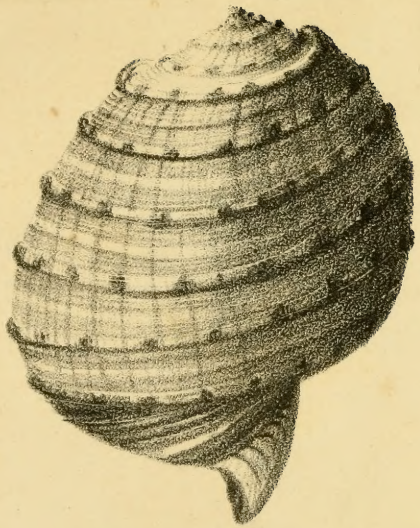
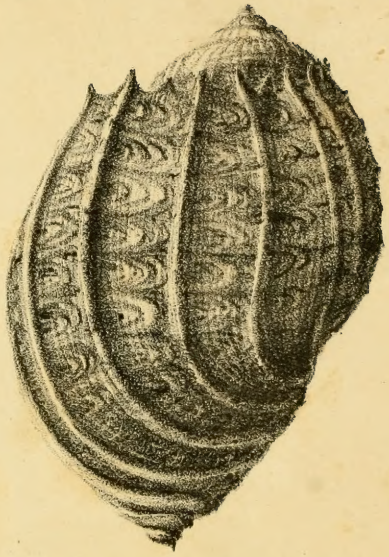
I - WARREN

SMITHSONIAN
OCT 28 1986
LIBRARIES



BUCCINUM DOLIUM
SPOTTED TUN.



BUCCINUM HARPA
HARP SHELL.

Deposited in Mass: Distr: Clks Office
February 4. 1834 THE See Vol. 9. p. 263

CONCHOLOGIST.

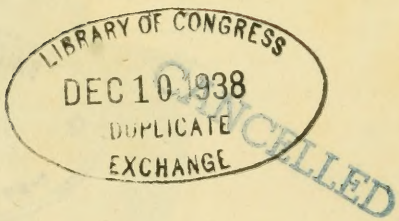
BY JOHN WARREN.

SMITHSONIAN INSTITUTION
312074
JUL 20 1939
NATIONAL MUSEUM

BOSTON:
RUSSELL, ODIORNE & METCALF.
1834.

Entered according to Act of Congress, in the year 1834,
BY RUSSELL, ODIORNE & METCALF,
In the Clerk's Office of the District Court of Massachusetts.

2142



PRESS OF JOHN PUTNAM.

QL
103
W28X
Moll.

PREFACE.

In offering to the public a work on so interesting a subject as the science of Conchology, my desire is to assist a discerning community in the study of nature in all her variety of marine and earthborn shells. To attain this object, it has been my study to compile a work, in as ample a form as possible, from the best, most copious and approved translations at present extant, of Linnæus and Lamarck, and from the more modern productions of Wood, Shaw, Dillwyn, Mawe, &c., as well as remarks from Aristotle and Pliny, of ancient date, in order to arrange the system adopted.

To enumerate the many kind acts of friendship in the assistance rendered to this work, is a grateful task. Should I forget to name any such individual, I trust it will be imputed to the treachery of my memory, rather than to the want of a sense of the obligation which I feel.

George William Pratt, Esq. I am bound in duty to acknowledge as my patron. From the Rev. Francis William Pitt Greenwood, I have received much information, and am greatly indebted. To Dr. Storer, Dr. Gould, Elijah Clark, Esq. and the ladies Barnard, Smith and Coffin, my thanks are due. To a young friend, whose modesty forbids the mention of his name, I am greatly obliged, as well as to Mr. James J. Jarvis, a young man of great talents, and one who bids fair to be a shining character, and an ornament to society and his country.

But I must not forget Seth Bass, Esq. M. D. from whose urbanity, kindness and attention, I have profited much. The use of his private library, papers and information, has been, in a great measure, my sheet anchor. It is entirely to him I am indebted for the list of Unio. This obligation I feel sensibly.

The Linnæan System, being by far the least complex, I have considered in the First Part; being only thirty-six genera, with their divisions and families.

The Second Part is entirely confined to the Lamarchian.

To study nature in every science is beautiful, but in this it is both gratifying, edifying and sublime. If it gives pleasure and leads the mind to higher objects, my end is answered.

John Warren.

Boston, Jan. 1, 1834.

Classification.

LINNÆUS has made three principal or grand Divisions of Testacea, viz. Multivalves, Bivalves, and Univalves and the following are the generic description :—

1. MULTIVALVES.

1. CHITON : Valves placed in transverse plaits down the back.
2. LEPAS : Valves unequal body sessile.
3. PHOLAS : Shell bivalve with accessary valves at the hinge.

2. BIVALVES.

4. MYA : Hinge with generally a broad thick tooth not let into the opposite valve.
5. SOLEN : Shell open at each end, hinge with a single or double subulate reflected tooth not let into the opposite valve.
6. TELLINA : Hinge with the lateral teeth of one valve not let into the other.
7. CARDIUM : Hinge with remote penetrating lateral teeth.
8. MACTRA : Hinge with a complicated triangular middle tooth and an adjoining hollow.
9. DONAX : Hinge with a lateral tooth generally remote not let into the opposite valve.
10. VENUS : Hinge with generally three approximate divaricated teeth.
11. SPONDYLUS : Hinge with two teeth, separated by a small hollow.

12. CHAMA : Hinge on one side with an oblique obtuse tooth inserted into a corresponding cavity.
13. ARCA : Hinge with numerous penetrating teeth.
14. OSTREA : Hinge without teeth, but an Ovate hollow.
15. ANOMIA : Hinge without teeth, but generally a linear depression on the rim, the beak of one valve curved over the hinge.
16. MYTITUS : Hinge without teeth, with a subulate depression.
17. PINNA : Hinge without teeth, valves united at one end and open at the other.

