulosa.



HELICINA.

Lister, tab. 61, fig. 59.

THESE shells in form greatly resemble the *G. Nerita*, but are terrestrial, some feeding on trees, and others on the surface of the earth; they are also distinguished from the *G. Helix*, by their transverse callous columella, depressed and diminished in thickness at the lower part. Shell subglobular, not umbilicated; opening entire, semi-elliptical, with a sharp edge, forming an angle at the lower part or base of the right side; the operculum is horny. The *Trochus vestiarius* of Linnæus may be confounded with this genus; but its being a marine shell, and the callosity covering the whole of its lower surface, by which it is rendered convex, sufficiently distinguish it from the *Helicina*, whose callosity is confined to the columella side only.

Helicina neritella

Helicina fasciata

..... *striata*

..... *viridis.*

PUPA.

TURBO UVA.—*Linn.**Martini, 4, tab. 158, fig. 1489, a, b.*

THIS family is distinct from the Turbines, or Helices, and more nearly approximates the *G. Clausilia*, with which it might be united if the character of the opening did not indicate a differently organized animal.—The Pupæ are most of them terrestrial; shell cylindrical, and generally thick; aperture irregular, half ovate, rounded and subangular at the lower part, the margins nearly equal, reflected outwards, and separated at the upper part by a thin columella lip; the whorls at both extremities nearly of an equal size, while those of the body part are larger and more ventricose.

Pupa mûmia	Pupa zebra
..... uva	..... unicarinata
..... sulcata	..... maculosa
..... candida	..... clavulata
..... labrosa	..... ovularis
..... fusus	..... Germanica
..... tridentata	..... cinerea
..... fasciolata	..... tridens

Pupa quadridens	Pupa avena
..... polyodon	..... granum
..... variabilis	..... fragilis
..... frumentum	..... dolium.
..... secale	..... umbilicata
Pupa muscorum.	



CLAUSILIA.

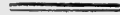
TURBO TRIDENS.

Chem. 9, tab. 112, fig. 957.

THE characteristic name of Clausilia was, in the first instance, given to shells in which the entrance of the opening was closed at a certain depth by a moveable ovate testaceous lid, performing the office of an operculum, and supported by a thin elastic pedicle, inserted in the columella: the lid closes upon the animal when it retreats within its dwelling, by means of the pedicle acting as a spring. Lamarck has not been able to ascertain that all the examples he has given of this genus are so provided, but concludes they should be, and has constituted the present genus, from the other constant and similar characters to be observed in them; the most

remarkable of which is that of the termination of the lower whorl being quite detached from the base of the shell. The aperture ovate, or rounded; its edge entire, and the margin reflected outwards. These shells are terrestrial, fusiform, slender, and the summit rather obtuse, to which may be added, though not mentioned by Lamarck, that the opening is occasionally dentated.

Clausilia torticollis	Clausilia teres
..... truncatula	..... denticulata
.... . retusa	..... collaris
..... costulata	..... papillaris
..... corrugata	..... plicatula
..... inflata	..... rugosa.



BULIMUS.

HELIX OVATA.—Muller.



Du Bois' catalogue of the Bligh Collection, pl. 2.

OF this beautiful genus, the shells of which are all terrestrial, some were blended by Linnæus with the *G. Bulla*, and others with the *G. Helix*, from which they essentially differ, never being of an orbicular shape. The animal has a great resemblance to that of the *He-*

lix; but the structure of the shell is altogether different either from the *Bulla* or *Helix*, and must necessarily be separated from them. The shell is ovate, oblong, or spiral, more or less ventricose; aperture entire, longer than wide; margin very unequal; columella straight, smooth, not truncated, or widened at the base, striated longitudinally; and when the shell has obtained its maturity a reflected lip is formed, thickened round its circumference on the right side, and frequently nearly covering the umbilicus on the other. In the *B. ovata*, the type of this genus, the outer lip has a thickened callosity at the middle part, not mentioned by Lamarck. These shells have no operculum; the substance of some species is extremely thin, and the margin of the aperture smooth and sharp; all of them are supposed to be oviparous, and the eggs of some species are nearly as large as those of a pigeon. Many of the species of this genus are heterostrophe shells, and have never been found with the whorls turned to the right hand, or what are termed dextral shells.

<i>Bulimus ovatus</i>	<i>Bulimus Richii</i>
..... <i>hæmastomus</i>	..... <i>inversus</i>
..... <i>gallina-sultana</i>	..... <i>citrinus</i>
..... <i>zigzag</i>	..... <i>sultanus</i>
..... <i>undatus</i>	..... <i>Pythogaster</i>

Bulimus ovoideus	Bulimus Mexicanus
..... interruptus	..... multifasciatus
..... Peruvianus	..... Bengalensis
..... Favannii	..... Caribæorum
..... Kambeul	..... octonus
..... calcareus	..... terebraster
..... decollatus	..... articulatus
..... lyonetianus	..... acutus
..... inflatus	..... ventricosus
..... radiatus	..... montanus
..... fragilis	..... hordeaceus
..... Guadalupensis	..... lubricus.

ACHATINA.

BULLA ACHATINA.—*Linn.*

Sowerby's Genera, No. 14, pl. 6.



LAMARCK has constituted a distinct genus of this numerous and elegant family of shells, which were confounded by Linnæus with the *G. Bulla*. The characters of them in many respects resemble those of the *G. Bulimus*, but on examination the difference existing between the two will be evident, and prove the expediency of a separation. The columella is smooth and trun-

cated, and the margin of the aperture never thickened, which seems to indicate, that the animal breathes only air; and though not altogether incapable of existing in an aqueous element, probably derives its sustenance from the vegetation on the banks of rivers or stagnant pools, and only occasionally ventures into the water. Shell oval or oblong, ventricose, striated longitudinally; aperture ovate, never thickened or reflected: a smooth, straight columella, truncated at the base, without an operculum. Lamarck has not mentioned that they are oviparous, which no doubt is the fact, as the writer has seen the ovum of one species resembling the egg of a large sized humming-bird, and containing a distinctly formed shell within. Several of these, like the shells of the preceding genus, are heterostrophe. After the *A. fulminea*, Lamarck has now placed the *A. columnaria*, having determined it to belong more properly to this genus than to that of the *Lymnæa*, from which it has therefore been removed.

Last Whorl of the Shells ventricose, and not compressed.

<i>Achatina perdix</i>	<i>Achatina immaculata</i>
..... zebra	..... purpurea

Achatina acuta	Achatina ustulata
..... bicarinata	..... vexillum
..... Mauritiana	..... Virginea
..... castanea	..... Priamus.

Last Whorl compressed, and attenuated to the base.

Achatina glans	Achatina fulminea
..... Peruviana	..... columnaria
..... albo-lineata	..... folliculus
..... fusco-lineata	..... acicula.

SUCCINEA.

HELIX PUTRIS.—Linn.



Sowerby's Genera, No. 9, plate 4.

THIS genus was at first called *Amphibulimus* by Lamarck, not knowing that Draparnaud had called it *Succinea*, which name he has now therefore adopted. The genus appears to be intermediate between those of *Bulimus* and *Lymnæa*: the animal is almost amphibious, inhabiting the neighbourhood of water, in which it fearlessly ventures, but habitually lives in the open air, and may therefore more properly be considered a terrestrial shell. They are distinct from the *G. Bulimus*,

in never having their lip reflected or thickened; and from the *G. Lymnæa*, the columella being smooth, attenuated, and sharp; and the reflected right margin occasioning no appearance of an angle, plait, or fold. Shell ovate, oblong; aperture oblong, very ample, and entire; right lip not reflected, and united to the columella at the lower part: no operculum. Lamarck mentions only three species; de Ferrusac, nine; and Sowerby has discovered another not noticed by either, which he calls *S. ovata*.

Succinea cucullata *Succinea amphibia*
Succinea oblonga.



AURICULA.

VOLUTA AURIS-MIDÆ.—*Linn.*

Mawe's Linnæus, pl. 29, f. 4.

Mart. 2, t. 23, f. 436, 438.

SHELLS of this genus were considered *Volutes* by Linnæus, from which Bruguiere removed all those not possessing a notch at the base, to his genus *Bulimus*, not considering that the plaited or callous columella distinctly indicated the dwelling of a differently organized animal. Lamarck has therefore constituted the pre-

sent genus. He had imagined that the shells with a plaited column, the aperture without any notch at the base, and the margin smooth and sharp, were river shells; and consequently had formed them into a genus by themselves, under the name of *Conovulus*; but, from the subsequent observations of M. de Valenciennes, it was discovered that they were terrestrial. Lamarck has therefore united all of the *G. Conovulus* under the present name. Shell suboval, or oblong; aperture longitudinal, contracted, and ear-shaped, quite entire at the base; the margin at the upper part narrowed and disunited, columella with one or more callous plaits; the centre of the right lip thickened, sometimes reflected outwards, and sometimes smooth and sharp.

Right Lip outwardly reflected.

Auricula Midæ	Auricula scarabæus
..... Judæ	..... bovina
..... Sileni	..... caprella
..... leporis	..... myosotis
..... felis	..... minima.

Right Lip plain and sharp.

Auricula Dombeiana	Auricula nitens
..... coniformis	..... monile.

CYCLOSTOMA.



HELIX VOLVULUS.—*Muller.*

Encycl. Meth. plate 461, fig. 3, a. b.

Chemnitz, 9, table 123, fig. 1064, 1066.

THIS genus, (of which the *Turbo carinatus* of Gmelin is a species), is terrestrial; and, from the great variety of form in its different species, has been blended by former authors on conchology with other genera. It now however only comprehends a branch of the Linnæan *G. Helix*, from the others of which it essentially differs, and is easily distinguished by the aperture being invariably circular, and the margin thin, sharp, and outwardly reflected at right angles with it. The *G. Cyclostoma* is not the only one in which the species possess a circular aperture: the *G. Scalaria*, *Delphinula*, and *Paludina*, have it also: the two former have likewise a reflected lip; but the annular processes of the one, and the pearly substance of the other, distinguish and prove them to be marine; while the *G. Paludina*, not possessing the reflected lip, but a smooth sharp margin, is evidently a fluviatile shell. These shells vary considerably in form, some being turreted, some cylindrical, others flat at the

spire, or convex, and can only be recognized with certainty by their round aperture and reflected lip, their exterior never having tubercles or spines, and their possessing a horny operculum.

Cyclostoma planorbula	Cyclostoma fasciata
..... volvulus	..... mumia
..... carinata	..... quaternata
..... sulcata	..... ferruginea
..... unicarinata	..... decussata
..... tricarinata	..... lineolata
..... obsoleta	..... mammillaris
..... rugosa	..... ligata
..... labeo	..... lincinella
..... interrupta	..... orbella
..... ambigua	..... fimbriata
..... semilabris	..... multilabris
..... flavula	..... elegans.

Doubtful Species.

Cyclostoma patulum Cyclostoma truncatum.

PLANORBIS.



HELIX CORNU-ARIETIS,—*Linnaeus*.

Encycl. Meth. plate 460, fig. 3, a, b.

Chem. 9, t. 112, f. 952, 953.

THIS genus formed a part of the *G. Helix* of *Linnaeus*. *Muller* and *Bruguiere* were the first to separate it; and *Lamarck* agrees with them in the propriety of so doing, not only with a view to diminish the great number of shells described as belonging to the *G. Helix*, but to distinguish the aquatic from the terrestrial species. Shells of this genus are discoid, that is, having the spiral evolutions on an horizontal plane, or, as it were, wound round a central point, gradually increasing in size, and leaving the upper and lower sides concave, and nearly similar, the spire being only a little elevated; the aperture oval, dilated, far removed from the axis of the shell; the lip never reflected; substance generally thin and diaphanous; the whorls nearly cylindrical, but sometimes flattened, angular, or carinated; they have no operculum, and inhabit fresh water.

LAMARCK does not appear to have observed, in more than one species of the *P. spirorbis*, the very peculiar

and characteristic distinction of its being heterostrophe, or what is commonly called a reverse shell, which also occurs in many other examples examined by the writer.

Planorbis cornu-arietis	Planorbis vortex
..... corneus	..... deformis
..... carinatus	..... contortus
..... lutescens	..... hispidus
..... orientalis	..... nitidus
..... spirorbis	..... imbricatus

PHYSA.

BULLA FONTINALIS.—*Linn.*

Sowerby's Genera, No. 7, plate 6.



THE G. Physa, established by Draparnaud, is a fresh water shell, thin, fragile, and generally heterostrophe, or having the whorls turned to the left hand; they were considered Bullæ by Linnæus, from which the projecting spire distinguishes them: they are nearly allied to the G. Lymnæa, from which they only differ in not having the aperture widened, the right margin being a little advanced above its base. Sowerby in his *Genera of Shells, No. 8*, has united this genus with that

of *Limnæa*, observing that the circumstance of the *Physæ* being heterostrophe shells, is not a sufficient generic distinction to warrant their separation; as they differ in no other respect from the *G. Lymnæa*.

<i>Physa castanea</i>	<i>Physa hypnorum</i>
..... <i>fontinalis</i>	..... <i>subopaca</i>



LYMNÆA.

HELIX STAGNALIS.—*Linnæus*.

Sowerby's Genera, No. 7, pl. 6.

THE numerous species of this genus of shells, and their being aquatic, renders the separation of them necessary from the *G. Helix* and *G. Bulimus*, but more particularly the characters of each being in other respects so very different. It is an aquatic shell, oblong, sometimes turreted and more or less ventricose; spire projecting; aperture ovate, entire, and sharp, the lower part reflected upon the columella, and forming an oblique plait on re-entering the opening; substance not pearly, and generally thin: no operculum. The first species mentioned by Lamarck, *L. columnaris*, being a terrestrial shell, he has in the last volume of his work removed it to

the *G. Achatina* (to which it more properly belongs), and has placed it next to the *Achatina fulminea*.—Sowerby has united these with the *Physæ*, for the reasons stated in the description of that genus.

<i>Lymnæa columnaris</i>	<i>Lymnæa auricularia</i>
..... stagnalis	..... ovata
..... palustris	..... peregra
..... Virginiana	..... intermedia
..... luteola	..... leucostoma
..... acuminata	..... minuta

MELANIA.

HELIX AMARULA.—*Linn.*

Mawe's Linnæus, plate 29, fig. 2.



LINNÆUS blended these shells with his *G. Helix*, and some affinity has been supposed to exist between this genus and that of the *Lymnæa*; but, except that they are both of them fluviatile shells, and the form of the *Melania* an oblong oval, with the spire produced or turreted, in other respects they are very dissimilar. The shells of this genus are closed by a horny operculum: they are rather thick; the exterior wrinkled, and the margin of the spiral whorls often surmounted by spines

or knobs; the columella smooth and arched, the lower part of their aperture entire, constantly wider than the upper: they are also covered with a brown or black epidermis. The animal breathes only air.

Melania asperata	Melania decollata
..... truncata	..... amarula
..... coarctata	..... thiarella
..... punctata	..... spinulosa
..... corrugata	..... granifera
..... subulata	..... carinifera
..... lævigata	..... truncatula
..... clavus	..... fasciolata.



MELANOPSIS.

MELANOPSIS COSTATA.

Encycl. Meth. p. 458, f. 7.

THESE shells are fluviatile, and are very nearly allied to those of the preceding genus; from which, however, they are easily distinguished by their columella being callous at the upper part, and their base truncated as in the Achatina. They approximate the G. Pirena, from which they principally differ in having only one sinus, or a widened opening at the base of the shell. They

are turreted; the aperture entire, oval, and oblong; the columella callous at the upper part, truncated at the base; the right side of the margin separated by a sinus or notch. Shell with an operculum.

Melanopsis costata Melanopsis lævigata.

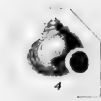
PIRENA.

Encycl. Meth. pl. 458, f. 2, A. B.