3. UNIVALVES.

I. WITH A REGULAR SPIRE.

18. ARGONAUTA : Shell with one cell spiral involute.
19. NAUTILUS : Shell with many chambers communicating by a tube.
20. CONUS: Aperture effuse, longitudinal, without teeth.
21. CYPRÆA : Aperture effuse, linear, longitudinal, toothed on each side.
22. BULLA : Aperture rather contracted and placed obliquely.
23. VOLUTA : Aperture effuse, the pillar plaited.
24. BUCCINUM : Aperture with a small canal leaning to the right.
25. STROMBUS : Aperture with a small canal leaning to the left.
26. MUREX : Aperture with a small straight canal.
27. TROCHUS : Aperture contracted nearly rectangular.
28. TURBO : Aperture contracted and orbicular.
29. HELIX : Aperture contracted lunate on the inner side.
30. NERITA : Aperture contracted and semi orbicular.
31. HALIOTIS : Shell with a row of orifices along the surface.

II. WITHOUT A REGULAR SPIRE.

32. PATELLA : Shell conic, the aperture widened like a basin.
33. DENTALIUM : Shell slender subulate open at both ends.
34. SERPULA : Shell tubular, generally serpentine adhering to other bodies.
35. TEREDO : Shell thin penetrating wood.
36. SABELLA : Shell composed of agglutinated grains of sand.

INTRODUCTION

TO

CONCHOLOGY.

Each moss,
Each shell, each crawling insect holds a rank,
Important in the plan of HIM, who framed
This scale of beings.

Stillingfleet.

Shells form a link in the great chain of nature, worthy the researches of men of science ; and when we consider the wonderful diversity of singular and beautiful forms, which they present to our notice, they cannot fail to invite the attention of the most common observer. CONCHOLOGY, indeed is a study peculiarly adapted to recreate the senses, and insensibly to lead us to the contemplation of the glory and order of the great God, in creation.

This science has, in a greater or less degree, attracted the attention of curious and contemplative minds in all ages : the multiform beauties of Shells, did not escape the observation of Philosophers, in the most brilliant æras of learning, as appears obvious, from the writings of Aristotle, Pliny, and of Ælian, and we may also add of Æthenaus, and of Cicero. "What can be more gratifying," (says Pliny) "than to view nature in all her irregularities, and sporting in her variety of shells ; such a difference of color do they ex-

hibit ; such a difference of figure ; flat, concave, long, lunated, drawn round in a circle, the orbit cut in two ; some with a rising on the back, some smooth, some wrinkled, toothed, streaked, the point variously intorted, the mouth pointed like a dagger, folded back, bent inward ; all these variations, and many more, furnish at once novelty, elegance, and speculation." CONCHOLOGY was neglected in the darker æra which succeeded to that of classic effulgence ; but in after ages as the mists of Gothic ignorance, which had so long overhung the Western World, dispersed, and the light of science, like the morning twilight, dawned upon the horizon of the human mind, CONCHOLOGY revived, was countenanced, encouraged, and flourished. And if in later times, it resigned a preference or precedence to other sciences, in conformity to the example of the great Linnæus, who was, perhaps, less favorably inclined towards the study of Shells, than any other department of nature, it is pleasing to add, that since his time, this subject has been most assiduously cultivated, and that by writers no less eminently qualified to exalt its character than to give stability to the science itself.

Beauty of Shells.

The colors of Shells are often so intensely vivid, so finely disposed and so fancifully variegated, that, as objects of beauty, they rival any of the esteemed production of the vegetable kingdom. In their forms they likewise exhibit an infinite variety. Whilst some consist merely of a hollow cup, or a single tube, others exhibit the most graceful convolutions, and appear in the form of cones, and spires, and turbans ; in another division shaped like a box, all the varieties of hinge are exhibited, from that of a simple connexion, by a ligament, to the most complicated articulation. The forms are indeed so various, and many of them so elegant, that a celebrated French Conchologist warmly recommends them to the attentive study of the Architect. In this country, however, no such recommendation is necessary, as many of our beautiful ornaments of Stucco, particularly for chimney-pieces, device are copied from the Univalve Testacea, and are greatly admired.

But Shells, even with all their beauty, and elegance would never have acquired so much importance in the eyes of mankind, had their forms been so difficult to preserve, as the external coverings of the higher classes of ani-

mals. It is both a tedious, and a difficult operation to preserve a Quadruped, a Bird, or a Fish, as a specimen for the cabinet; and even when the task is completed, it is but of temporary duration. A slow but certain process of dissolution is going on, which, though invisible for a time to the owner, gradually destroys the finest collection of these objects. The very changes of the atmosphere, combined with the attacks of insects, accelerate the destructive process. But with Shells the case is very different, composed of particles, already in natural combination, they do not contain within themselves the seeds of dissolution; so that for ages they remain the same.

Besides all that is necessary in general to prepare a Shell for the cabinet, is merely to remove the animal, and when the Shell is covered with foreign matter, to wash it away, with a brush, in soap and water, and it is frequently necessary to steep the shell for some time in fresh water, to extract all the salt water that may adhere to it. After being properly dried, it is fit for the shelf of the cabinet, and stands in no need of anxious superintendence.

To some, the examination of this department of science has appeared useless, and unworthy of occupying the time, and talents of an informed mind: reasoning with persons of this description is seldom attended with any good effect; ignorant of the advantages which have resulted to mankind from an intimate acquaintance with natural objects, which an all-perfect being, has created, they know not the pleasure which may be thus yielded to man, who was sent into this world in order to examine, admire and adore.

ALMIGHTY BEING!
Cause and support of all things, can we view
These objects of our wonder—can we feel
These fine sensations, and not think of THEE?

If we attend to the contour or shape of Shells, we find elegance and simplicity, richness and variety of their colors, the singularity of their forms in many, and the comparative facility with which they may be collected and arranged, we cannot be surprised that they have now attained a conspicuous place in public collections, and have attracted the notice of the curious observer.

Rumphius is said to have given a thousand pounds, for one of the first discovered specimens of the Venus Dione.

The Conus Cedo Nulli, so very rarely offered for sale, fine, was sold for three hundred guineas; the Turbo Scalaris, if large and perfect, has been

estimated worth one hundred guineas. The Cypræ Aurantium or Orange Cowry, perfect, has been sold for fifty guineas, and the Voluta Aulica, forty pounds; this with the Conus Gloria Maris, at fifty four pounds, at this period keep their prices, but all the others noticed are considerably (under the influence of several coming to market,) reduced in their value.

It has been estimated that a complete collection of British Shells (alone) is worth its weight in pure silver.

But to view Shells merely as objects of beauty, without attending to the animals of which they form a part, would be to overlook by far the most important branch of the science; and like the Florist to take notice of color, and shape, and neglect to attend to those functions, which, while they excite our astonishment, exhibit marks of design. The examination of the inhabitants, enlarges our knowledge of the laws of animal life, and teaches us that each Shell, however insignificant it may seem to be, possesses faculties, suited to the supply of its wants, and to the situation it is destined to occupy.

As objects of Utility to man, Shells are eminently worthy of our notice. To the savage, Shells furnish some of his most important instruments. They often answer all the purposes of a knife, and are extensively employed, as a substitute for iron; with pieces of their most solid bivalves, he points his arrows and forms his fish-hooks. The blue and white bells of the Indians of this country, are used as tokens or symbals of peace and amity, in opposition to the war hatchet, and by which the fate of nations has been so often decided are made of the Venus Mercenaria; and the gorget of the chieftains war-dress, is formed of the Pearl bearing muscle (Mytilus Margaratiferus.) The military horn of many African tribes, is the Murex Tritonis; the rare variety of which, with the volutions reversed, is held sacred, and is used only by their High Priests. The highest order of dignity, among the Friendly Islands is the permission to wear the Cypræa Aurantium, or Orange Cowry. Lister relates that the inhabitants of Nicaragua fasten the Ostræa Virginica to a handle of wood, and use it as a spade to dig up the ground. Even when further advanced in civilization the canaliculated univalves sometimes constitute the rustic lamp, while the larger scallops are employed by the dairy maid to skim her milk, and slice her butter. From the mother of pearl shell, many useful and ornamental articles are fabricated, and calcined shells were formerly esteemed by Physicians as absorbents, and are still regarded by the farmer, as furnishing a valuable manure. The greater part of the lime used in

this country, for agriculture and architectural purposes, is made of calcined shells. The public street of Christianstadt, and Santa Cruz, are paved with the Strombus Gigas, or great screw shell ; and the town of Conchylion is entirely built of marine shells. The Cypræa Moneta or money cowry, form the current coin of many nations of India and Africa, and the covering or coat of an inconsiderable worm, stands at this day, as the medium of barter for the liberty of man, a certain weight of them being given in exchange for a slave. The scholar needs not the reminiscence that the suffrages of the ancient Atheneans were delivered in, marked upon a shell.

> He whom ungrateful Athens could expel,
> At all times just but when he signed the Shell.
>
> *Pope.*

The record of which is still commemorated on the derivation of our terms Testament and Attestation. The word testado or shell is used, for a musical instrument in poetry, the first lyre being said to have been made by straining strings over the shell of a Tortoise :

> Less than a God they thought there could not dwell
> Within the hollow of that shell,
> That spoke so sweetly. *Dryden.*

The Hermes or Mercury of the Egyptians surnamed Trismagistus, or thrice illustrious, is reported by Apollodorus to have been the inventor of music, under the following circumstances. The Nile having overflowed its banks, and inundated the whole country of Egypt, on its return to its customary bounds, left on the shores various dead animals, and among the rest a Tortoise, the flesh of which, being dried, and wasted by the sun, nothing remained within the shell, but nerves and cartilages, and these being tightened and constricted by the drying heat, became sonorous. Mercury, walking along the banks of the river, happened to strike his foot against this shell, and was so pleased with the sound produced, that the idea of the lyre suggested itself to his imagination. The first instrument he constructed was in the form of a Tortoise, and was strung with the sinews of dead animals. There is something beautiful in this allegory which leads us into a conception of the energetic powers of the human mind, in the early ages of the world, thus directed to a discovery of the capabilities of nature, by the finger of Omnipotence in the form of accident.

This fanciful mode of accounting for the origin of music is thus curiously alluded to in Brewer's Linguæ.

The lute was first devised
In imitation of a Tortoise back,
Whose sinews, parched by Apollo's beams,
Echoed about the concave of the shell;
And seeing the shortest and smallest gave shrillest sound
They found out frets, where sweet diversity,
Well touched by the skilful learned fingers,
Roused so strange a multitude of chords.
And the opinion many do confirm
Because Testado signifies a Lute.

Shells as one of the agents of decomposition, and gradual dissolution, will afford material assistance to the geologist, when he examines into their rapid and astonishing powers of perforating and disuniting rocks of calcarious sandstone, limestone, marble, and even the hardest masses of granite and porphyry, wherever they come in contact with the ocean, and by a comparative examination of the different stratifications of marine testaceous depositions he may eventually be led to some important conclusions as to the probable elevation of the waters of the general Deluge.

From what has been adduced, it must now be obvious to the reader that shells are of considerable importance in the arts of life; but the animals contained in these Shells are of far greater value. As articles of food shell-fish are extensively employed by the poor, and even hold a conspicuous place at the tables of the rich. In many places, they in a great measure support the children of a maritime population, and in the Western and Northern Islands of Scotland, have in years of scarcity prevented the death of thousands, besides affording employment to as many who are constantly engaged in searching for shell-fish, and bringing them to market. Independently of the food thus obtained from Testaceous bodies, they afford that treasure of a Shell the Pearl, one of the most beautiful and costly ornaments, equally prized by the savage and the citizen; And supply us also with a dye—the famous Tyrian purple of antiquity, which constituted an attribute of imperial grandeur. Thus we perceive that the study of Conchology rises in importance as we discover its usefulness.

Conchology or Testaceology, as it is now sometimes called, comprises the Molusca Testacea, or self-bodied animals furnished with shells, being the third

order of the fourth class of Vermes or Worms. In the Linnæan system of Zoology, Shells are divided into

Multivalves, Bivalves, and Univalves.