THE *G. Pirena* resembles the *G. Melania* and *G. Melanopsis*, but more particularly the former genus: from the latter however, it is principally distinguished by not having any particular callosity; and it cannot be confounded with the *G. Melania*, the right margin having a sinus at the base, and another at the summit; consequently the shells of this genus present two notches, while those of the *G. Melanopsis* and *G. Melania* exhibit only one. It is a turreted shell, the aperture oblong, right lip sharp, and the base of the columella inclined towards the right side. The operculum is horny.

Pirena terebralis *Pirena aurita*
 spinosa granulosa.





VALVATA,

HELIX PISCINALIS.—*Gmelin.*

MULLER and Draparnaud have described this genus of fresh water shells under its present name, which Lamarck therefore preserves. It is quite distinct from the *G. Planorbis*, although its form is rather discoid: as the animal only breathes *water*, and has an operculum, it more nearly approximates the *G. Paludina*; but the spiral cavity of the *Valvata* is complete, that is, not modified by the previous whorl, and the aperture is rounded, and not angular at the summit. Shell widely umbilicated, rather oblong, obtuse, cylindrical; whorls but slightly connected, and not limiting the spiral cavity; aperture rounded, entire, and sharp; the operculum is orbicular.

Valvata piscinalis.



PALUDINA.

HELIX VIVIPARA.—*Gmelin.*

THIS genus, of which the various species have been confounded with the genera *Bulimus*, *Cyclostoma*, and *Turbo*, by various authors, Lamarck has properly classed by itself. It generally inhabits fresh water,

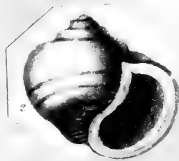
but has been found in brackish water, and even where it is quite saline; the animal breathes only water like that of the *Valvata* to which it nearly approximates, but has the *Branchiæ* internal. Shell with round or convex whorls compressing the spiral cavity; aperture a rounded oval, angular at the summit; the two edges of the lip united, sharp, never reflected outwardly; the operculum horny and orbicular.

Paludina vivipara	Paludina unicolor
..... achatina	..... impura
..... Bengalensis	..... muriatica
..... Paludina viridis.	

AMPULLARIA.

HELIX AMPULLACEA.—*Linn.*

Sowerby's Genera, No. 4, pl. 3.



THIS genus appears to be allied to the *G. Planorbis*, but the shells are very different. They inhabit fresh water in hot climates, and sometimes attain a great size; the columella lip is thickened, projecting, and recurved or reflected over the umbilicus, which is small, forming a compressed funnel-shaped aperture, without producing any callosity within; the right side of the margin is always smooth and sharp. Shell glo-

bular, extremely ventricose; opening ear-shaped; the spire depressed; and the circumference of the last whorl at least four times the size of the preceding evolutions.

THESE shells are closed by an operculum, sometimes of a horny and occasionally of a *calcareous* substance, which circumstance, as well as the slight groove on the columella, into which it fits, appears to have escaped Lamarck's observation.

Ampullaria Guyanensis	Ampullaria Guinaica
..... rugosa	..... virens
..... fasciata	..... carinata
..... canaliculata	..... avellana
..... effusa	..... intorta

Ampullaria fragilis.

[There are several fossil species described in the *Annales du Museum*. p. 30.]



NAVICELLA.

NERITA PORCELLANA.—*Chemnitz*.

Chem. 9, tab. 124, fig. 1082.

THESE are fresh water shells, and nearly allied to the Nerita, but yet more closely to the Neritina. The sum-

mit does not turn in an oblique spiral curve, as in the genera mentioned, but is straight, turned quite to the base, and concave beneath; the left margin flattened, sharp, and straight, forming a flat internal deck or partition, which covers a part, but never half the cavity of the aperture; a solid flat operculum, with one lateral and subulate tooth (or appendage).

Navicella elliptica Navicella lineata

Navicella tessellata.

NERITINA.

NERITA PULLIGERA.—*Gmelin.*

Chem. 9, t. 114, f. 975, 976.



NATURALISTS have hitherto confounded the shells of this genus with the true Neritæ, which in form they greatly resemble; but from the circumstance of the latter inhabiting the sea, and the Neritinæ fresh water, Lamarck was induced to conjecture the animals were differently organized, and that the shell would consequently furnish some proof to that effect, which on examination he found to be the case. The Neritinæ are in general of a thin substance; the most part smooth on the surface, or merely finely striated: in all the species known the right side of the aperture does not pos-

sess. any crenulations or teeth; the operculum (of those species which have been found with it), is provided with a lateral tooth on one side. Some species are armed with long spines. Shell thin, semiglobular, or oval; flattened beneath, not umbilicated; opening semicircular; left margin smooth and sharp.

Neritina perversa	Neritina auriculata
..... pulligera	..... Domingensis
..... dubia	..... fasciata
..... zebra	..... lineolata
..... zigzag	..... semi-conica
..... gagates	..... strigilata
..... lugubris	..... meleagris
..... corona	..... virginea
..... brevispina	..... fluviatilis
..... crepidularia	..... viridis

Neritina Baetica.



NERITA.

NERITA EXUVIA.—Linn.

Mawe's *Linnaeus*, pl. 30, f. 1 & 7.

Sowerby's Genera of Shells, No. 15, pl. 4.

THE true *G. Nerita* is distinguished from the *Neritina* by the following characters, independent of its being a

marine shell: it is solid, semiglobular, concave beneath, not umbilicated; aperture entire, semicircular; summit very obtuse; left side flattened, (septiforme), sharp, and often dentated, the inner one slightly concave, generally with granulations; operculum fixed by a tooth or appendage which fits into a receptacle within the shell, opening as the animal passes out, and closing upon it when retired within its shell. The shells are never spined, but variously striated. They are generally so well known to collectors, that a more minute description is here unnecessary.

Nerita exuvia	Nerita chamæleon
..... textilis	..... versicolor
..... undata	..... Ascensionis
..... peloronta	..... Malaccensis
..... chlorostoma	..... lineata
..... atrata	..... scabricosta
..... polita	..... plicata
..... albicilla	..... tessellata

Nerita signata.



NATICA.

NERITA CANRENA.—*Linn.**Sowerby's Genera, No 15. pl. 5.*

THE species and varieties of this very numerous family were classed together by Linnæus under the name of *Nerita canrena*. Bruguiere first separated them, and adopted Adanson's name to distinguish them from the *Neritæ*, to which they have but a very slight affinity. The shells of this genus are solid, subglobular, umbilicated; aperture entire, semicircular; right lip smooth and sharp; left margin oblique, callous, but not toothed, the callosity modifying the umbilicus, and sometimes closing it entirely; the exterior smooth; operculum generally calcareous, *with concentric ribs, fitting into a slight groove on the columella, though in some species it is horny and smooth*: which circumstances are not observed by Lamarck in his description of these shells. Sowerby mentions the existence of numerous fossil species.

<i>Natica glaucina</i>	<i>Natica melanostoma</i>
..... albumen	..... aurantia
..... mamillaris	..... conica
..... mamilla	..... plumbea

Natica ampullaria	Natica lineata
..... canrena	..... fulminea
..... cruentata	..... maculosa
..... millepunctata	..... vittata
..... vitellus	..... castanea
..... helvacea	..... Marochiensis
..... collaria	..... arachnoidea
..... monilifera	..... zebra
..... labrella	..... zonaria
..... rufa	..... Chinensis
..... uni-fasciata	..... Javanica

Natica cancellata.

JANTHINA.

HELIX JANTHINA.—*Linnaeus*.

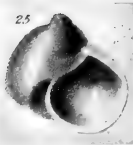
Sowerby's Genera, No. 5, plate 3.



THIS singular marine shell was classed by *Linnaeus* with the *Helices*, all of which are terrestrial. The *Janthina* is only in general form like the *Helix*, but differs in every other respect from that or any other genus. The shell is extremely thin and fragile, transparent, and of a beautiful violet color throughout its substance: the form is round and ventricose; whorls

slightly angulated; spire obtuse; columella straight, continued below the base of the right side, occasioning an angle to be formed at the lower part of the aperture; a sinus in the margin of the outer lip, which, from the delicate substance of the shell, is seldom seen perfect. These shells are found floating on the surface of the sea, suspended by a vesicular appendage, attached to the foot of the animal, which emits a violet-colored liquid, when touched. Two species are described by Lamarck; but Sowerby mentions two others, the *J. globosa*, and a species found upon our own coasts, though very rarely: and among many unique and non-descript shells in the late Earl of Tankerville's cabinet, the writer has observed another very distinct and beautiful species.

Janthina communis *Janthina exigua*.



SIGARETUS.

HELIX HALIOTOIDEA.—*Linn.*

Mart. 1, table 16, fig. 151, 154.

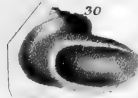
THE Sigaretus is a shell concealed in the mantle of the animal producing it. It somewhat approximates the *G. Natica*, greatly resembling a very depressed shell

of that family, from which, however, the extraordinary width of the aperture, and its spiral short columella, render it perfectly distinct. Shell nearly orbicular, but subauriculated, and very much depressed; left side short and spiral; spire flat; aperture oval, entire, extremely wide, exposing the whole interior.

Sigaretus haliotoideus Sigaretus lævigatus
 concavus cancellatus.

STOMATELLA.

PATELLA LUTEA.—Linn.



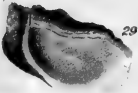
Mart. 1, table 17, fig. 154, 155.

THIS genus in external appearance much resembles the *G. Stomatia* and *G. Haliotis*; and Linnæus considered it a *Patella*, to which it has, however, less affinity than to either of the other genera. It may more easily be mistaken for a much depressed *Turbo*; but its form and the want of an operculum indicate a very different inhabitant. It never possesses the transversal rib of the *Stomatia*, nor is the right margin so much raised as that of the *Haliotis*; and it is always without the perforations, so remarkably characteristic of that genus.

Shell oblong, ear-shaped; aperture entire, very wide; summit pointed, incurved, and nearly marginal; the interior beautifully iridescent.

Stomatella imbricata *Stomatella sulcifera*
 *rubra* *auricula*
 Stomatella planulata.

STOMATIA.



HALIOTIS IMPERFORATA.—*Linn.*

Chem. 10, t. 166, f. 1600, 1601.

THIS shell very much resembles the *Haliotis* in appearance. It has even a transverse subcarinated rib, tuberculated, but never imperforated. Shell ear-shaped, oblong, very convex; spire much elevated, and recurved to one side; aperture entire, oblong, and the interior very pearly.

Stomatia phymotis *Stomatia obscurata.*

HALIOTIS.

HALIOTIS MIDÆ.—*Linnæus.**Mawe's Linn. pl. 31.*

THE Haliotides constitute a beautiful genus, numerous in species, and remarkable for their singular form and brilliant pearly substance. They are so well known to all collectors by the trivial name of Ear Shells, that a minute description of them here is not necessary, particularly as the writer's object is chiefly to make Lamarck's arrangement easy of comprehension to those who are unacquainted with it, by giving his reasons for having divided many of the genera, as they formerly were constituted by other authors, and stating where no alteration has taken place in a genus, as is the case in the present, with the exception of the *H. imperforata*. It is therefore only necessary to add a few particulars mentioned by Lamarck, not generally known, regarding the animal. As the animal increases the size of its shell a new hole is commenced, appearing at first only a notch on the external margin, but which afterwards is completed as the growth of the shell continues, and others formed in succession, admitting the passage of a short syphon. When at rest the animal adheres, like the Pa-

tella, to rocks nearly on a level with the sea; and during the fine summer nights it wanders to feed on the herbaceous plants that grow near the shore.

THIS genus, in the writer's opinion, much wants a better classification of its species in their natural proximities.

Haliotis Midæ	Haliotis asinina
..... iris	..... glabra
..... tubifera	..... lamellosa
..... excavata	..... unilaterialis
..... australis	..... rugosa
..... tuberculata	..... canaliculata
..... striata	..... tricostalis

Haliotis dubia.



TORNATELLA.

VOLUTA SOLIDULA.—*Linnaeus*.

Mart. 2, t. 43, f. 440, 441.

THE Tornatellæ are convolute and marine shells, which Lamarck in the first instance mistook for, and classed with the *G. Auricula*, on account of the plaits or callosities on the columella: but besides the difference of their

habitat, their general form is very distinct, and would more nearly resemble the *G. Ovula*, if the spire was not produced. The surface of these shells has seldom an epidermis, and is altogether or only partially striated transversely; they have on the columella one or more thick, obtuse plaits: the shell is rolled round its own axis, oval, cylindrical; aperture oblong, entire, right edge sharp, spire elevated, and rather acute.

<i>Tornatella flammea</i>	<i>Tornatella auricula</i>
..... <i>solidula</i>	..... <i>nitidula</i>
..... <i>fasciata</i>	..... <i>pedipes</i> .

PYRAMIDELLA.

TROCHUS DOLABRATUS.—*Linnaeus*.

Favanne, pl. 65, f. L.



LAMARCK is convinced, on an examination of these shells, that they are marine and not terrestrial, though different authors have not precisely determined their habitat: (three only of the species described by Lamarck, are stated by him to inhabit the sea). Shell subconical, turreted, without an epidermis; aperture semioval, entire, outer lip sharp; the lower part of the columella a little projecting, and subperforated at the base, with three transverse plaits.

Pyramidella terebellum Pyramidella plicata
 dolabrata corrugata
 Pyramidella maculosa.



VERMETUS.

SERPULA LUMBRICALIS.—*Linnaeus.*

Mawe's Linn. pl. 34, f. 1.

At the first sight of this shell it might be considered the production of an Annelide, or the shell of a Serpula; but the figure and description given of the animal by Adanson, evidently prove it to be a true Mollusca, and very singular in its organization, since it cannot displace itself to climb or swim from one place to another. The shell is tubular, thin, diaphanous, almost horny, and turned in a loose spiral form, particularly at the posterior end; it is rendered extremely remarkable from the circumstance of its adhering, or being affixed to marine bodies by the attenuated and pointed extremity of the spire. These shells are usually found grouped together, and as it were intertwined with each other: they appear nearly allied to the shells of the *G. Scalaria*, which are rendered tubular by the peculiar separation of the whorls of the spire, though they are free, and never attached by any part to marine bodies.

Vermetus lumbricalis.

SCALARIA.

TURBO SCALARIS.—*Linn.**Sowerby's Genera, No. 11, pl. 2.*

THE *Scalariæ* are marine shells, very easily distinguished from the *G. Cyclostoma*, (though they have a circular aperture), not only as to habitat, and their turreted form, but by their longitudinal, elevated ribs, which are never connected together, rather oblique, and almost sharp: these ribs are only the thin reflected margins of previous terminations of the opening, each exhibiting the growth and addition made by the animal to the shell, at successive periods of enlargement: these terminations are very different in terrestrial shells, never being left at a former stage of growth. The spire of the *Scalaria* is more or less elongated in the different species, but in all yet known the succeeding whorl is always larger than the preceding, which occasions the turreted form of these shells to differ from the cylindrical shape of the *Pupæ*, to which they may be said to bear some resemblance; they, like the *Scalariæ*, having numerous ribs on the whorls, though their form is much more cylindrical. The aperture of the *Scalariæ*, is round or nearly so, the edge of it thickened, sharp, and outward-

ly reflected at a right angle; there appears a very slight indication of a groove or canal on the columella side, not mentioned by Lamarck. Sowerby also observes, that these shells possess a thin horny operculum.

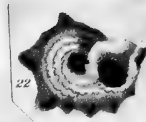
ONE of the most beautiful species of this genus, the *S. pretiosa* (commonly called the Wentletrap), is extremely singular for its umbilicus, and the separation of its spiral whorls, which appear like an attenuated tube spirally evolved round a cone. The whorls are drawn out, often quite separated from each other, or only slightly connected together by the longitudinal ribs of the previous terminations of the aperture; and even these in some examples do not touch, proving that they are not essential to the support of the whorls; from which circumstance this genus may be considered nearly allied to the *G. Vermetus*. There are many more species known than those enumerated by Lamarck, as well as many fossil species. See Sowerby's Genera, No. 11.