A Multivalve shell may be exemplified by any species of Lepas or Barnacle, in which the shelly covering of the animal is formed of several pieces or divisions. The Bivalve, by the muscle in which, as every one knows, the shell is composed of two pieces or valves ; and lastly, the Univalve shell by the common snail, for the shell is simple and undivided. The shell animals are produced from eggs, which in some animals are gelatinous or gluey, and in others covered with a hard or calcareous shell, and the young animal emerges from the egg with its shell upon the back. The most familiar and convincing proof of this may be obtained by observing the evolution or hatching of the eggs of the common garden snail, as well as several of the water snails, which deposit eggs so transparent, that the motions of the young, with the shell on its back, may be very distinctly seen several days before the period of hatching.

All the shell animals are of such a constitution as perpetually to secrete or exude from their bodies a viscid moisture ; and it is with this, managed according to the exigencies of the animal, that the shell is through life increased in dimensions, and repaired when accidentally broken in any particular part. The growth of shells proceeds from the edges of the mouth, or opening ; and thus the spires or turns of the Univalve shells are gradually increased in number and size, till the animal has arrived at its full growth.

Linnæus has divided shells into thirty-six genera; and the total amount of species hitherto described is 2445, exclusive of varieties, of which 550 are to be found in and around the British Isles. There are many species, no doubt, that have not yet made their way into the catalogues of Conchological writers; and we have reason to suppose that hundreds or thousands may be still unknown.

MULTIVALVES.

No. 1. CHITON.

Coat of Mail Shell. *Inhabitant a Donax.*

Part in their pearly shells, at ease attend
Moist nutriment; or, under rocks, their food
In jointed armor watch.

According to the Linnæan system, the Chiton is the first shell and animal noticed. The Chitons are natives of the ocean, and are generally found adhering to rocks or stones that are overflowed by the tide, but it possesses the power of removing from its station. The Chiton much resembles the marine wood-house, and has often been mistaken for it, and possesses the same power of rolling itself into a perfect ball.

The body of the Donax is creeping, oblong, and flat beneath. The mouth is placed below, on the fore-part; vent behind, on the back, and surrounded by a fringe; feelers two or four, situated on the upper part of the body in front, and retractile within the proper receptacles.

The shell, consisting of several transverse incumbent valves, is disposed in a longitudinal series down the back. We have known very little of this genus until the few last years. So lately as the period in which the 10th edition of the Systema Natura appeared, only four of its species were known; at least, no great number are described by Linnæus. To the valuable work of Chemnitz, we are indebted for the addition of thirteen other species; to Schocter and others, for a further variety; so that Mawe states, at this present time, there are forty of this species known.

The Chiton takes its name from the Greek χιτων (Chiton,) a Coat of Mail.

DIVISION I. *Having a scaly margin.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Squamosus,	American Isles.	Sulcatus,	South Sea Isles.
Bistriatus,	" "	Maculatus,	East Indies.
Fasciatus,	South America.	Marmoratus,	Florida.
Viridis,	" "	Indus,	West Indies.
Tessellatus,	St. Thomas.		

DIVISION II. *Having a coriaceous margin.*

The Chiton porosus and C. larvæformis of this division deserve particular notice, as in some respects their characters differ from those of the other species. The valves of the C. porosus are perforated by a small slit, and the ligament of the C. larvæformis (which in other respects in the species merely surrounds the margin) almost envelopes the whole shell, and gives it the appearance of a caterpillar.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Fulvus,	South America.	Piceus,	Idria and Red Sea.
Tunicatus,	" "	Minimus,	Norway.
Castaneus,	Cape of Good Hope.	Cimex,	"
Lineatus,	" "	Asellus,	"
Aculeatus,	Nicobar Isles.	Gigas,	African Coast.
Fascicularis,	England & Barbary.	Islandicus,	Iceland.
Punctatus,	Europe, Asia, Amer.	Marginatus,	French Coast.
Ruber,	Norway.	Lævis,	England.
Abbas,	England.	Amiculatus,	Kurile Island.
Cinereus,	Goree.	Tuberculatus,	West Indies.
Bicolor,	India.	Crinitus,	Aberdeen.
Cerasinus,	Surinam.	Thalassinus,	"
Magellanicus,	Magellan Straits.	Hispidus,	West Indies.
Fuscus,	Pulo Ponang.	Porosus,	" "
Granulatus,	West Indies.	Larvæ formis,	" "

DIVISION III. *Having a spinous margin.*

The C. spinosus is at present a very rare shell; its habitat is supposed to be the Marquesas.

No. 2. LEPAS.

Acorn Shell. *Inhabitant a Triton.*

This genus has been separated into two families, the first (as Lepas anatifera) containing the balani or barnacle shells; the second (the Lepas tintinabulum) or acorn shell. It is the nature of these shells to adhere in clusters to rocks, shells, the bottom of ships, or floating pieces of wood, where they are sometimes seen in countless numbers. Colonel Montague relates, that he observed a piece of fir timber about twenty feet long, which was drifted on the coast of Devonshire, England, and which, from end to end, was completely covered with them. They appear particularly attached to wood, where they cluster together of all sizes, the smaller adhering by short pedicles to the larger ones.

The animals contained in these shells, as well as in those of the other species, have an oblong body, each 24 claws or tentacula, all joined in pairs near the bottom, and inserted in one common base; the twelve longest stand somewhat erect and arched, and arise from the back part of the animal. They appear like so many curled feathers, clear, horny, and articulated. Every joint is furnished with two rows of hairs on the concave side: they are of use in catching prey, and the animals are continually employed in extending and contracting them for this purpose. The twelve smallest are placed six on each side: in front of these, they are more pliable, and more thickly set with hairs than the others, and seem to perform the office of hands. The mouth, formed not unlike a contracted purse, is placed in front, between the smaller claws, and within its folds are situated six or eight horny laminæ or erect teeth. Under this lie the stomach and intestines, and the tendons by which the animal adheres to the shell.

Only twelve species are described in the Grewlinnæan system: the genus takes its name from the Greek λέπας, the rock to which the shell adheres.