<i>Scalaria pretiosa</i>	<i>Scalaria varicosa</i>
..... lamellosa	..... communis
..... coronata	..... australis

Scalaria raricosta.

[And three fossil species.]

DELPHINULA.

TURBO DELPHINUS.—*Linnæus**Mawe's Linn. pl. 28, f. 4.*

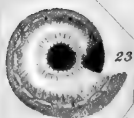
THIS genus possessing the round mouth of the G. Turbo, probably induced Linnæus to consider it of that family, but the united margin of the aperture at once distinguishes it from the Turbo. In many respects it approximates the G. Scalaria, like which it sometimes has the whorls drawn out and detached. The shell is solid, conical, or subdiscoïd, umbilicated, thick, nacreous within and under the external coating; aperture entire, round, or trigonal; whorls of the spire rugged on the outside, and angular on the side of the umbilicus, (which is filled with short spines proceeding from the interior side of the whorls, not mentioned by Lamarck); no columella is visible: it is presumed the animal has an operculum; the exterior is armed with spines, depressed and palmated at the summits, tubercles, or scabrous striæ. The solidity and pearly substance of these shells and their external surface, at once distinguish them from the terrestrial G. Cyclostoma, though both possess a circular united aperture.

Delphinula laciniata Delphinula distorta

Delphinula turbinopsis.

[There are also seven fossil species.]

SOLARIUM.

TROCHUS PERSPECTIVUS.—*Linnæus*.

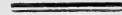
Chem. 5, t. 196, f. 1691, 1696.

LINNÆUS and other writers considered this genus to be a species of Trochus, with which it certainly appears closely allied, particularly when compared with such of them as have the base terminating in a sharp edge at the outer circumference. In form this genus also somewhat resembles the Planorbis, and from the examination of some fossil species it is very difficult to draw a distinct line between them. The division however now made by Lamarck, cannot be mistaken for either of the above mentioned genera, the umbilicus of the shell being always dentated or crenulated at the edge of the internal whorls. These shells are of an orbicular, depressed conical form, umbilicus very wide, *with dentated spiral whorls running interiorly from the summit to the margin*, the opening of the mouth nearly quadrangular: no columella. The writer has seen a calcareous operculum, said to belong to a shell of this genus, but cannot vouch for its having been found with it. In appearance it nearly resembled the thick stony operculum of many of the Turbines, but was of a more

quadrangular form. Seven species are named by Lamarck, but several others are known.

Solarium perspectivum Solarium stramineum
 granulatum hybridum
 lævigatum variegatum
 Solarium luteum.

[There are also eight fossil species.]



ROTELLA.

TROCHUS VESTIARIUS.—Linn.

Sowerby's Genera, No. 14, plate 2.



THE base of the shells of this genus being particularly callous, and several peculiarities being observable in the sutures and appearance of the surface, which do not exist in the *G. Trochus*, Lamarck has been induced to establish the present genus. It in some respects resembles the *G. Helicina*; but the shells of the latter being terrestrial, with the lip reflected, and the callosity extending beyond the umbilicus, cannot be confounded with this genus. Shell orbicular, highly polished, without an epidermis; spire subconical, very low; aperture semicircular, and probably closed by an operculum. Lamarck has altered the specific name

of the type of this genus from *Vestiarius* to *Lineolata*, a liberty he has frequently taken in other genera, and which is much to be regretted, as the number of Synonyms has already created very great confusion, and led to many errors.

<i>Rotella lineolata</i>	<i>Rotella suturalis</i>
..... <i>rosea</i>	..... <i>monilifera</i>
<i>Rotella Javanica</i> .	



TROCHUS.

TROCHUS SOLARIS.—*Linn.*

Mawe's Linnæus, plate 27, fig. 1, 5.

FROM this genus, as Linnæus had constituted it, Lamarck has separated the genera *Solarium* and *Rotella*; it however still remains a numerous and elegant family. The shells are marine, their form conical, the spire more or less elevated, the whorls angular, convex, sometimes thin and sharp; aperture transversely depressed; the axis of the spire but slightly inclined: they stand easily and almost entirely erect on their base, which is flat and concave, (rarely convex, as in the *Rotella*); when placed in that position, the aperture forms an angle at the last whorl, exhibiting the lower part

of the columella, which is twisted or arched. Most of the species are of a beautiful pearly substance, and many of them have longitudinal ribs, (an occurrence never seen in the Turbines, for which some of this genus have been mistaken); the whorls of many of the species are margined, with compressed vaulted scales or spines, more or less long; the aperture heart-shaped and closed by an operculum. Some species have the faculty of attaching stones, corals, and fragments of shells to their exterior, as the *T. agglutinans* of Lamarck, (*T. conchyliophorus* of Linnæus). These have not been particularly distinguished by Lamarck, and might with great propriety form a distinct family.

<i>Trochus imperialis</i>	<i>Trochus asperatus</i>
..... <i>longispina</i>	..... <i>rhodostomus</i>
..... <i>solaris</i>	..... <i>spinulosus</i>
..... <i>Indicus</i>	..... <i>costulatus</i>
..... <i>radians</i>	..... <i>inermis</i>
..... <i>pileus</i>	..... <i>agglutinaus</i>
..... <i>calyptræformis</i>	..... <i>cælatus</i>
..... <i>fimbriatus</i>	..... <i>tuber</i>
..... <i>brevispina</i>	..... <i>magus</i>
..... <i>rotularius</i>	..... <i>merula</i>
..... <i>stella</i>	..... <i>argyrostomus</i>
..... <i>stellaris</i>	..... <i>Cookii</i>

Trochus niloticus	Trochus conuloides
..... pyramidalis	..... conulus
..... noduliferus	..... jujubinus
..... cærulescens	..... Javanicus
..... obeliscus	..... annulatus
..... virgatus	..... doliarius
..... maculatus	..... granulatus
..... granosus	..... granatum
..... squarrosus	..... moniliferus
..... incrassatus	..... iris
..... flammulatus	..... ornatus
..... elatus	..... bicingulatus
..... marmoratus	..... calliferus
..... Mauritianus	..... umbilicaris
..... imbricatus	..... undatus
..... triserialis	..... Pharaonis
..... crenulatus	..... sagittiferus
..... asperulus	..... carneolus
..... acutus	..... cinerarius
..... concavus	..... excavatus
..... lineatus	..... nanus
..... zizyphinus	..... pyramidatus

Trochus erythroleucos.

[And eight fossil species described in the *Annales du
Museum, Vol. 4, p. 46.*]

MONODONTA.

TURBO PAGODUS.—TROCHUS LABIO.—*Linn.**Chemnitz, 5, tab. 166, fig. 1579, 1580.*

THIS genus occupies, as it were, an intermediate space between the Trochus and the Turbo, distinguished from the former by the aperture being rounder, and scarcely at all depressed, and from the latter by the tooth-like projecting angle which the truncated columella occasions at the base of the aperture. Shell oval or conoid; aperture entire, rounded; the margin disunited at the upper part, and closed by an operculum; the interior margin in some appearing double, or grooved in its thickness, in others single and sharp; columella arched, truncated at the base, exterior surface occasionally tuberculated or striated.

Monodonta bicolor	Monodonta tectum
..... pagodus [cum	..... labio
..... tectum Persi-	..... australis
..... papillosa	..... canalifera
..... coronaria	..... viridis
..... Ægyptiaca	..... fragarioides
..... carchedonius	..... constricta
..... modulus	..... tricarinata

Monodonta articulata	Monodonta canaliculata
..... lugubris	..... seminigra
..... punctulata	..... rosea
Monodonta lineata.	



TURBO.

TURBO MARMORATUS.—*Linn.*

Mawe's Linn. pl. 28, fig. 1.

Chemnitz, 5, tab. 179, fig. 1775, 1776.

THE species of this genus are very numerous and much diversified, they differ from the *Monodontæ* in never having the columella truncated at the base, but having it imperceptibly smoothed down on the right side; the aperture consequently presents a round opening: in many other respects they greatly resemble the preceding genus. They have been blended together with the *Trochus* by other authors, from which they are very distinct, the whorls being constantly convex and never flattened; the shell is solid, resting almost entirely on its aperture, and the columella is never visible. Shell subconical or turreted, whorls never compressed, aperture entire, rounded, and closed by an operculum; margin disunited at the upper part, colu-

mella flattened at the base. The interior, as well as the exterior of these shells, when uncoated, presents a most brilliant pearly appearance of a golden or silvery iridescence. Many of these species have their exterior armed with spinous foliations, or are variously sculptured; others are perfectly smooth.

Turbo marmoratus	Turbo diaphanus
..... imperialis	..... rugosus
..... torquatus	..... coronatus
..... sarmaticus	..... crenulatus
..... cornutus	..... hippocastanum
..... argyrostomus	..... muricatus
..... chrysostomus	..... littoreus
..... radiatus	..... ustulatus
..... margaritaceus	..... Nicobaricus
..... setosus	..... neritoides
..... Spenglerianus	..... retusus
..... petholatus	..... rudis
..... undulatus	..... obtusatus
..... pica	..... pullus
..... versicolor	..... cærulescens
..... smaragdus	..... cancellatus
..... cidaris	..... costatus.



PLANAXIS.

BUCCINUM SULCATUM.—Born.

Sowerby's Genera, No. 12, plate 3.

THESE are marine shells allied to the *G. Phasianella*, from which they are distinct, having the base of the columella truncated as in the *Melanopsis*, and would have been yet more different if they had not possessed an operculum, as *Lamarck* imagined was the case. The shells of this genus are generally small, transversely grooved on the exterior; of an oval, conical form; solid; aperture ovate; columella flattened, truncated at the base, separated on the right margin by a narrow sinus or channel; the interior surface of the right margin grooved or rayed with a callosity running beneath the summit, appearing in that respect allied to the *G. Buccinum* and *G. Purpura*. *Sowerby* in his *Genera of Shells*, observes, that he has seen one species with a thin horny operculum, (a circumstance with which *Lamarck* was unacquainted), and considers them more nearly allied to the *Buccina* and *Purpuræ*, than to the *Phasianellæ*, in consequence of the callosity which runs under the summit of their right lip.

Planaxis sulcata

Planaxis undulata.

PHASIANELLA.

BUCCINUM AUSTRALE.—Linn.

Sowerby's Genera, No. 4, plate 1.

THIS genus very nearly approximates the *G. Turbo*, with which, as well as those of *Buccinum*, *Bulimus*, and *Helix*, other authors have confounded them. The form of these shells is spiral, oval, and conical, the last whorl considerably larger than the others; aperture oval, entire, inclining obliquely towards the base of the columella, the lower part rounded, the upper narrowed, at which part the previous whorl forms a slight projecting angle; columella smooth, compressed, and attenuated at the base; right margin sharp, smooth, not thickened or reflected outwards; a pear-shaped calcareous operculum. They are marine shells.

THESE shells are generally well known to English collectors, by the trivial name of Pheasant Snails, and are deservedly admired for their exquisite beauty, and the delicacy of their varied patterns and rich coloring: they form a very natural group, not easily to be mistaken for any other genus. Swainson has pointed out a

very distinctive character in this genus, that of a slightly projecting or salient angle, running along the columella. Sowerby mentions, that some fossil species are found in the neighbourhood of Paris, and in the London clay, but all of them small.

Phasianella bulimoides	Phasianella lineata
..... rubens	..... nebulosa
..... variegata	..... sulcata
..... elegans	..... Mauritiana
..... Peruviana	..... angulifera.



TURRITELLA.

TURBO DUPLICATUS.—*Linnaeus.*

Sowerby's Genera, No. 12. pl. 1.

FORMER Naturalists, having only been guided by the general form of the shell, and not taking advantage of the indications pointed out by the different formation of the mouth, gave the name of Screws indiscriminately to the very long turreted shells, and blended them with the Scalarisæ, Turritellæ, Turbines, and Cerithiæ, each of which has differently characterized apertures.—The present genus may easily be distinguished from

those resembling it, by a sinus on the right margin of the aperture, only visible when the mouth is quite perfect, (which seldom occurs), and not existing in any other species of shells of a similar form. They are all marine shells, more or less striated, or transversely carinated, but none of the species known possess vertical ribs, thickened bands, or spinous tubercles; the edges of the aperture are separated at the upper part, and never reflected outwards; they are of a very long, turreted, spiral form, attenuated to a sharp point; and when the lip is perfect, it exhibits a sinus between the upper carinations. They possess an orbicular, horny operculum

Turritella duplicata	Turritella brevisalis
..... terebra	..... bicingulata
..... imbricata	..... trisulcata
..... replicata	..... exoleta
..... fuscata	..... carinifera
..... cornea	..... australis

Turritella Virginiana.

[There are also twelve fossil species.]



CERITHIUM.

STROMBUS PALUSTRE.—*Linnæus*.*Mart. 4, t. 156, f. 1472.**Mawe's Linnæus, pl. 25, f. 5, pl. 26, f. 6.*

BRUGUIERE first established this beautiful and numerous genus, and adopted for a generic title the name given by Adanson to one of its species, which Lamarck has consequently preserved. The greater number of these shells were blended with the genera Murex, Strombus, and Trochus, by Linnæus. The G. Cerithium is nearly allied to the G. Pleurotoma, but the aperture has not the slit on the right margin; and there are other distinctions, which render a separation extremely proper. The spire of these shells occupies at least two-thirds of the whole length of the shell, the last whorl only slightly exceeding in size the previous one, giving it the appearance of a sharp pointed elongated pyramidal cone; the exterior surface is seldom smooth, but variously striated, granulated, tuberculated, or spinous; and sometimes with varices and bands, most singularly diversified in each of the species. The regularity and elegant distribution of these protuberant parts, as well as those of the G. Pleurotoma, and G. Fusus, might furnish a sculptor with the

models of innumerable designs for ornamenting architectural columns. The aperture is short, oblong, and oblique, terminated at the base by a short canal, truncated and recurved backwards, never with a notch; at the upper part of the opening is a gutter or groove, more or less strongly defined in the different species. They inhabit the sea, but such as have the canal straight and truncated, inhabit salt marshes, or the *embouchure* of rivers, where the sea joins the fresh-water: they are not however river shells, and do not offer sufficiently strong characters to constitute a genus of themselves; nor has Lamarck thought it necessary to make even a division of them, which might probably have been advisable.

Cerithium giganteum	Carithium erythræonense
..... palustre	..... muricatum
..... sulcatum	..... radula
..... telescopium	..... crassum
..... ebeninum	..... decollatum
..... nodulosum	..... obtusum
..... vulgatum	..... semigranosum
..... obeliscus	..... asperum
..... granulatum	..... lineatum
..... aluco	..... vertagus
..... echinatum	..... fasciatum

Cerithium subulatum	Cerithium ocellatum
..... heteroclites	..... literatum
..... zonale [um	..... atratum
..... semiferrugine-	..... eburneum
..... torulosum	..... punctatum
..... tuberculatum	..... lima
..... morus	..... perversum.

[And sixty fossil species.]



PLEUROTOMA.

MUREX BABYLONIUS.—*Linnaeus*.

Mawe's Linnaeus, pl. 26, fig. 1.

THESE shells were considered Murices by Linnæus, and Brugiere confounded them with the *G. Fusus*; they are however very different from either, not having the varices of the *Murex*, and possessing a long, thin notch or slit, on the right side of the aperture, which does not exist in the *Fusus*. Lamarck in the first instance called all these shells having a short canal *Clavatulæ*, and those with a long canal *Pleurotomæ*; but the very variable length of canal in the intermediate species, induced him to class them all under the present genus, being only guided by the notch on the upper

part of the edge of the aperture. These shells are either turreted or fusiform, varying in length; terminated at the base by a straight canal more or less lengthened; right margin with a deep narrow notch or slit near its upper part; the spiral whorls variously sculptured, as in the preceding genus; aperture closed by a small horny operculum.

Pleurotoma imperialis	Pleurotoma fascialis
..... auriculifera	..... bimarginata
..... muricata	..... buccinoides
..... echinata	..... cingulifera
..... flavidula	..... virgo
..... interrupta	..... Babylonia
..... crenularis	..... undosa
..... cincta	..... marmorata
..... unizonalis	..... tigrina
..... lineata	..... crispa
..... spirata	..... albina

Pleurotoma nodifera.

[There are also thirty fossil species.]



TURBINELLA.

VOLUTA PYRUM.—*Linn.**Sowerby's Genera, No. 2, pl. 2.*

THE greater number of these shells were classed by Linnæus with the *G. Voluta*, and others with the *G. Murex*, but although the columella is singularly plaited, they have a much greater affinity to the *G. Murex* than to the *G. Voluta*; the canal at the base of these shells is however a sufficient distinction to separate them from the latter, and the want of varices clearly distinguishes them from the former. It does not at first appear easy to draw a line between this genus and that of *Fasciolaria*, nevertheless the position of the plaits on the columella is so peculiarly different, that a separation is fully warranted. Shell turbinated or fusiform, canaliculated at the base; spire more or less produced; columella with from three to five projecting plaits, compressed and transversely placed; exterior coated with an epidermis, aperture closed by a pear-shaped horny operculum; columella lip frequently sharp, thin, and reflected. In the Tankerville collection is an heterostrophe or reversed example of this genus, specimens of which are extremely rare and valuable.

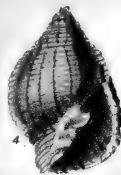
Turbinella scolymus	Turbinella leucozonalis
..... rapa	..... rustica
..... napus	..... cingulifera
..... pyrum	..... polygona
..... pugillaris	..... carinifera
..... rhinoceros	..... infundibulum
..... cornigera	..... craticulata
..... ceramica	..... lineata
..... capitellum	..... nassatula
..... mitis	..... triserialis
..... globulus	..... variolaris

Turbinella ocellata.

CANCELLARIA

VOLUTA RETICULATA.—*Linnaeus*.

Sowerby's Genera, No 5. pl. 1.



ALTHOUGH in this genus the canal is very short, and in a few species scarcely visible, Lamarck, from the certainty of its existence in some, has been induced to unite all of them in one class, and to place them next in succession to the Turbinella, to which in many respects they are naturally approximated. Such species as have the canal less apparent might have been classed

with the Columellarix; but in so doing, the leading characters of *that* family would have been altered, by blending with it any shell having a canal; nor would the alliance have been pointed out which exists between the Cancellariix and the Turbinellæ. Linnæus included these shells with the Volutæ; they are however very unlike the Oliva, Voluta, (properly so called), Mitra, Marginella, or any other of the new genera, which have been formed from his widely extended *G. Voluta*. Many of the Cancellariix are subcanaliculated at the base, which never takes place in any species of Volutæ. Shell oval, or turreted; aperture with a very short canal at the base, sometimes hardly visible; interior of the opening grooved, columella with few or numerous irregular plaits, the greater number transverse; exterior striated, cancellated, and in general rough to the touch. They are all marine shells.

Cancellaria reticulata	Cancellaria senticosa
..... asperella	..... citharella
..... scalarina	..... spirata
..... scalariformis	..... obliquata
..... nodulosa	..... rugosa
..... cancellata	..... Ziervogeliana.

[And seven fossil species.]



FASCIOLARIA.

MUREX TULIPA.—Linn.

Martini, 4, tab. 136, fig. 1286, 1287.

THIS genus is divided from the *G. Murex* of Linnæus in consequence of never having any varices, though it has a canal at the base. Bruguiere had separated these shells, but confounded them with the *G. Fusus*, from which they differ in having plaits on the columella. The plaited pillar brings them nearer to the *G. Turbinnella*, but in the latter, the position of the plaits is transverse, while in this it is spirally oblique. The shell is fusiform, whorls sometimes nodulous, canalculated at the base; two or three plaits on the columella, oblique and spiral; it has an epidermis, and horny operculum.

Fasciolaria tulipa	Fasciolaria filamentosa
..... distans	..... coronata
..... trapezium	..... ferruginea
..... aurantiaca	..... Tarentina



FUSUS.

MUREX COLUS.—*Linn.**Martini, 4, tab. 144, fig. 1842,*

THE genus *Fusus* was constituted by Bruguiere of another division of the G. *Murex* of Linnæus; in which he included all the species not having thickened bands on the spire, without distinguishing the genera *Pyrula*, *Fasciolaria*, *Pleurotoma*, &c. The shells of the G. *Fusus*, as it is now established, are of an elongated fusi-form shape; the whorls ventricose at the lower extremity, and without varices, or longitudinal, thickened bands on the spire or body. The columella is seldom plaited as in the *Turbinellæ* and *Fasciolaria*; the right margin exhibits no slit, as in the *Pleurotomæ*; and the long produced turreted spire distinguishes them from the *Pyrulæ*. These shells are turreted, and have a transverse or nodulous keel, sometimes striated longitudinally; columella plain; aperture canaliculated at the base, and ending in a channelled beak, frequently longer than the spiral whorls; the right side of the aperture in adult shells is always dentated or crenulated. They are marine shells, with a horny operculum.

Fusus colosseus	Fusus corona
..... longissimus	..... raphanus
..... colus	..... filosus
..... tuberculatus	..... polygonoides
..... Nicobaricus	..... verruculatus
..... distans	..... lignarius
..... torulosus	..... Syracusanus
..... incrassatus	..... strigosus
..... multicarinatus	..... varius
..... sulcatus	..... crebricostatus
..... antiquus	..... afer
..... despectus	..... rubens
..... carinatus	..... sinistralis
..... proboscidiferus	..... Nifat
..... Islandicus	..... articulatus
..... morio	..... buccinatus
..... coronatus	..... aculeiformis
..... cochlidium	..... scalarinus

Fusus contrarius.

[Thirteen fossil species are enumerated, and others are referred to in the *Ann. du Mus.*]



PYRULA.

MUREX CANALICULATUS.—*Linnaeus*.*Mart. 3, t. 66, f. 738, 740.*

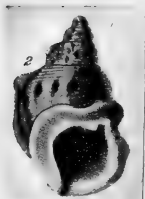
LINNAEUS intermixed these as well as many other shells of different genera, with his *G. Murex*; in the arrangement of which he appears to have included all the shells having a canal at the base, rendering it in consequence an extremely incorrect and widely extended genus. Bruguiere separated them, but was only guided by the want of varices, and did not distinguish the *Pyrula* from the *Fusus*, from which it essentially differs; the spire of the former being short and very much depressed, and the last whorl extremely large and ventricose, frequently extending at its margin above the elevated point of the spire, and giving the shells of this genus the form of a fig or pear, which is never the case with the *G. Fusus*. The *Pyrulæ* are sub-pyriform, canaliculated at the base, without varices; columella smooth, no notch at the lip. To which description may be added that the edge of the aperture is most generally crenulated, the substance of the shell

very thin, semi-transparent, and papyraceous, with internal and external, slight, transverse ribs, interrupted by the sutures formed at the previous stages of the growth of the opening; a very wide umbilicus in many species; and the aperture closed by an ovate, pear-shaped, horny operculum.

Pyrula canaliculata	Pyrula ternatana
..... carica	..... bezoar
..... perversa	..... rapa
..... candelabrum	..... papyracea
..... tuba	..... galeodes
..... bucephala	..... angulata
..... vesperilio	..... squamosa
..... melongena	..... nodosa
..... reticulata	..... citrina
..... ficus	..... abbreviata
..... ficoides	..... neritoidea
..... spirata	..... deformis
..... spirillus	..... lineata
..... elongata	..... plicata

[The fossil species are referred to in the *Ann. du Mus.*

vol. 2, p. 389.]



STRUTHIOLARIA.

MUREX STRAMINEUS.—*Linn.**Sowerby's Genera, No. 1, plate 3.*

THIS genus in some respects resembles those of *Buccinum* and *Murex*, with which Linnæus had blended it, but, in addition to these shells not having any notch at the base of the canal, they have a thickened marginal lip on the right side, which never occurs in either of the above genera. Shell oval, spire elevated; aperture oval, sinuous or winding, terminated at the base by a very short canal, straight and without a notch; left side of the aperture callous and repanded, right side with a thickened varix or outward lip, waved and continued to the base. These shells are marine, but the mollusca inhabiting them may be presumed often to wander on the shore in search of food, and from the necessity of frequently moving in and out of its shell, produces the singular callosities at the two edges of the aperture. Lamarck does not mention that the whorls of these shells are angular towards their upper side, more or less nodulous; and in some examples a groove or canal separates each whorl from the previous evolution: the spire is obtuse, and shorter than the body whorls. Sowerby observes that the

thickened aperture appears only to exist in adult specimens of this genus. The usual length of the shell is about two inches; but the writer has seen a gigantic example measuring upwards of four inches. The following species were all Lamarck had seen, but several others are known in this country. The specific name of the type of this genus Lamarck has changed from *Stramineus* to *Nodulosa*.

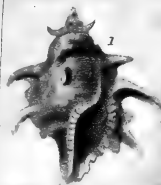
Struthiolaria nodulosa *Struthiolaria crenulata*.

RANELLA.

MUREX RETICULARIS.—*Linnæus*.

Mart. 4, t. 128, f. 1228.

Mawe's Linn. plate 26, fig. 5.



INTERMEDIATE as this genus may be considered in some respects between the *G. Struthiolaria* and *G. Murex*, it naturally forms a distinct division, in consequence of the singular position of the varices, or thickened bands.—When the growth of the animal requires an addition to its habitation, a portion of its body, equal to the semi-circumference of the shell, is protruded and left exposed, remaining stationary till the additional half turn to the shell is completed: and as the animal never adds to the capacity of the whorls on either side, a depressed appearance is

occasioned, which is much increased by the position of the varices at the sides. Shell oval or oblong, sub-depressed, canaliculated at the base; aperture rounded or oval; varices straight or oblique; placed at regular intervals of each half turn of the whorl, and forming a longitudinal row on each side, from the spire to the base: these varices or thickened bands are sometimes smooth or tubercular, and in some species armed with long straight spines.

Ranella gigantea	Ranella granulata
..... leucostoma	..... granifera
..... candidata	..... semigranosa
..... Argus	..... bitubercularis
..... crumena	..... ranina
..... spinosa	..... anceps
..... bufonia	..... pygmæa

[There is one fossil species.]



MUREX.

MUREX BRANDARIS.—*Linnaeus.*

Mawe's Linnaeus, plate 26, fig. 2, S.

Mart. 3, t. 114, f. 1058, 1059.

NOTWITHSTANDING the numerous divisions that Lamarck and other authors have made of the G. Murex of Linnaeus, it still remains a beautiful and very nu-

merous genus, naturally associated, and well characterized. Bruguiere reduced it to such shells as had permanent, thickened bands or varices; which arrangement rejected the genera *Fasciolaria*, *Fusus*, *Pyrula*, &c. Lamarck however, on consideration, has been induced to form two other genera, the *G. Ranella* and the *G. Triton*, each exhibiting a great variety of species, differing from the *G. Murex*, which, as it is now constituted, comprehends only such shells as have three or more varices on each whorl: and it is customary, when speaking of the number of varices, to count only those on the lower whorl. It may be remarked that these varices or bands are arranged obliquely in succession on each whorl, forming longitudinal rows, becoming more oblique near the summit of the spire.

THE Murices are easily recognized by their having three or more rows of varices on each whorl. In the *Ranellæ* there are only two, arranged on either side in rows; and the *Struthiolariæ* have only one at the margin. It is therefore evident that the animal of the *Murex* adds, at each increase, a smaller portion to the size of its shell, than those of the other genera mentioned. Shell oval or oblong,

canaliculated at the base, the exterior having rough longitudinal bands, or armed with spines, which are straight, recurved, or beautifully ramified. Aperture rounded or oval, with a horny operculum.

LAMARCK has formed this family into three sections: the first consists of those with a beak, always much longer than the aperture, as in the *M. cornutus*; the second, of such species as have the canal thick, more or less long, and three varices on the lower whorl, as in the *M. palmarosæ*; and the third comprises the species that have more than three varices on the inferior whorl, as in the *M. saxatilis*.

Shells with a slender beak or tail, always longer than the aperture.

Murex cornutus	Murex ternispina
..... brandaris	..... brevispina
..... crassispina	..... haustellum
..... tenuispina	..... tenuirostrum
..... rarispina	..... motacilla

Beak or Tail thickened, not abrupt, and more or less long.

Whorls with three varices.

Murex inflatus	Murex capucinus
..... elongatus	..... asperrimus
..... palmarosæ	..... phyllopterus
..... brevifrons	..... acanthopterus
..... calcitrapa	..... tripterus
..... adustus	..... trigonularis
..... rufus	..... uncinarius
..... axicornis	..... hemitripterus
..... cervicornis	..... gibbosus
..... aculeatus	..... triqueter
..... microphyllus	..... trigonulus

Whorls with more than three varices.

Murex brassica	Murex quadrifrons
..... saxatilis	..... turbinatus
..... endivia	..... trunculus
..... radix	..... anguliferus
..... melanomathos	..... melonulus
..... hexagonus	..... Magellanicus
..... scorpio	..... lamellosus
..... secundus	..... erinaceus

Murex Tarentinus	Murex cinguliferus
..... scaber	..... subcarinatus
..... costularis	..... torosus
..... polygonulus	..... lyratus
..... vitulinus	..... concatenatus
..... angularis	..... granarius
..... crispatus	..... fimbriatus
..... fenestratus	..... pulchellus
..... cingulatus	..... aciculatus

[There are also two fossil species.]



TRITON.

MUREX TRITONIS.—*Linn.*

Martini, 1, tab. 134, fig. 1277, 1281.

HOWEVER great the affinity may appear between this genus and those of *Ranella* and *Murex*, there are constant differences of character, which at once distinguish them from each other. In the *G. Ranella* the varices or bands are disposed in longitudinal rows, only on each side, and presenting but two series. In the *G. Murex* the varices are arranged in longitudinal rows, at equal distances, but they are more numerous than in the *G. Ranella*; while in the *G. Triton*, the po-

sition of the bands which mark the progress of growth in the shell, is very different from either of the above-mentioned genera, never being in longitudinal rows or series, but alternating, few in number, sometimes only one on each whorl, and occasionally none except at the opening, which is always terminated by a varix; this indicates that the animal adds to its shell more than a half turn of its circumference at each enlargement; the varices are never spinous or foliated, though frequently plaited or tuberculated. Shell oval or oblong, canaliculated at the base; spire more or less elevated, (and sometimes extremely long, as in the *T. variegatum*, which occasionally attains two feet in length); the mouth is generally wrinkled on both sides; aperture oblong, and closed by an operculum.

<i>Triton variegatum</i>	<i>Triton pyrum</i>
..... <i>nodiferum</i>	..... <i>cynocephalum</i>
..... <i>australe</i>	..... <i>tripus</i>
..... <i>lampas</i>	..... <i>canaliferum</i>
..... <i>scrobiculator</i>	..... <i>retusum</i>
..... <i>Spengleri</i>	..... <i>clavator</i>
..... <i>corrugatum</i>	..... <i>tuberosum</i>
..... <i>succinctum</i>	..... <i>vespaceum</i>
..... <i>pileare</i>	..... <i>chlorostomum</i>
..... <i>lotorium</i>	..... <i>anus</i>
..... <i>femorale</i>	..... <i>clathratum</i>

Triton subdistortum Triton rubecula
 cancellatum cutaceum
 maculosum dolarium
 clandestinum Tranquebaricum
 Triton undosum.



ROSTELLARIA.

STROMBUS FUSUS.—*Linn.*

Martini, 4, t. 158, f. 1495, 1496.