The barnacle shells have long been known, in consequence of a fabulous notion formerly prevalent, especially in Great Britain and Scotland, even among those who ought not to have been so deceived,—that from them was bred a species of goose, common on the British coast, called the Barnacle Goose.

Of the numerous writers, who have mentioned and credited these circumstances, I shall notice three only, all of whom speak confidently and positively on the subject. The first is Maier, who writes a treatise expressly on this bird: he says, that it certainly originates from shells; and, what is still more wonderful, says, "he opened a hundred of the goose-bearing shells in the Orkneys, and found in all of them the rudiments of the bird completely formed."

Gerard is another writer on this subject. His account of this miraculous transformation, I here insert in his own words, which have been often quoted: "What our eyes have seen, and our hands have touched, we shall declare. There is a small island in Lancashire (England,) called the Pile of Foulders, wherein are found broken pieces of old and bruised ships; some thereof have been cast thither by shipwrecks: also, the trunks and bodies, with the branches of old and rotting trees, cast up there likewise, whereon is formed a certain spume or froth, that in time breedeth unto certain shells, in shape like those of the muscle, but sharper pointed and of a whitish color; and the end whereof is fastened unto the inside of the shell, even as the fish of oysters and muscles are, and the other end is made fast unto the belly of a rude mass or lump, which in time cometh into the shape and form of a bird: when it is perfectly formed, the shell gapeth open, and the first thing that appeareth is the aforesaid lace or string; next cometh the legs of the bird, hanging out; and as it groweth greater it openeth the shell by degrees, till at length it has all come forth, and hangeth only by the bill: in a short space after, it cometh to maturity and falleth into the sea, where it gathereth feathers, and groweth to a fowl bigger than a mallard, and lesser than a goose, having black legs, and bill or beak, and feathers black and white, spotted in such a manner as our magpie, called in some places pie-annes, which the people of Lancashire call by no other name than tree goose; which place aforesaid, and all those places adjoining, do so much abound therewith, that one of the best is bought for three pence. For the truth hereof if any doubt, may it please them to repair to me, and I will satisfy them by the testimonies of good witnesses."

The last I shall mention is Sir Robert Murray's account of the barnacle, inserted in the Philosophical Transactions. "In the Western Islands of Scotland, the west ocean throws upon their shores great quantities of very large weather-beaten timber: the most ordinary trees are wood and ash. Being in the Island of East, I saw lying upon the shore a cut of a large fir-tree,

about two feet and a half in diameter and nine or ten feet long, which had lain so long out of the water that it was very dry, and most of the shells that had covered it were worn or rubbed off, only the parts that lay next to the ground: there still hung multitudes of little shells, they were of the color and consistence of muscle shells. This barnacle shell is thin about the edges, and about half as thick as broad. Every one of the shells hath some cross seams or sutures, which, as I remember, divide it into five parts: these parts are fastened one to another, with such a film as muscle shells have. These shells are hung at the tree by a neck longer than the shell, of a kind of filmy substance round and hollow, and creased not unlike the windpipe of a chicken, spreading out broadest where it is fastened to the tree, from which it seems to draw and convey the matter which serves for the growth and vegetation of the shell and little bird within it. In every shell that I opened I found a perfect sea-fowl, the little bill like that of a goose; the eyes marked; the head, neck, breast, wing, tail, and feet, formed; the feathers everywhere perfectly shaped and blackish colored, and the feet like those of other water-fowl, to my best remembrance."

Few subjects seems to have been more circumstantially related, or to rest on better evidence, than the above; so natural to man is credulity, which passes all bounds where prodigy of an event takes firm hold of the imagination, and lays the understanding asleep. Such are the wild chimeras that have been retailed concerning the origin of barnacles; and as these fables once had great celebrity, I have been induced to relate them, to show how contagious the errors of science are, and how prone men are to the fascinations of the marvellous. Barnacle geese are not uncommon on many of the northern and western coasts of Britain in winter; but they are scarce in the south, and are seldom seen except in inclement seasons. They leave in February, and retire northward to breed.

This genus is divided into two, each having their families.

DIVISION I. *Affixed at the base to other substances.*

Family 1*st*. *Sessile.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Balanus,	Europe, &c.	Conoides,	Weymouth.
Balanoides,	"	Palmipes,	Atlantic Isles.
Tintinnabulum,	East & W. Indies.	Minor,	Indian Islands.
Scotica,	Scotland.	Angustata,	Coast of Africa, &c.
Costata,	Wales.	Elongata,	Britain, &c.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Patellaris,	Coast of Coromandel.	Radiata,	British Seas.
Spinosa,	St. Helena.	Cariosa,	" "
Violacea,	Indian Isles.	Psittacus,	Chili, "
Crispata,	" "	Hemispherica,	Africa, "
Verruca,	North Europe.	Lævis,	East and West Ind.
Rugosa,	South Coast of Eng.	Striatus,	Eng.& Dutch Coasts.
Punctatus,	British Seas.		

FAMILY 2*d*. *Having radiated cells at their base.*

Diadema,	Mediterranean, &c.	Testudinaria,	Mediterranean, &c.
Balænaris,	" "	Quinquevalvis,	" "

FAMILY 3*d*. *Having a porous base.*

Porosus,	East Indies, &c.	Purpurascens,	Falkland Islands.

FAMILY 4*th*. *Having a cup-like appendage at the base.*

Galeata,	Mediterranean.	Spongiosa,	Dorsetshire.

FAMILY 5*th*. *Tubular and truncated at both ends.*

Tracheiformis,

DIVISION II. *Shells attached to a fleshy peduncle.*

Notwithstanding the great affinity which exists throughout the lepas genus, there are a few exceptions, in which a resemblance is difficult to be traced; as for example, in the L. scalpellum, L. anserifera, L. anatifera, and varieties emanating from them. These species are closely allied to each other, and very different from the rest of the genus.

FAMILY 1*st*. *Having more than five valves, and a wreath of smaller ones round the base.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Mitella,	Amboyna & East In.	Pollicipes,	France & Spain.
Scalpellum,	Spain, &c.		