THIS genus approximates that of *Strombus*, but more nearly resembles the *G. Pterocera*; it consists of fusiform shells with an elongated spire, terminated below by a canal formed into a pointed beak, and having also a second canal ascending along the spire, formed by the outer lip and the continuation of the columella; the right margin is attached at the upper part to the spire, upon which it is sometimes recurved at the extremity; the right edge of the aperture by age becomes more or less dilated in the shape of a wing, and dentated; but what most particularly characterizes this genus, is the sinus of the lower part of the right margin being quite contiguous to the canal, which never takes place in the *Pterocerae* or the *Strombi*. In addition to this description of Lamarck's, it may be well to add that in

most species the beak of the shell is somewhat curved, and short in comparison to the length of the spire, while in others it is straight, and as long, if not longer than the upper part of the shell. Young shells never have the lip dentated. The *R. rectirostris*, which is one of the most rare shells known, has been admirably figured by Swainson in his *Exotic Conchology*, from a splendid example in the choice cabinet of W. J. Broderip, Esq.

Rostellaria curvirostris *Rostellaria rectirostris*

Rostellaria pespelicani.

[And three fossil species.]

PTEROCERA.

STROMBUS CHIRAGRA.—*Linn.*

Mawe's Linn. pl. 25, f. 4.



THE shells of this genus have not the canal at the base shortened or truncated, as in the *Strombus*, but on the contrary it is elongated in the form of a tail, attenuated to its extremity, and often closed: the right margin dilated by age into an expanded digitated wing, attached to and covering the whole of the spire, the lower part interrupted by an interval or wide gap; this space or gap is not contiguous to the body of the shell, (as in the *Rostellaria*), but distant, and similar to that

of the *Strombus*; which is only distinguished from this genus by the short canal, and the want of digitations. Shell oval, oblong, ventricose; spire short, and generally concealed by the expanded mouth or lip.

LAMARCK uses the word, digitations, generally, for that which, in some species of this genus, may more properly be called long recurved claws, whence the trivial name of Spider or Scorpion, applied to these shells. In young examples these digitations are not visible. Seven species are here enumerated, but another, the *P. purpurea*, is described, and, with other examples of this genus, admirably figured by Swainson in his *Exotic Conchology*; the writer has also seen one quite distinct from any of these, though resembling in many respects the *P. millepeda*.

- | | |
|-----------------------------|--------------------------------|
| <i>Pterocera truncata</i> | <i>Pterocera pseudoscorpio</i> |
| <i>lambis</i> | <i>scorpio</i> |
| <i>millepeda</i> | <i>aurantia</i> |
| <i>Pterocera chiragra</i> . | |



STROMBUS.

STROMBUS GIGAS.—*Linnaeus*.

Mawe's Linn. pl. 25, fig. 2, 3.

THE genus *Strombus*, as it now stands defined by La-

marck, presents one distinct and leading character throughout all its species, whereby it may be easily distinguished; which is, that the widely dilated, wing-shaped aperture on the right side is never dentated, or digitated, as in the Pterocera; another equally remarkable distinction is, that the sinus or notch at the lower part of the winged aperture, is always separated from the canal, which is contiguous in the Rostellaria. Shell ventricose, terminated at the base by a short canal, truncated or notched; right side dilated by age, and expanded into the shape of a wing, lobed, or crenulated at the upper part, with a sinus at the lower end, separated from the canal or notch at the base. Other remarks may be added to the above, which will perhaps assist to point out more fully the character of this genus. The spire is in many species quite concealed by the expansion of the lip at the upper part; in others it is turreted and more or less produced: in the *S. latissimus*, the outer lip is reflected inwards at the middle part, either in a fold or solid plait; and in some the wing is continued in a long channelled termination at the upper part. The exterior of different species is variously striated, smooth, wrinkled longitudinally or having more or less prominent tuberculations on the upper part of the whorls, some of which present the ap-

pearance of large irregular callosities; other species are conical and divergent at the sutures; and some have hollow spines. These shells frequently attain a large size, and very great solidity; they possess a long, narrow, horny operculum.

Strombus gigas	Strombus Canarium
..... accipitrinus	..... Isabella
..... latissimus	..... vittatus
..... tricornis	..... epidromis
..... gallus	..... columba
..... bituberculatus	..... succinctus
..... cristatus	..... troglodytes
..... dilatatus	..... tridentatus
..... bubonius	..... urceus
..... lentiginosus	..... plicatus
..... auris-Dianæ	..... Floridus
..... pugilis	..... papilio
..... pyrulatus	..... lineatus
..... gibberulus	..... marginatus
..... Luhuanus	..... turritus
..... Mauritanus	..... cancellatus

[And one fossil species.]

CASSIDARIA.

BUCCINUM ECHINOPHORUM.—*Linn.**Mart. 2, t. 41, f. 407, 408.*

THE shells of this genus are nearly allied to the *G. Cassis*, but some striking differences of character render their separation necessary. They are in general more inflated and rounder than the *G. Cassis*, but what principally distinguishes them, is, the canal which terminates the lower part of the aperture not being suddenly recurved towards the back of the shell, but ascendant and very little arched; the spire is short, conoid, composed of convex whorls, without any thickened bands; the left margin apparent, and affixed to the columella, which is almost always covered with little rough, oblong, transverse tubercles; right lip plaited or thickened; exterior transversely grooved, and the upper part of the whorls, in some species, with small round tubercles, regularly placed. They are marine shells.

Cassidaria echinophora	Cassidaria cingulata
..... Thyrrena	..... striata
Cassidaria oniscus.	

[There are also two fossil species.]



CASSIS.

BUCCINUM CORNUTUS.—*Linnaeus*.*Mawe's Linn. pl. 24, f. 1.*

LAMARCK has separated these shells from the Genus *Buccinum* of *Linnaeus*, for the following reasons: the form of the aperture being longitudinal, straight, and almost always dentated on the right side; the flattened side of the columella lip forming a very considerable angle at that side, and the canal being abruptly turned towards the back of the shell: these at once distinguish this genus from that of *Buccinum*, which has only a notch at the base. The spire of the *Cassis* is seldom much elevated, often interrupted by thickened bands or varices, obliquely placed, having formed the terminations or lips of previous apertures, and constituting the distinguishing character of the first section of this genus, the second not possessing any bands. Shell inflated, columella plaited or wrinkled transversely, exterior nodulous or smooth, spire with bands or nodules only; and the canal at the base always abruptly turned towards the back of the shell. They sometimes attain a very large size, and in one species the columella lip projects above the spire, giving a flat, ovate, or tri-

angular appearance to the lower surface of the shell. They are marine, and the animal has the faculty of burying itself in the sandy bottom of the sea.

Spire of the Shells having thickened bands.

Cassis Madagascariensis	Cassis crumena
..... cornuta	..... plicaria
..... tuberosa	..... areola
..... flammea	..... zebra
..... fasciata	..... decussata
..... glauca	..... abbreviata.

Spire without bands.

Cassis rufa	Cassis sulcosa
..... pennata	..... granulosa
..... testiculus	..... saburon
..... achatina	..... canaliculata
..... pyrum	..... semigranosa
..... Zeylanica	..... vibex

Cassis erinaceus.

[And one fossil species.]



RICINULA.

MUREX NERITOIDEUS.—*Linnaeus**Mawe's Linn. pl. 26, fig. 1.*

THE *Ricinulae* approximate the *Purpuræ*, yet are sufficiently different to constitute a separate genus. They are in general of a small size and oval form; spire very little elevated; whorls with tubercles or spines; aperture almost constantly tinged with a violet or pink color; right side with unequal teeth, nearly closing the aperture; columella with small plaits or unequal teeth, and not plain and smooth, as in the *Purpura*. Shell tuberculated or with long spines; opening oval and toothed, the lower part ending in a half canal, recurved towards the back, and notched. The *R. digitata* is very remarkable for the two long palmated digits at the upper part of the right side of the aperture. They are marine shells, and possess an operculum.

<i>Ricinula horrida</i>	<i>Ricinula digitata</i>
..... <i>miticula</i>	..... <i>aspera</i>
..... <i>clathrata</i>	..... <i>morus</i>
..... <i>arachnoidea</i>	..... <i>mutica</i>
<i>Ricinula pisolina.</i>	

PURPURA.

BUCCINUM PATULUM.—*Linnæus*.*Mart. 3, t. 69, f. 758, 759.*

THIS genus is the last in Lamarck's arrangement which presents the appearance of a canal at the base of the aperture: it consequently leads in order of proximity to the *G. Monodon*, *Concholepas*, *Harpa*, *Dolium*, *Buccinum*, &c.; in all of which the canal has quite disappeared, and a notch only remains. The gradual diminution of the canal, till it became altogether effaced, probably occasioned Linnæus to arrange some of these species with the *Murices*, and others with the *Buccina*: there are, however, characters which distinctly mark this genus, and render it necessary to separate the shells composing it from the arrangement of previous authors. The aperture is never narrowed in the middle, either by plaits on the columella, or by teeth on the right side, but is always dilated; the columella smooth, flattened, and terminating in a point at the base, where the notch is more or less obliquely placed, and appears a little ascendant backwards. Shell oval, either smooth or tuberculated, or angular on the exterior surface; aperture ovate, dilated, sometimes internally

grooved, and slightly crenated or dentated at or near the right margin, which is sharp. It has a semilunar, thin, horny operculum. From the animal of one species of this shell the ancients extracted the Tyrian purple dye.

Purpura Persica	Purpura sacellum
..... Rudolphi	..... squamosa
..... patula	..... rugosa
..... columellaris	..... textilosa
..... succincta	..... sertum
..... consul	..... Francolinus
..... armigera	..... limbosa
..... bitubercularis	..... ligata
..... hippocastanum	..... cruentata
..... undata	..... lapillus
..... hæmastoma	..... imbricata
..... mancinella	..... lagenaria
..... bufo	..... cataracta
..... callosa	..... bicostalis
..... neritoides	..... plicata
..... planospira	..... fiscella
..... callifera	..... thiarella
..... coronata	..... rustica
..... carinifera	..... semi-imbricata
..... scalariformis	..... echinulata

Purpura hystrix	Purpura clavus
..... deltoidea	..... fasciolaris
..... unifascialis	..... vexillum
..... retusa	..... bizonalis
..... trochlea	..... nucleus.

MONOCEROS.

BUCCINUM MONODON.—*Linnaeus.*

Sowerby's Genera, No. 5, pl. 5.



LAMARCK would not have divided this genus from that of *Purpura*, which it in every respect resembles, except on account of the singular, thin, conical, somewhat curved tooth at the base of the right side, which, being constant in many different species, renders it expedient to constitute a separate genus of them; a reference, therefore, to the generic description of the *G. Purpura* will suffice for this genus. It may, however, be added, that the spire is more elevated in some species of the *G. Monoceros* than in others; the exterior surface of the whorls carinated and angular, smooth, or with small imbricated scales in transverse rows; aperture internally grooved; and in some species, recently brought from the South Seas, the right side of the opening near its edge presents one or more rows of

small tubercles, besides the thin sharp tooth at the base. From the growth of the tooth, in proportion to the increase of the shell, an internal rib is formed, and sometimes a corresponding groove on the exterior. It is known to English collectors by the trivial name of the Unicorn Scoop. Lamarck mentions five species, but a greater number is known. The type of this genus, *M. cingulatum*, possesses some singularities; its columella is not smooth, but irregularly plaited or wrinkled, and the tooth does not extend within the interior of the whorls, as in the other species enumerated by Lamarck, but appears affixed only at the edge of the lip.

Monoceros cingulatum *Monoceros striatum*
 *imbricatum* *glabratum*
 Monoceros crassilabrum.



CONCHOLEPAS.

PATELLA LEPAS.—*Linnaeus*.

Sowerby's Genera, No. 6, pl. 1.

THIS very singular shell has hitherto always been considered a *Patella*, from which it is very distinct in many respects, but particularly on account of its having an operculum. Bruguiere classed it with the *Buccina*, in consequence of the slight notch at the base: but other

distinct characters have induced Lamarck to make the only species known, the type of a separate genus, immediately following that of *G. Monoceros*; it has two teeth at the base of the right side instead of one, as in that genus. Shell oval, inflated, half spiral; the summit inclined obliquely on the left side; columella flat; aperture very ample, oblique, longitudinal, with a slight notch at the base. Two teeth at the lower part of the right margin. An oblong, thin, horny operculum. Lamarck does not mention some other peculiar characters of this shell: the small summit (when seen in a perfect state) is formed of spiral whorls, nearly concealed by the very widely expanded aperture, the left side of which is greatly reflected, and forms a sharp angle above it; the right lip crenated at the base. The shell is seldom seen otherwise than much wormed, but the exterior presents transverse grooves or slender ribs, diverging from the apex to the margin, imbricated with small scales. What Lamarck terms the teeth differ in appearance from those of the *G. Monoceros*, being flattened and broader, and merely the continuation of two external, thickened ribs. Sowerby very properly considers it nearly allied to the *G. Purpura*.

Concholepas Peruvianus.



HARPA.

BUCCINUM HARPA.—*Linnaeus*.*Mawe's Linn. frontispiece, fig. 4; & pl. 24, f. 7.*

LINNAEUS included the whole of these beautiful shells in his *G. Buccinum*, and nearly all of them under the name of *B. Harpa*, considering them all of one species. Lamarck, however, from the number of species, and each possessing distinctive characters, has deemed them worthy of forming a genus by themselves. One general character eminently distinguishes these shells: that of having longitudinal parallel ribs, compressed, sinuous, and sharp, the upper extremity of each armed with one or more projecting detached points, giving the spire a coronated appearance. Shell oval, more or less inflated, with longitudinal sharp ribs, parallel, and flexuous, the spire short; aperture with a notch at the lower end of the canal; columella smooth, flat, and pointed at the base. The most beautiful and valuable species of this genus is the *H. imperialis*, in which the number of ribs far exceeds that of any other, and occasions it to be called in England the Many-ridged Harp. It is also the only one that has a small spiral keel round the summit. Sowerby, in his *Genera of Shells*, No. 3, has

changed the specific name of Lamarck's *H. imperialis* to *H. multicosata*, which, notwithstanding its excellence, only adds yet more to the confusion of synonyms.

Harpa imperialis	Harpa articularis
..... ventricosa	..... rosea
..... conoidalis	..... minor
..... nobilis	..... striata

[And one fossil species.]

DOLIUM.

BUCCINUM DOLIUM.—*Linnæus*.

Mawe's Linn. pl. 24, fig. 3.



DARGENVILLE, struck with the analogy existing between the species of this genus, first classed them together under the name of *Dolium*, which name Lamarck has preserved. Linnæus and many other naturalists have blended these with the *G. Buccinum*, as are also the *G. Harpa*, *Terebra*, *Eburna*, &c. in the same arrangement, (notwithstanding their great difference of form), which has probably been occasioned by their considering the notch at the base of the aperture a sufficient guide. The shape of the *Dolium*

is however very different from either of the above-mentioned genera, and its species form a very natural group: they are ventricose, inflated, subglobular; spire nearly depressed, and on a level with the largest whorl; substance very thin, and all of them have transverse circles on the exterior, causing the interior to be grooved, and the right margin of the aperture dentated or crenulated along its whole length; opening oblong, notched at the base. They sometimes attain a great size.

Dolium galea	Dolium fasciatum
..... olearium	..... pomum
..... maculatum	..... variegatum

Dolium pernix.



14

BUCCINUM.

BUCCINUM PAPILLOSUM—*Linn*

Mawe's Linn. pl. 24, f. 2 & 5.

BRUGUIERE, impressed with the necessity of reforming the too widely extended genus Buccinum of Linnæus, constituted from it his genera, Cassis and Terebra. There yet remained a great number of distinct species intermingled, which rendered the generic characters of the G. Buccinum very vague and inconsistent.

Lamarck has therefore farther reduced the enormous number of shells called Buccina, and established the genera, Harpa, Dolium, Monoceros, Concholepas, and Eburna, each presenting distinctive and peculiar characters, very different from those possessed by the G. Buccinum as it now stands; in which there is still a great variety and diversity of species, though they are nevertheless allied to each other by characteristic assimilation. Shell oval or conical oval, generally small, aperture longitudinal, a notch at the base, no canal, columella not flattened, swelled at the upper part. The exterior variously sculptured; the marginal lip most frequently thin and sharp, and a cartilaginous operculum. Of one very numerous section of this genus Lamarck had formed his G. Nassa, but he has since reunited them to the Buccina. In it the thickened lip and great callosity of the columella, with the irregular lump or tuberculations on the back of some species, are remarkably characteristic.

Buccinum undatum	Buccinum testudineum
..... glaciale	..... achatinum
..... Anglicanum	..... glans
..... papyraceum	..... papillosum
..... annulatum	..... olivaceum
..... lævissimum	..... canaliculatum

Buccinum crenulatum	Buccinum tricarinatum
..... reticulatum	..... Brasilianum
..... Tranquebari-	..... semiconvex-
cum	um
..... lineatum	..... fasciolatum
..... fuscatum	..... vinosum
..... lineolatum	..... tenuiplicatum
..... maculosum	..... subspinosum
..... politum	..... Ascanias
..... suturale	..... lævigatum
..... mutabile	..... flexuosum
..... inflatum	..... aciculatum
..... retusum	..... corniculatum
..... ventricosum	..... cribrarium
..... gemmulatum	..... grana
..... Coromandeli-	..... coccinella
anum	..... zebra [um
..... fasciatum	..... dermestoides
..... miga	..... aurantium
..... lyratum	..... pedicular

Columella callous, (the Nassæ).

Buccinum arcularia	Buccinum gibbosulum
..... coronatum	..... pullus
..... Thersites	..... marginulatum

Buccinum pauperatum Buccinum polygonatum

Buccinum neriteum.

[There are also two fossil species.]

EBURNA.

BUCCINUM SPIRATRUM.—*Linnaeus.*

Mawe's Linn. pl. 24, f. 4.

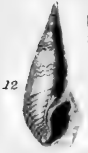


THIS genus has been separated from the *G. Buccinum* by Lamarck, in consequence of the peculiar characters of the umbilicus and of the columella, which is prolonged at the lower end, and forms a canal occupying the remaining part of the left side. In every other respect it possesses the same characters as the *Buccinum*. The *E. Zeylanica* is remarkable for the spines with which the umbilicus is filled, and only existing in that species.

In the late Earl Tankerville's cabinet is an example of the *E. glabrata*, in which the channel on the left side is quite closed and concealed, rendering that distinction doubtful, as the sole guide by which Lamarck has constituted this genus, and dismembered it from the *G. Buccinum*.

Eburna glabrata Eburna spirata
 Zeylanica arcolata
 Eburna lutosa.

TEREBRA.



BUCCINUM MACULATUM.—*Linnaeus.*

Mawe's Linn. pl. 24, f. 8.

THIS genus Bruguiere pointed out as a necessary separation from the Linnæan *G. Buccinum*. The Terebræ are not only distinct from the *Buccina* on account of the long turreted form of the shell, but also from the peculiar character of the very short columella, and the animal (according to Adanson) not possessing an operculum. They are also readily distinguished by the following marked and peculiar characters:—Shell very long, turreted, and sharp pointed at the summit; the exterior smooth or variously striated, never with spiral ribs or carinations, as in the *G. Turritella*, to which the general form bears some resemblance. From the *G. Eburna* they may be known by not having a canaliculated umbilicus, and from the *G. Buccinum*, in consequence of the aperture only occupying a very small portion of the length of the shell.

THE apertures is longitudinal; last whorl slightly gibbous; lower end of the columella twisted or oblique; base notched; and the animal has no operculum.

THEY sometimes attain ten inches in length, of which size the most perfect examples are in the Tankerville cabinet.

<i>Terebra maculata</i>	<i>Terebra striatula</i>
..... <i>flammea</i>	..... <i>chlorata</i>
..... <i>crenulata</i>	..... <i>cerithina</i>
..... <i>dimidiata</i>	..... <i>raphanula</i>
..... <i>muscaria</i>	..... <i>cingulifera</i>
..... <i>subulata</i>	..... <i>myuros</i>
..... <i>oculata</i>	..... <i>scabrella</i>
..... <i>duplicata</i>	..... <i>strigilata</i>
..... <i>Babylonia</i>	..... <i>lanceata</i>
..... <i>corrugata</i>	..... <i>aciculina</i>
..... <i>Senegalensis</i>	..... <i>granulosa</i>
..... <i>cærulescens</i>	..... <i>vittata</i> .



COLOBELLA.

VOLUTA RUSTICA.—*Linn.*

Sowerby's Genera, No. 9, pl. 6.

THE shells constituting this genus are short, small, rather thick, often striated transversely, and much varied in color; they appear allied in some respects to the *G. Mitra*. Linnæus considered them to belong to the *G. Voluta*, from which they are very distinct, having the interior part of the right lip or margin gibbous, or thickened, rendering the aperture narrow and waved, and by having also a very small thin elliptical operculum. Which latter circumstance Sowerby observes allies this genus to that of *Ricinula*. Shell oval; spire short; plaits on the columella; more or less notched at the base; and without a canal. They are marine shells. Sowerby has corrected the name of this genus, which should be written *Columbella*.

<i>Columbella strombiformis</i>	<i>Columbella flavida</i> [ta
..... <i>rustica</i>	..... <i>semipuncta-</i>
..... <i>mercatoria</i>	..... <i>bizonalis</i>
	..... <i>reticulata</i>

Columbella Hebræa	Columbella fulgurans
..... pardalina	..... mendicaria
..... scripta	..... turturina
..... ovulata	..... punctata
..... nitida	..... unifascialis
Columbella zonalis.	

MITRA.

VOLUTA PAPALIS.—*Linn.*

Mawe's Linn. pl. 23, f. 7.



THIS very numerous and extremely elegant genus so obviously differs from the *G. Voluta*, that no doubt can exist of the necessity and propriety of its being formed into a separate genus, constituting a well defined and naturally associated and elegant family. The following strong distinctive characters are pointed out by Lamarck, all of which are peculiar to this genus, and clearly distinguish it from the *G. Voluta*. The summit of the spire is always pointed, and never terminated in a papillary form; the plaits on the columella gradually diminish in size towards the base; the upper, consequently, are larger than the lower; they are always transverse, and

parallel to each other; the columella lip exists, though sometimes very thin, and only visible at the base: and some species have an epidermis. Shell turreted or subfusiform, spire pointed, base notched, no canal, aperture elongated; right margin sharp, smooth; columella-lip thin, and attached; no operculum. The exterior is most beautifully sculptured in every possible pattern, with transverse grooves, punctures, granulations, or striæ, and sometimes smooth; and the coloring matter of every hue. The upper part of the whorls, in many species, is crenulated. Another very characteristic distinction between this genus and that of *Voluta*, is, the right lip being in many species dentated, which never occurs in the latter.

SWAINSON, in his *Zoological Illustrations*, has figured many of the rare species of this elegant genus in the most accurate manner.

<i>Mitra episcopalis</i>	<i>Mitra versicolor</i>
..... papalis	..... sanguinolenta
..... pontificalis	..... ferruginea
..... puncticulata	..... terebralis
..... millepora	..... adusta
..... cardinalis	..... granulosa
..... archiepiscopalis	..... crocata

Mitra casta	Mitra cornea
..... nexilis	..... tringa
..... olivaria	..... melaniana
..... scabriuscula	..... scutulata
..... granatina	..... dactylus
..... crenifera	..... fenestrata
..... serpentina	..... crenulata
..... tæniata	..... texturata
..... plicaria	..... conulus
..... corrugata	..... limbifera
..... costellaris	..... aurantiaca
..... lyrata	..... amphorella
..... melongena	..... coronata
..... cinctella	..... paupercula
..... vulpecula	..... cucumerina
..... Caffra	..... patriarchalis
..... sanguisuga	..... muriculata
..... stigmataria	..... torulosa
..... filosa	..... ebenus
..... fissurata	..... harpæformis
..... lactea	..... semifasciata
..... cornicularis	..... retusa
..... lutescens	..... microzonias
..... striatula	..... ficulina
..... subulata	..... nucleola

Mitra unifascialis	Mitra plumbea
..... bacillum	..... larva
..... conularis	..... pisolina
..... arenosa	..... dermestina
..... clavulus	..... granulifera
..... literata	..... oniscina
..... Peronii	..... tabanula
..... obliquata	..... pediculus

[And fourteen fossil species.]



VOLUTA.

First family—CYMBOLEÆ.—VOLUTA NAUTICA.—Linn.
Mart. 3, t. 75, f. 785.

Second Family—MURICINÆ.—V. IMPERIALIS.—Linn.
Encyclop. Meth. pl. 382, f. 1.

Third Family—MUSICALES.—V. EBRÆA.—Linn.
Encyclop. Meth. pl. 380, f. 2.

Fourth Family—FUSOIDEÆ.—V. MAGNIFICA.—Linn.
Chem. 11, t. 174, f. 1693.

THE G. *Voluta*, established by Linnæus, though well defined, as far as the plaits on the columella and the

notch at the base formed a part of its distinctive characters, was in other respects by no means natural, including shells of different families, which have necessarily been separated and placed at a distance, not being in any way allied to it. It comprehended shells with the aperture entire, margin thickened, and the plaits on the columella callous, as in the *G. Auricula*; others having the aperture channeled at the base, as in the *G. Fasciolaria*; some with the aperture simply notched at the base, as in the *G. Buccinum*; others of the *G. Turbinella* approximating the *G. Murex* and the *G. Mitra*, in which the spire is sharp and pointed, the right lip dentated, and the plaits on the columella smaller at the base. These were all promiscuously blended together, occasioning an immense extent of genus, and a confusion of species and character, incompatible with reason, and greatly impeding the student's progress, as he might in vain seek, amidst the contradictory evidences of different species, for that constantly recurring generic distinction, which alone could enable him to determine satisfactorily to what genus the shell under his examination precisely belonged. The *G. Voluta* as it now stands reformed by Lamarck, notwithstanding its much more limited extent, still remains a very numerous, natural, and most beautiful

association of species; many are of the greatest rarity, and for which amateurs have given larger sums than for the examples of any other genus of Testaceæ. From the great variety of form in the different species, Lamarck has been induced to separate them into four small groups or families, pointing out by that means the most obvious similarity between each, though they are all inseparably united together by leading generic characters, and form but one genus.

THE first family, called by Lamarck *Cymbiolæ*, and known to English collectors by the trivial name of Melons, is distinguished by the shells comprised in it being subglobular, or inflated; the spire papillary, and in some species crowned with sharp vaulted spines; in others the whorls are truncated, and more or less concave at the upper part; the margin of them sharp and keeled, and some have the spire nearly concealed by the body whorl.

IN the second family, *Muricinæ*, (called Horned Mussels), the shells are oval, and spined or tuberculated; spire papillary, surrounded at the upper part of the whorls with long, hollow, recurved spines or prongs closed at their points, as in the *V. Imperialis*; or small acute vaulted spines, as in the *V. Vespertilio*.

IN the third family, *Musicales*, (commonly called Music Shells, from many of their species being marked with a pattern strongly resembling musical notes and lines), the shells are tuberculated at the spire, as in the *V. Musica*.

AND in the fourth family, *Fusoidea*, (Spindle Volutes) the shells are more elongated, the spire more produced, and no spines or tubercles on the whorls, as in the *V. magnifica*.

IN all of the above species the spire is mammillary or obtuse; the columella more or less plaited; the lower plaits larger and more oblique than the upper ones; and a notch at the base. Shell oval, more or less ventricose, fusiform, or conical; aperture effuse; right lip smooth, generally sharp, and never dentated. Lamarck observes that none of the species of this genus are "pourvue de drap marin," which can only be translated—not having an epidermis: this is an error; as many species possess a thin filmy external coat, answering to what in other shells has been called by him a false epidermis; and all the Melons have a strong and very thick epidermis. It may also be well to remark that the number of plaits on the columella is in general uniform in

the different species of *Voluta*: they nevertheless occasionally vary, without consequently rendering such examples new species.

THOUGH it is not the writer's present object to point out all the rare shells in each genus, he cannot avoid stating that the *V. Junonia* is incomparably the most so of this. Very few examples of it being known, and perhaps not more than four can be traced in Europe; one of which exists in the select cabinet of W. J. Broderip, esq.

MANY of the most rare and beautiful species of this singularly elegant genus, have been figured by Swainson in the first Numbers of his **EXOTIC CONCHOLOGY**, with a verisimilitude that has never yet been equalled, and probably never will be excelled by any artist. This talent, combined with his scientific knowledge as a Naturalist, must render the above work the most eminent of its kind in this country; and it is earnestly to be hoped that the unavoidable delay which has hitherto unfortunately attended the publication of the succeeding Numbers may be shortly surmounted.

CYMBIOLÆ.—*First Family.**Shells ventricose or inflated.*

Voluta nautica	Voluta Neptuni
..... diadema	..... cymbium
..... armata	..... olla
..... ducalis	..... proboscidalis
..... tessellata	..... porcina
..... Æthiopica	..... scapha
..... melo	..... Brasiliana.

MURICINÆ.—*Second Family.**Shells oval, spined or tuberculated.*

Voluta imperialis	Voluta mitis
..... pellis-serpentis	..... nivosa
..... vesperilio	..... serpentina.

MUSICALES.—*Third Family.**Shell oval, subtuberculated.*

Voluta hebræa	Voluta thiarella
..... musica	..... carneolata
..... chlorosina	..... Guinaica

point out those peculiar characters which eminently distinguish them from that genus, and render their separation expedient; but he classed them with the *G. Mitra*: from both of which Lamarck has properly divided them, as the following characteristic distinctions never occur either in the *Volutæ* or the *Mitræ*—The right margin is thickened at the outward side, forming a lip or marginal border; the aperture occupies the whole length of the shell, and is but slightly notched at the base; the plaits on the columella differ in position from those of the *Volutæ*, being nearly of an equal size: the spire is extremely short and sometimes altogether concealed, occasioning those species to form a natural transition to the next genus; they are marine shells, and have no operculum. It appears probable that the inhabitant of these shells covers the greater portion of the exterior with the mantle of its body, in the manner of the *Cyprææ* and some other genera, depositing successive layers of testaceous matter in a similar way, as the examples of this genus differ materially in thickness of substance.

Shells with a projecting spire.

Marginella glabella

Marginella nuberculata

..... *radiata*

..... *cærulescens*

Marginella quinquepli-	Marginella aurantia
cata	..... bivaricosa
..... limbata	..... longivaricosa
..... rosea	..... muscaria
..... bifasciata	..... formicula
..... faba	..... eburnea

Marginella dentifera

[And one fossil species.]

Spire not projecting.

Marginella dactylus	Marginella persicula
..... bullata	..... lineata
..... cornea	..... tessellata
..... avellana	..... interrupta.



VOLVARIA.

VOLUTA PALLIDA.—Linn.

Sowerby's Genera, No. 5, pl. 4.

THIS genus evidently connects the shells having a columella with those which are "enroulées sur elles-mêmes," cylindrically rolled or evolved upon their own axis, the whorls equal to its length; to the former they are allied by the plaits on the columella, and to the

latter by the whorls being rolled over each other: they appear more nearly to approximate the *G. Marginella*; but the right side of the aperture is generally sharp and divested of the thickened lip. Shell cylindrical, oblong; spire obsolete or concealed; aperture narrow, the whole length of the shell, with one or more plaits at the lower part of the columella. They are marine shells, and generally very small. Sowerby in his *Genera of Shells*, No. 5, has given a plate of three fossil species of this genus, two of which are not mentioned by Lamarck.

Volvaria monilis

Volvaria triticea

..... *pallida*

..... *oryza*

Volvaria miliacea.

[And one fossil species.]

OVULA.

BULLA OVUM.—*Linn.*

Sowerby's Genera, No. 2, plate 4.

BULLA VOLVA.—*Linn.*

Sowerby's Genera, No. 2, pl. 5, f. 1. The adult Shell.