FAMILY 2*d*. *Having only five contiguous valves.*

Anserifera,	Am. & Indian Seas.	Villosa,	Mediterranean.
Anatifera,	" "	Dentata,	"
Dorsalis,	West Indies.	Sulcata,	Dorsetshire, England.
Fascicularis,	European Seas.		

FAMILY 3*d*. *Having minute and distant valves placed on the fleshy extension of the peduncle.*

Aurita,	Northern Coasts.	Vittata,	Mediter. & Atlantic.

No. 3. PHOLAS.

Peirce Stone. *Inhabitant an Ascidia.*

The animals of this tribe perforate clay, spongy stones and wood, very young; and as they increase in size they enlarge their habitation, and thus become imprisoned. Before these animals attempt to penetrate stones, they soften them by discharging a quantity of phosphorescent fluid, which decomposes or corrodes the substance, as effectually as any chemical solvent, and prepares it for the reception of the shells, which they are enabled to insert in the manner of a screw, the worm being spiral and toothed; the animal then begins to make an entrance with the larger end of the shells, and thus all possibility of return is cut off. They are always found below high-water mark, and a mass of rock may sometimes be seen wholly perforated by them. They have two orifices or openings capable of elongation, in the manner of a proboscis: one of them is supposed to be the mouth, and has the faculty of spouting water: most of them contain a phosphorescent liquor of great brilliancy in the dark, which also illuminates whatever it touches or happens to fall upon.

The Pholas is so called from the Greek φωλὰς, to lurk in cavities, or seek a hiding place.

The Pholas dactylus affords the character of nearly the whole tribe. The very extraordinary powers possessed by these animals of penetrating into solid bodies, when compared with their apparent imbecility, have justly excited the astonishment of Philosophers and Naturalists of all ages. When divested of their shell, they are roundish and soft, with no instrument that in the least seems fitted for boring into stones, which they are known to do, or even for penetrating the softest substance. They are indeed furnished with two teeth; but they are placed in such a situation as to be incapable of touching the hollow surface of their stony dwellings. They have also two corners to their shells, which open or shut at either end; but these are totally unserviceable to them as miners. The instrument with which they perform all their operations, and by means of which they bury themselves in the hardest rocks, is only a broad, fleshy substance, somewhat resembling a tongue. With this soft, yielding instrument, while yet young and small, they work their way into the sub-

stance of the stone and enlarge their apartment, as their increasing size renders it necessary. The seeming unfitness, however, of these animals for penetrating into rocks, and there forming an habitation, has induced many Philosophers to suppose that they entered the rock while it was yet in a soft state, and from the petrifying quality of the water that the whole rock afterwards became hardened round them by degrees. This opinion has been confuted in a very satisfactory manner by Dr. Bohads, who observed that many of the pillars of the Temple of Serapis, at Puteoli were penetrated by these animals; whence he justly concludes, that the Pholades must have pierced them after they were erected; for no workman would have labored a pillar into form, if it had been honey-combed by worms in the quarry. In short, there can be no doubt, but that the pillars were perfectly sound when erected, and that these animals attacked them during the time in which they continued buried under water after the Earthquake that swallowed up the city. From hence it appears, that in all nature there is not a greater instance of perseverance and patience than that which this animal is seen to exhibit. Furnished with the bluntest and softest auger, by slow successive applications it effects what other animals are incapable of performing by force, penetrating the hardest bodies with only its tongue. When (as I have before stated) while yet very small, it has effected an entrance, and buried its body in the stone, it there continues for life at its ease, the sea water that enters at the little aperture supplying the animal with luxurious plenty. Upon this seemingly thin diet it by degrees grows larger and larger, and soon finds itself under the necessity of increasing the dimensions of its habitation and its shell.

The motion of the Pholas is slow almost beyond conception: its progress keeps pace with its growth of body; and in proportion as it becomes larger, it makes its way further into the rock; when it penetrated to a certain depth, it turns from its former direction and hollows downward, till at last, when its habitation is completed, the whole apartments resemble the bowl of a tobacco-pipe, the hole in the shank being that by which the animal entered. Thus immured, the Pholas lives in darkness, indolence and plenty: it never removes from the narrow mansion into which it has penetrated, and seems perfectly content with being inclosed in its own sepulchre. These animals are found in the greatest quantity at Ancona in Italy, also along the shores of Normandy and Poictou in France, and upon some of the coasts of Scotland. In general, they are considered as a great delicacy at the tables of the luxurious.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Dactylus,	Europe,	Orientalis,	Siam & Tranquebar,
Costata,	Virginia, West Indies,	Cordata,	
	So. Eu. So. Carolina,	Chiloensis,	Chili,
Striata,	So. Eu. E. I. Ocean,	Hians,	West Indies,
Candida,	Eu. America, Britain,	Parva,	Pensacola, Britain,
	Bay of Campeachy,	Falcata,	
Crispata,	North Eu. Britain,	Papyracea,	Britain.

BIVALVES.

No. 4. MYA.

Gaper. *Inhabitant an Ascidia.*

The ocean rolling, and the shelly shore;
Beautiful objects.

Shell bivalve, generally gaping at one end, hinge has a solid thick patulous tooth, but seldom two, and not inserted in the opposite valve. The name or term Mya is also derived from the Greek μυάς, which is from μύω, to compress. It was formerly applied to the mytilus.

The greater part of these animals are inhabitants of the ocean, but some of them are found in fresh water. They perforate the sand or mud at the bottom. Many of the species are caught for food, and others for the pearl, which are formed within their shells ; some few of the species perforate and live in limestone, in the same manner as the Pholades.

The pearl bearing Mya, (Margaritifera) is found chiefly in the large rivers of northern latitudes. The British islands, especially Ireland, have been considered famous for their fisheries of the Mya, and a few pearls of great value have at times been obtained from these sources; but the quality of British specimens is not held in the highest estimation. Some fine pearls, however, were procured from the Shannon, in the year 1821. The river Irt, in Cumberland, the Canway, in Wales, and the Fay, in Scotland, were once noted for their pearl fisheries. Suetonius reports, that Cæsar was induced to undertake his British expedition for the sake of the pearls, and, according to Pliny and Tacitus, he brought home a buckler made with

British pearl, which he dedicated to, and hung up in the temple of the idol Venus Genetrix.

Several species of gapers are used as food, both in Britain and on the continent, as the Mya Arenaria, known to the fishermen about Southampton, by the whimsical name of Old Maids. These shells reside in the mud, or shingle on the shore, laying a few inches below the surface. In some parts of England and Ireland they are much used; but, though common in Scotland, they are never sought after. Another species, (the Mya Truncata) is also very common on the coast. It prefers a hard, gravelly bottom, in which it lodges at low-water mark. The inhabitants of the Northern Islands call it Smuslin, and employ it, when boiled, as a supper dish. It is by no means unpalatable.

This genus has several divisions.

DIVISION I. *Hinge with one or two rounded teeth not inserted in the opposite valve.*

Some species of this division grow to a large size, as the Mya Glycymeris.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Glycymeris,	Mediter. Sea, Spain, Portugal and Naples,	Rostrata,	Bergen,
Truncata,	Europe, Britain,	Distorta,	Plymouth,
Arenaria,	" "	Bidentata,	Devonshire,
Declivis,	Devonshire, Weym'th	Decussata,	Frith of Forth,
Pubescens,	" "	Purpurea,	Devonshire,
Pratensis,	Britain,	Ferruginosa,	Bellon Sands, Dunbar,
Anatina,	Mouth of the Niger,	Nitens,	
Globosa,		Prismatica,	Scotland, Devonshire,
Nicobarica,	Nicobar Islands,	Substriata,	Devonshire.

DIVISION II. *Hinge callous, without teeth.*

Edentula,	Caspian Sea,	Norwegica,	Norway,
Membranacea,	Iceland,	Siliqua,	North America.

DIVISION III. *Hinge with teeth inserted into the opposite valve.*

The Mya Ponderosa, (or M. Crassa of some authors) with others in this division, are remarkable for their excessive weight and thickness, which is universally the case with those that are found in rapid rivers and cataracts.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Batava,	Danube, R. of Holland,	Rugosus,	Riv. of Coromandel,
Pictorum,	European Rivers,	Variabilis,	S. American Rivers,
Ovata,	Rivers of England,	Nodosa,	Rivers of India,
Radiata,	" of Malabar,	Symatophora,	" " Guinea,
Ponderosa,	Chinese Rivers,	Suborbicularis,	Coasts of Devonshire,
Complanata,	N. American Rivers,	Inæquivalvis,	" British,
Nodulosa,	Riv. of N. of Europe,	Labiata,	S. American Rivers,
Margaritifera,	Riv. of Coromandel,	Aurita,	Ganges.
Corrugata,	" "		

DIVISION IV. *Hinge toothless, with a conical rounded hollow for the reception of the cartilage.*

Vulsella,	Amboyna, Tranquebar.

No. 5. SOLEN.

Razor Shell. *Inhabitant an Ascidia.*

Shell oblong, gaping at both ends, tooth of the hinge subulate reflex, generally double, not inserted, lateral margin obsolete: in the Solen radiatus, there is an internal rib, extending from the hinge to the margin of the cavity, in a longitudinal direction. The great disproportion in the breadth of the Solen is a remarkable character, and serves to distinguish them from every other genus.

Solen is also derived from the Greek word σωλην, signifying a tube. The French designate the Solens, Manches de Couteaux, in allusion to their shape.

Many of the bivalved shell fishes have the powers of progressive or retrograde motion, by an instrument that has some resemblance to a leg or foot, and called the tongue. But these animals can at pleasure make this assume almost any form which their exigencies require. They are incapable of progressive motion on the surface, but they dig a hole or cell in the sand, sometimes two feet in depth, in which they ascend, or descend, at pleasure. The instrument, or tongue, by which their motions are performed, is fleshy, cylindrical, and situated near the centre of their body. When necessary, the animals can make the termination of the tongue assume the form of a ball. The razor-fish, when laying on the surface of the sand, and about to sink into it, extends its tongue from the inferior end of the shell, and makes the extremity of it take the form of a shovel, sharp on each side, and terminating in a point. With this instrument the animal cuts a hole in the sand. After the hole is made, it advances the tongue still further into the sand, makes it assume the form of a hook, and with this hook, as a fulcrum, it obliges the shell to descend into the hole. In this manner the animal operates, until the shell totally disappears. When it chooses to regain the surface, it forms the termination of the tongue into the shape of a ball, and makes an effort to extend the whole tongue; but the ball prevents any further descent, and the muscular effort necessarily pushes the shell upward, until it reaches the surface. It is amazing with what dexterity and quickness these seemingly awkward motions are performed.

Two kinds of razor-fish, (Solen Siliqua, and Ensis) are in many places of Great Britain used as food. In Scotland, they are indiscriminately termed

Spout-fish. They are found upon most sandy shores, buried about a foot or two below the surface, and near to low-water mark. Their place is known by a small hole in the sand. As it is rather a laborious operation to dig them out, Bosc informs us that the fishermen in France throw a small pinch of salt into their holes, which always remain open by the action of the respitary organs; that they speedily rise to the surface, and are thrown out by an iron instrument made for the purpose. The fishermen believe it is the salt they wish to avoid; but it is conjectured, with greater probability, that the presence of the salt water, which is thus formed by the solution of the salt, makes the animal suppose that its hole is again covered with the tide. This shell fish was esteemed by the ancients as a great delicacy. When boiled or fried, it is certainly a palatable morsel. If kept a few days, it forms an excellent bait for haddock or cod, and may be employed for that purpose in a fresh state.

Most species of the Solens are covered with a thin cuticle or epidermis, which renders the colors beneath more or less obscure.