Mawe's Linn. pl. 22, f. 1. The young Shell.

BRUGUIERE, in the first instance, separated the shells



of this genus from those of the *G. Bulla*, in which they were classed by Linnæus. Lamarck has adopted the same association of species, but has divided them into two families; the first consisting of those which have the right side of the aperture wrinkled or thickened; and the second, of such as are smooth on the right side, in which he includes the species that have the last whorl attenuated, and produced in long beaks or rostra at both ends of the shell, as in the *O. volva*. The *G. Ovula*, as it is now constituted, forms a very natural association, and precedes the *G. Cypræa*, to which it is nearly allied: it is, however, constantly distinguished from the latter by the want of spire, and the left or columella-lip never being plaited or toothed. To the *G. Bulla* they also approximate, being like them convolute shells; but the right lip, which is constantly folded or reflected inwardly in adult shells, and either smooth or wrinkled, is a character quite opposite to that of the *Bulla*, in which the lip is thin, sharp, and straight. Shell ventricose, oblong, oval, or egg-shaped; the whorls convolute, rolled round their own axis; the outer one very large, nearly concealing all the others, and in some species attenuated at both extremities, producing very long subcylindrical beaks, as in the *O. volva*, which has somewhat the appearance of a Weaver's Shuttle,

the trivial name given it by English Collectors. In other species, as the *O. gibbosa*, the conformation of the whorls more nearly resembles that of the *Cyprææ*, but they exhibit no spire; the edge of the right margin always reflected inwards, either smooth or wrinkled; no columella lip or plaits; aperture longitudinal, narrow, extending the entire length of the shell, and effuse; no operculum or epidermis. By a parity of reasoning it may safely be concluded, that the animals inhabiting the shells of this genus possess a mantle which they have the power of extending over the whole exterior surface of the shell, as is known to be the case with the *Cyprææ*. This genus is the first of the six genera, into which Lamarck has divided the shells which are spirally evolved on their own axis, viz. *G. Ovula*, *G. Cypræa*, *G. Terebellum*, *G. Ancillaria*, *G. Oliva*, and *G. Conus*. The two first, *Ovula* and *Cypræa*, have the right lip reflected inwardly. The plate, fig. 1, referred to in Sowerby's *Genera*, represents the *O. volva* in its *adult state*; and in Mawe's *Linn. pl. 2, f. 1*, a matchless example of the *O. volva*, (now in Mr. Broderip's cabinet), is figured in its *young state*, before the formation of the inwardly reflected lip.

Shells with the right lip wrinkled, or plaited.

Ovula oviformis	Ovula lactea
..... angulosa	..... carnea
..... verrucosa	..... triticea
Ovula hordacea.	

Shells with the right lip smooth.

Ovula gibbosa	Ovula spelta
..... acicularis	..... birostris
Ovula volva.	

[There are also two fossil species.]



CYPRÆA.

CYPRÆA MAPPA.—Linn.

Martini, 1, tab. 25, fig. 245, 246.

Mawe's Linn. pl. 21, f. 3.

THIS very numerous and generally well known family presents the most consistent uniformity between its species, and with the exception of the *Ovula verrucosa*, no other shell can be mistaken as belonging to it. It is, therefore, sufficient to give only Lamarck's generic de-

scription of the genus, and some interesting and explanatory facts respecting the structure and growth of the shell; which will satisfactorily account for a singular occurrence, frequently observed, of the young and incompletely formed shell being often twice as large as the adult of the same species. In the full grown and mature shell, the form is oval, convex above, slightly flattened beneath, and the spire nearly covered by the evolutions of the whorls, leaving in some species a small cavity, resembling an umbilicus; the aperture narrow, extending the whole length of the shell, and dentated or plaited on either side; the right margin always reflected inwards. But in young and immature shells, the form is very different, the aperture then being much wider, particularly at the base; the right margin sharp, and not reflected; no plaits on the columella, the spire very much produced, and the shell more resembling a cone, except in thickness. In the next stage of growth, it acquires the outline of its perfect form, but it is not yet completed, as its substance is thin, the shell light, and the spire, though very small, not so much concealed as in the succeeding stage of increased growth: the pattern and coloring are also very different to those of the third and last stage, at which the shell becomes solid; and

the animal having then made the final deposit of testaceous matter, has completed the colored pattern or design, and covered it with a beautiful transparent enamel.

THE animal possesses two membranous extensions on that part of its body called the *Mantle* by anatomists, in the form of wings, which furnish the testaceous and coloring matter; these increase in size, as the shell advances in growth, and when it has attained its maturity, fold over, and totally conceal the whole of it, during the animal's removal from one spot to another, or from the necessity it is under of partially quitting its habitation in search of food.

IN some species, these membranous wings do not quite meet on the convex part or back of the shell, and the space that separates them, with the unequal termination of their edges, is invariably marked by a distinctly colored dorsal line, which is strongly defined in the *C. mappa*. In general, these wings are long enough to overlap each other, and the pattern and colors are then more equally distributed over the whole surface of the shell. The circumstance of frequently

seeing examples of this genus in an incomplete state, twice the size of other mature examples of the same species, may be accounted for, by the presumptive fact that the animal in some instances, after having completed its shell to a certain period of growth, becomes too large for it; and possessing the faculty of removing from it-altogether, new models another habitation on the increased size of its body, which it completes to its second stage of growth; and then, from a similar necessity to that by which it was first prompted, again quits it, or, the term of its existence being then completed, dies, and leaves the shell as it is so often found. The animal, when in a quiescent state, buries itself in the sand at the bottom of the sea. The plate referred to in Mawe's Linn. fig. 3, represents the young shell of the *Cypræa*, in which the spire is always very prominent, and the lip not reflected inwardly. In this stage of growth the shells may be said to resemble in form some of the ventricose species of the *G. Conus*, particularly the *C. bullatus*.

THE *C. aurora*, when finely colored and without an artificial perforation, by which the chieftains of New Zealand suspend it to their dress as an ornament, is

certainly the most valuable of this genus, though many other species are of greater rarity.

LAMARCK observes that many species exist, but their determination is difficult, as the characters (independent of the markings and colors of the shell), are not numerous or much varied. It is however very desirable that some more natural chain of approximation should be established between them; many species possessing sufficiently marked characters to guide the Naturalist in that task.

Cypræa cervina	Cypræa tigris
..... exanthema	..... tigrina
..... Argus	..... talpa
..... testudinaria	..... carneola
..... Mauritiana	..... lurida
..... mappa	..... vitellus
..... Arabica	..... caput-serpentis
..... histrio	..... cinerea
..... scurra	..... zonata
..... rattus	..... sordida
..... stercoraria	..... icterina
..... mus	..... miliaris
..... ventriculus	..... variolaria
..... aurora	..... rufa

<i>Cypræa lynx</i>	<i>Cypræa cicercula</i>
..... <i>adusta</i>	..... <i>lota</i>
..... <i>erosa</i>	..... <i>globulus</i>
..... <i>caurica</i>	..... <i>ovulata</i>
..... <i>Isabella</i>	..... <i>helvola</i>
..... <i>ocellata</i>	..... <i>Arabacula</i>
..... <i>cribraria</i>	..... <i>staphylæa</i>
..... <i>turdus</i>	..... <i>pustulata</i>
..... <i>olivacea</i>	..... <i>nucleus</i>
..... <i>stolida</i>	..... <i>limacina</i>
..... <i>hirundo</i>	..... <i>moneta</i>
..... <i>undata</i>	..... <i>obvelata</i>
..... <i>zigzag</i>	..... <i>annulus</i>
..... <i>flaveola</i>	..... <i>radians</i>
..... <i>sanguinolenta</i>	..... <i>oniscus</i>
..... <i>poraria</i>	..... <i>pediculus</i>
..... <i>ursellus</i>	..... <i>oryza</i>
..... <i>asellus</i>	..... <i>coccinella</i>
..... <i>moniliaris</i>	..... <i>australis</i>
..... <i>stercus-mus-</i>	..... <i>albella.</i>
<i>carum</i>	

[And eighteen fossil species.]



TEREBELLUM.

BULLA TEREBELLUM.—*Linnaeus*.*Sowerby's Genera, No. 3, pl. 6.*

It may be conjectured that all the univalve shells, whose characters puzzled Linnaeus in their classification, were placed by him in the *G. Bulla*, as a provisional receptacle for them: thus the *Terebellum*, which he did not characterize as a distinct genus, the *Oyula*, *Bulla*, (properly so called,) *Achatina*, and some species of *Pyrulæ*, notwithstanding the disparity of such an association, were all blended together. The *G. Terebellum* is a convolute shell; the whorls evolved on their own axis; the right side plain and sharp, in the form of an elongated cone, nearly cylindrical, and pointed at the summit; the back part of the base irregularly notched; aperture longitudinal, contracted at the upper part, very wide at the base; columella smooth and truncated at the base; substance thin. Their characters ally them to the *Ancillaria*, *Oliva*, and *Conus*; the *Cypræa* also in its first stage of growth slightly resembles it.

Terebellum subulatum.

[And two fossil species.]

ANCILLARIA.

VOLUTA AMPLA.—Linn.

Sowerby's Genera, No. 3, pl. 3.

In appearance this genus resembles that of *Oliva*, between which and the *G. Terebellum*, it seems to form an intermediate link; but the whorls of the spire never being separated at the upper part by a suture or groove distinguishes them from the former; and the callous oblique band at the base of the columella, from the latter, as well as from some species of *Buccina*, not very ventricose, which they might otherwise be mistaken for. Shell oblong, cylindrical; spire short, very slightly notched at the base; aperture elongated and wide, but not extending the whole length of the shell, and rather wider at the lower part; columella not plaited, and with a callosity at the base. Sowerby, in his *Genera of Shells*, has preserved Lamarck's original name for this genus (*Ancilla*).

Ancillaria cinnamomea *Ancillaria marginata*
 *ventricosa* *candida*.

[And five fossil species.]



OLIVA.

VOLUTA PORPHYRIA.—*Linnæus.**Sowerby's Genera, No. 3, pl. 2.*

LAMARCK has constituted of these shells a distinct genus from that of the *G. Voluta*, to which Linnæus had assigned nearly all of them, under the title of *Voluta oliva*, as if they were merely varieties of one species, notwithstanding that many of them are most distinctly characterized. They cannot be confounded with the *Voluta* or the *Mitra*, the shells of those genera not having their spiral whorls separated by a canal; in addition to which the left side of the aperture or columella of the *Oliva* presents, at its upper extremity, a projecting callosity, concurring in the formation of the spiral canal, which so strikingly marks these shells; the columella has also at the base vestiges of the very oblique callosity, which indicates their alliance with the *Ancillariæ*, though in that genus there is no canal at the spire, and the columella is never plaited. Shell subcylindrical, convolute, and smooth; the last whorl concealing all the others, as in the *G. Conus*; spire short; sutures canalculated; aperture longitudinal and narrow, notched at the base; columella obliquely striated its whole length. It is presumable that the animal inhabiting the shells of this genus constructs its dwelling in a

similar manner to that of the *Cypræa*, as the exterior surface, when rubbed down or polished, presents beneath it a very differently colored stratum: and as there never is any dorsal lines on these shells, the mantle of the animal may be supposed entirely to envelope them. They have no operculum or epidermis. This genus, like that of the *Cypræa*, much wants a more natural arrangement of its species, at present they are with difficulty distinguished, as the indications are even less marked than those of the *Cyprææ*.

<i>Oliva porphyria</i>	<i>Oliva reticularis</i>
. <i>textilina</i> . . . . .	. . . . . <i>flammulata</i>
. <i>erythrostoma</i>	. . . . . <i>granitella</i>
. <i>pica</i> . . . . .	. . . . . <i>araneosa</i>
. <i>tremulina</i> . . . . .	. . . . . <i>literata</i>
. <i>angulata</i> . . . . .	. . . . . <i>scripta</i>
. <i>maura</i> . . . . .	. . . . . <i>tricolor</i>
. <i>sepulturalis</i>	. . . . . <i>sanguinolenta</i>
. <i>fulminans</i>	. . . . . <i>mustelina</i>
. <i>irisans</i>	. . . . . <i>lugubris</i>
. <i>elegans</i>	. . . . . <i>funnebralis</i>
. <i>episcopalis</i>	. . . . . <i>glandiformis</i>
. <i>venulata</i> . . . . .	. . . . . <i>Peruviana</i>
. <i>guttata</i> . . . . .	. . . . . <i>Senegalensis</i>
. <i>leucophæa</i> . . . . .	. . . . . <i>fusiformis</i>

Oliva undata	Oliva auricularia
..... inflata	..... acuminata
..... bicincta	..... subulata
..... harpularia	..... luteola
..... hepatica	..... testacea
..... ustulata	..... hiatula
..... avellana	..... obtusaria
..... tessellata	..... Zeylanica
..... carneola	..... nebulosa
..... ispidula	..... fabagina
..... oriola	..... conoidalis
..... candida	..... undatella
..... volutella	..... eburnea
..... tigrina	..... nana
..... Brasiliana	..... zonalis
..... utriculus	..... oryza.

[And five fossil species.]



CONUS.

CONUS CEDO-NULLI.—*Linnaeus.*

Mart. 2, t. 57, f. 633.

Mawe's Linn. frontispiece, fig. 1.

THE shells of this genus are the most numerous, as well

as the most beautiful of the class which comprehends the spiral univalves; among them are many of extreme rarity, and of remarkable elegance in the symmetry of their form, diversity of marking, and richness of coloring matter. They constitute a very natural and easily distinguished association, including an immense number of species. The most remarkable and distinguishing character of this genus is the shells having the whorls of the spire compressed and rolled over each other, the outer one being entirely visible, and the upper edges of the previous evolutions only seen with a suture or groove between them; these spiral elevations are termed the spire, which is sometimes nearly flat, convex, more or less produced, and occasionally even slightly concave; the extremity of the whorls coronated, smooth, or tuberculated. It results from the form of the shell, and the spiral cavity (which contains the animal) being compressed in its whole length, and the largest part nearest the spire, that they may be strictly called turbinated shells, attenuated towards the base; the aperture is narrow, effuse at the base, never dentated; the outer lip smooth and sharp.

LAMARCK has divided this genus into two sections: the first including the coronated Cones; the second,

those with the spire plain. To the above remarks and description of the genus, may be added a few more particulars tending to exhibit the peculiar characters of this elegant shell; the aperture is terminated at the upper part in a notch, occasioned by the suture or separation of the external whorl from the spire. Beneath this appears a slight callosity, running round the interior of the shell. The form of the shell is extremely various: some being thin, cylindrical, and oval; others short and wide; some with a very produced spire, which in other species is nearly flat and truncated, either mucronated, coronated, tuberculated, or with flattened or convex whorls; the exterior more or less covered with minute granulations, some quite smooth, and others transversely grooved or sulcated. Many species are known to be, and most probably all of them are covered with an epidermis, which in some species is very thick and has a tufted appearance.

ADANSON, whose veracity has never been impugned, asserts that these shells are closed by an operculum, and it is very extraordinary, that in a class of shells so abundant, particularly in the hot latitudes, the animal has never been examined by any other person, and this assertion, therefore, has never been confirmed.

THIS genus, like other very numerous ones, possessing but few variations of character, requires a more natural association of its species; as a guide to which, the peculiar structure of the spiral whorls, in addition to the more or less elongated shape of the shells, might be adopted by the Naturalist. The only shells that could possibly be confounded with this genus, are young examples of the *G. Cypræa*; but the latter, in that stage of growth, are extremely thin and of light weight, which at once distinguishes them from the *G. Conus*.

As it is not the intention of this work to point out all the rare examples of each genus, they have in a very few instances only been mentioned. But the *C. gloriamaris*, the most rare of this genus, must not pass unnoticed, as there are only a very few examples of it known; one of which, formerly belonging to M. de Calonne, is in the Tankerville Collection. There are many other extremely rare and valuable species, viz. the *C. omaicus*, *C. aurisiacus*, and the varieties of the *C. cedonulli*, too numerous to be here mentioned; all of which are to be found in the above matchless cabinet.

Shells coronated.

<i>Conus marmoreus</i>	<i>Conus tulipa</i>
..... <i>Bandanus</i>	..... <i>geographus</i>
..... <i>nocturnus</i>	..... <i>punctatus</i>
..... <i>Nicobaricus</i>	..... <i>tæniatus</i>
..... <i>araneosus</i>	..... <i>musicus</i>
..... <i>zonatus</i>	..... <i>miliaris</i>
..... <i>imperialis</i>	..... <i>mus</i>
..... <i>fuscatus</i>	..... <i>lividus</i>
..... <i>viridulus</i>	..... <i>Barbadensis</i>
..... <i>regius</i>	..... <i>roseus</i>
..... <i>cedo-nulli</i>	..... <i>cardinalis</i>
..... <i>aurantius</i>	..... <i>Magellanicus</i>
..... <i>nebulosus</i>	..... <i>distans</i>
..... <i>minimus</i>	..... <i>pontificalis</i>
..... <i>sulcatus</i>	..... <i>Caledonicus</i>
..... <i>Hebræus</i>	..... <i>sponsalis</i>
..... <i>vermiculatus</i>	..... <i>puncturatus</i>
..... <i>arenatus</i>	..... <i>Ceylanensis</i>
..... <i>pulicarius</i>	..... <i>lamellosus</i>
..... <i>fustigatus</i>	..... <i>pusillus</i>
..... <i>obesus</i>	..... <i>exiguus</i>
..... <i>varius</i>	..... <i>asper.</i>

Shells not coronated.

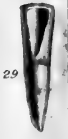
Conus millepunctatus	Conus hyæna
..... literatus	..... miles
..... eburneus	..... ammiralis
..... tessellatus	..... genuanus
..... generalis	..... papilionaceus
..... Maldivus	..... Siamensis
..... Malacanus	..... Prometheus
..... lineatus	..... glaucus
..... monile	..... Suratensis
..... centurio	..... monachus
..... vitulinus	..... ranunculus
..... vulpinus	..... anemone
..... flavidus	..... achatinus
..... virgo	..... cinereus
..... daucus	..... stramineus
..... pastinaca	..... zebra
..... capitaneus	..... lacteus
..... classarius	..... cingulatus
..... vittatus	..... vicarius
..... mustelinus	..... mercator
..... vexillum	..... ochraceus
..... Sumatrensis	..... betulinus

Conus figulinus	Conus Mediterraneus
..... quercinus	..... puncticulatus
..... Proteus	..... Mauritianus
..... leoninus	..... fumigatus
..... augur	..... eques
..... pertusus	..... luzonicus
..... nivosus	..... catus
..... fulgurans	..... verrucosus
..... acuminatus	..... acutangulus
..... amadis	..... mindanus
..... Janus	..... Japonicus
..... flammeus	..... pusio
..... lithoglyphus	..... columba
..... testudinarius	..... madurensis
..... venulatus	..... nemocanus
..... quæstor	..... cancellatus
..... muscosus	..... fusiformis
..... Narcissus	..... cærulescens
..... Mozambicus	..... aurora
..... Guinaicus	..... Taitensis
..... Franciscanus	..... Adansonii
..... iuformis	..... tinianus
..... rattus	..... Portoricanus
..... Jamaicensis	..... crocatus

Conus amabilis	Conus strigatus
..... Omaicus	..... glans
..... nobilis	..... mitratus
..... aurisiacus	..... nussatella
..... terminus	..... aulicus
..... striatus	..... auratus
..... gubernator	..... colubrinus
..... granulatus	..... clavus
..... terebra	..... auricomus
..... verulosus	..... omaria
..... raphanus	..... rubiginosus
..... magus	..... pennaceus
..... spectrum	..... prælatus
..... bullatus	..... panniculus
..... cervus [rum	..... archiepiscopus
..... stercus-musca-	..... canonicus
..... Timorensis	..... episcopus
..... nimbosus	..... abbas
..... dux	..... legatus
..... tendineus	..... textile
..... præfectus	..... pyramidalis
..... melancholicus	..... gloria-maris

Conus australis.

[There are also nine fossil species.]



BELEMNITES.

NAUTILUS BELEMNITA.—*Gmelin.*

Encycl. Meth. pl. 465, f. 1.

A fossil.



ORTHOCERA.

NAUTILUS RAPHANUS.—*Linnaeus.*

LINNAEUS has classed this genus, as well as the *G. Spirula*, with his *G. Nautilus*, indicating the alliance that exists between the many chambered shells, or shells with septa. The Orthocera is a very minute elongated marine shell, channelled on the exterior, resembling a slightly curved horn: the interior is divided into many cells, transversely separated by septa, which are traversed by a subcentral syphon, sometimes projecting at both extremities of the shell, and sometimes only at one. They are found in the sand on the Mediterranean shores.

- | | |
|--------------------|-------------------|
| Orthocera raphanus | Orthocera obliqua |
| fascia | acicula |
| raphanistrum | legumen |

NODOSARIA.

NAUTILUS RADICULA.—*Linnæus.* 27

Encycl. Meth. pl. 465, f. 4, A. B. C.



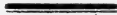
THIS genus very nearly approximates the preceding; but the exterior has smooth, globular nodosities, and has not the small longitudinal ribs which render the Orthocerae channelled on the interior.

Nodosaria radicola Nodosaria dentalina

Nodosaria siphunculus.



HIPPURITE.—A fossil.



CONILITES.—Ditto.



SPIRULA.

NAUTILUS SPIRULA.—*Linnæus.*

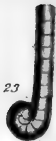
Mawe's Linn. pl. 19, f. 3.



THIS common little shell is known to all collectors,

and was classed with the *G. Nautilus* by Linnæus. Peron has discovered that it is attached at the lower part of the animal to which it belongs, and, except a portion of its last spiral turn, is completely enveloped by the body of the animal.

Spirula Peronii.



23



SPIROLINITES.—A fossil species.



22



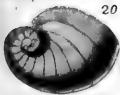
LITUOLITES.—Ditto.



21



RENULITES.—Ditto.



20

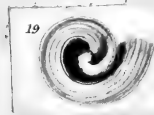
CRISTELLARIA.

THE greater number of these shells, of which the *Nautilus Planatus* is the type, are microscopic, and figured and described by Fichtel, also in the *Encycl. Method* (*Cristellaria Planata*) &c. *pl.* 467, *f.* 1, A. B. C.

NINE species are enumerated by Fichtel, all of which appear to be recent shells.

ORBICULINA.

SHELLS minute. Nautilus Orbiculus of Fichtel; Orbiculina Nummata, *Encycl. Method. pl.* 468, f. 1, A. B. C. D.



MILIOLA.

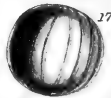
A MINUTE shell, one recent species of which is found on fuci, at the Island of Corsica.



GYROGONITES.—A fossil.

MELONITES.

A MINUTE Nautilus of Fichtel. *Encycl. Method. pl.* 469, f. 1, A. B. C. D. E. F.



Two species.

ROTALITES.—A fossil.



LENTICULITES.—A fossil.





PLACENTULA.

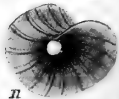
A MINUTE Nautilus of Fichtel. *Encycl. Meth. pl.* 466, f. 9, A. B. C. D.



DISCORBITES.—A fossil.



SIDEROLITES.—A fossil.



POLYSTOMELLA.

A MINUTE Nautilus of Fichtel. *Encycl. Method. t. 4,* f. D. E. F.



VORTICIALIS.

A MINUTE Nautilus of Fichtel. *Encycl. Method. pl.* 470, f. 1, A. B. C.



NUMMULITES.—A fossil.

NAUTILUS.

NAUTILUS POMPILIUS.—*Linn.**Mawe's Linn. pl. 19, f. 1, 2.**Mart. 1, p. 226, Vign. 10, t. 18, f. 164.*

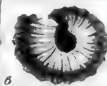
THIS elegant shell is so well known, that a minute description of it is here unnecessary. Its form is spiral, discoid; whorls contiguous, the last enveloping the others; numerous cells separated by a thin pearly partition, or transverse septum, concave on one side, and perforated by a syphon running through them all. This shell Lamarck conjectures to be only the partial covering of a molluscous animal, on whose body it is probably situated in a similar manner to that of the Spirula; which fact is said to be confirmed by a recent traveller, whose interesting remarks on natural history are likely soon to be presented to the public.

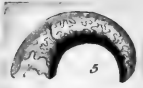
Nautilus pompilius *Nautilus umbilicatus.*

AMMONITES.—A fossil.



ORBULITES.—A fossil.





AMMONOCERATITES.—A fossil.



TURRILITES.—A fossil.



BACULITES.—A fossil.

ARGONAUTA.

ARGONAUTA ARGO.—*Linn.**Mawe's Linn. plate 18, fig. 1, 2.**Mart. 1, t. 17, f. 157.*

THIS genus is universally well known, and its elegant species form a part of every collection, under the trivial name of Paper Nautilus. There are three species: one (*A. argo*) with the keel much narrower than in the others, and the pointed tuberculations on either side of it very sharp; the sides of the shell striated transversely, with wrinkles proceeding longitudinally from the spire; the second species (*A. tuberculosa*) is more convex at the sides, with nodulous elevations, the keel broader, and the points at each side more obtuse. The third species (*A. nitida*) has the aperture very much dilated.

THE animal inhabiting this shell is said to expand two arms, connected by a membrane in the form of a sail, and two others acting as oars; by the aid of which it is propelled and guided on the surface of the sea, in its elegant, but frail bark. On receiving any alarm, or the weather becoming too rough for its convenient navigation, the animal withdraws its sail and oars, and, retreating into the interior of the shell, sinks to the bottom.

Argonauta argo

Argonauta tuberculosa

Argonauta nitida.

OCTOPUS.

SEPIA OCTOPUS.—*Linn.*

A MOLLUSCOUS animal, enclosing a very small dorsal osseous substance.

Octopus vulgaris

Octopus cirrhosus

..... *granulatus*

..... *moschatus.*

LOLIGOPSIS.

A MOLLUSCOUS animal, but without any interior bone.

Loligopsis Peronii.

LOLIGO.

SEPIA LOLIGO.—*Linn.*

A MOLLUSCOUS animal, containing an elongated, thin, transparent substance, enveloped at the anterior part of its back.

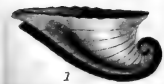
Loligo vulgaris	Loligo subulata
..... sagittata	..... sepiola.

SEPIA.

A MOLLUSCOUS animal, with a crustaceous, spongy, opaque, horny substance inclosed in its body, but quite free and detached.

Sepia officinalis	Sepia tuberculata.
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CARINARIA.

PATELLA CRISTATA.—*Linnaeus.**Mart. 1, t. 18, f. 163.*

THE first species, described by Lamarck, of this genus, in general form, and in some other respects, resembles the *G. Argonauta*, but principally on account of its tex-

ture, which is thin, papyraceous, very fragile, and semi-transparent. The shell of the *C. vitrea* is in the form of a fool's cap, flattened at the sides, the summit spirally recurved towards the aperture, but never entering it. It has *one keel only on the whole length of the back*, sharp, and dentated: the animal inhabiting it is never quite inclosed by the shell, which only serves to protect certain parts of its body. An example of this shell, which is considered by collectors the most rare of all the Testaceæ, exists in the cabinet of the Earl of Mountnorris, and is supposed to be the only one in this country. Another is in the French Museum.

THE next species described by Lamarck, the *C. fragilis*, (*Ency. Method. pl. 444, f. 3*), is much smaller than the preceding, and may be distinguished from it by the very fine longitudinal striæ, diverging from the summit to the margin; it also has no dorsal carination.

THE third species, *C. cymbium*, (*Martini 1, t. 18, f. 161, 162*), is not larger than a grain of sand, and can only be seen through a magnifying glass.

Carinaria vitrea *Carinaria fragilis*

Carinaria cymbium.

PTEROTRACHEA.

A MOLLUSCOUS animal.

Pterotrachea coronata Pterotrachea pulmonata
..... **hyalina aculeata.**

PHYLLIROE.

A MOLLUSCOUS animal.

Phylliroe bucephalum.

THE END.

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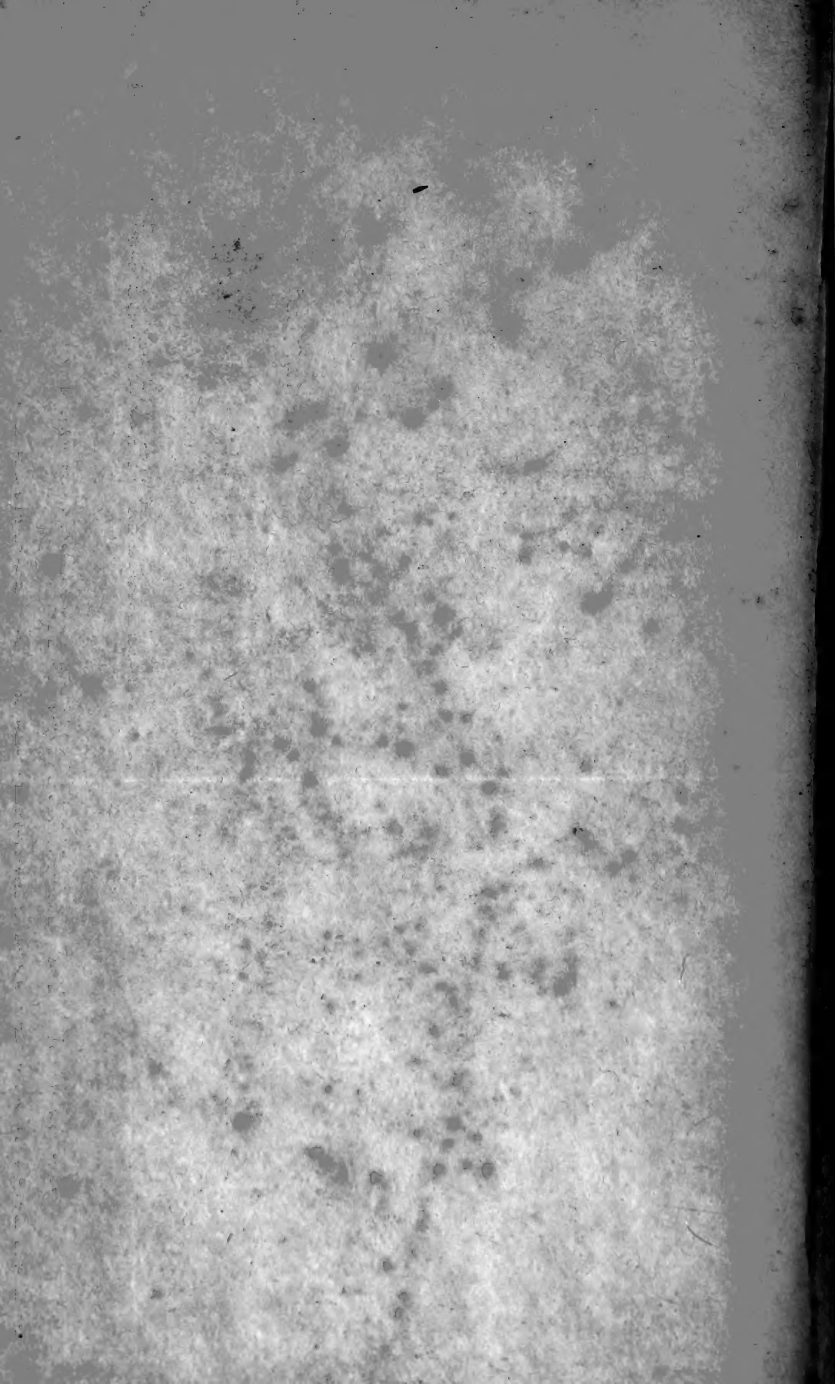
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