DIVISION I. *Shell linear.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Vagina,	Britain,	Ensis,	Europe,
Trimeatus,	Am. and Ind. Seas,	Pellucidus,	Britain,
Novacula,	Wales,	Legumen,	Mediterranean,
Siliqua,	Europe,	Cultellus,	Ceylon.
Linearis,	Indian Seas,		

DIVISION II. *Shell ovate or oblong.*

The shells of this division present but little beauty, with the exception of the S. oriens, S. radiatus, S. roseus, and a few others, which have a fine pink color, or are delicately arrayed with purple and white.

Antiquatus,	Britain,	Striatus,	Indian Seas,
Gigas,	N. W. C. of America,	Castrensis,	Guinea Coast,
Magnus,	Indian Isles,	Biradiatus,	South Seas,
Minimus,	Tranquebar,	Sanguinolentus,	West Indies,
Guineensis,	Guinea,	Oriens,	China,
Inflexis,		Occidens,	Ceylon,
Diphos,	Indian Ocean,	Amethystus,	Indian Seas,
Radiatus,	China, Amboyna,	Variegatus,	
Strigilatus,	Mediterranean,	Bullatus,	E. W. Indies,
Coarctatus,	Nicobar Isles, Britain,	Minutus,	Britain, N. of Europe,
Fragilis,	" " "	Virens,	Coast of Java,
Anatinus,	Coromandel Coast,	Squamosus,	Devonshire,
Roseus,	Red Sea,	Vespertinus,	Eu. and Med. Seas.

No. 6. TELLINA.

Bent Wedge. *Inhabitant a Tethys.*

The Tellinæ are usually found buried in sand or gravel, on the sea shores, and some kinds in rivers or ditches. Among all the genera of bivalves, there are none except the Venus, which can vie with the Tellinæ, in elegance of form, brilliancy of color, or delicacy of structure.

The body is detached, oblong, fleshy, without peduncles, mouth furnished with a terminal, cylindrical proboscis, under an expanded membrane or lip, apertures, two on the left side of the neck, shell bivalve, generally sloping on one side, in the fore part of one valve, a convex of the other, a concave fold, hinge with usually three teeth, the lateral ones smooth in one shell. The Tellinæ, as now defined, consists of those orbicular bivalve shells or transverse, having a regular fold or wrinkle at the anterior end of the shell, with one or two teeth pointed to the beak, and remote lateral teeth.

It is difficult to beginners in the science of Conchology to discriminate between the genera Tellinæ and Venus. The difference will best be learnt by observing principally the inclination of the beaks: if they at all tend towards the ligament, the shell will belong to the genus Tellina; also, if any remote, lateral teeth be discernible, if the anterior slope be compressed into an acute, wedge-shaped form, or if it be crooked.

The word Τελέιν from which Tellina is derived, signifies to arrive quickly at maturity. Of this genus, there are 81 species, and three divisions.

DIVISION I. *Ovate and thickish.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Gargadia,	Indian Ocean,	Lacunosa,	Coast of Guinea,
Rugosa,	Otaheite, W. I. Seas,	Gibbosa,	
Lingua Felis,	Indian Ocean,	Gari,	Amboyna, Molucca Isles, China.
Marginalis,	Coast of China,		
Virgata,	Amboyna, Ceylon,	Ferroensis,	Britain, Ferroe Isles, Norway,
Interrupta,	Bay of Naples, West India Islands,	Fragilis,	Eu. Ocean, Caspian Sea and Mediterranean,
Angulata,	Tranquebar,	Obliqua,	
Inflata,			
Polygona,	do. Naples,		

DIVISION II. *Ovate and compressed.*

Scientific name.	*Locality.*
Triangularis,	
Oblonga,	European Ocean.
Spengleri,	Nicobar Isles, Coromandel, China.
Foliacea,	Amboyna, Molucca Isles. West Indies.
Acuta,	West Indies.
Planata,	Eu. and Med. Seas.
Strigosa,	West Coast of Africa. Molucca Isles.
Lævigata,	European and Indian Oceans, West Indies.
Madagascarensis,	Coasts of Madagascar. Coromandel.
Radiata,	Eu. Ocean, Bahamas, Ascension Isl. W. Indies.
Pallescens,	E. Indian Seas.
Rostrata,	Amboyna, Java, Tranquebar.
Rufescens,	Coasts of Brazil.
Flavescens,	E. Indian Seas.
Hyalina,	Coasts of Guinea.
Inæquivalvis,	Medit., Norway, Britain.
Trifasciata,	European Ocean.
Coccinea,	Mediterranean.
Incarnata,	Do. Sweden.
Opalina,	Nicobar Isles, Tarentum.
Lanceolata,	East Indian Seas.
Sanguinea,	
Nivea,	American Ocean.
Sulcata,	
Donacina,	Mediterranean, Britain.
Augusta,	Frith of Forth.
Truncata,	Java.
Punicea,	W. I. Seas, Britain, Guinea, Rhode Island.
Depressa,	Coasts of Britain.
Fabula,	Med. Coasts of Norway and Am., W. Ind. & Brit.
Tenuis,	Coasts of Britain.
Vitrea,	Baltic, Northern Ocean.
Striata,	Coasts of Dorsetshire.
Balaustina,	Mediterranean.
Calcaria,	C. of Iceland, Ferroe Isl.

DIVISION III. *Suborbicular.*

Remies,	Eu. and Indian Oceans, C. of Am. Nicobar I.
Fausta,	W. Indies, Dorsetshire.
Reticulata,	do. do. Britain.
Cancellata,	Coasts of Goree.
Guinaica,	C. of Guinea, Frith of Forth.
Scabra,	W. Indian Seas.
Crassa,	Guernsey, Brit. Norman.
Decussata,	
Cordiformis,	W. I. Seas
Muricata,	do. do. C. of Ter. Fir.
Scobinata,	Asiat. Ocean, C. of Surat. Jamaica, and Barbadoes.
Lactea,	Med. Lisbon, Britain.
Rotundata,	Norway, Senegal, do.
Flexuosa,	Coasts of Britain.
Carnaria,	W. Indies, Curaçoa, do.
Zonata,	Med., Brit., W. Indies.
Bimaculata,	Eu. Ocean, E. and W. Ind. Seas.
Balthica,	The Baltic.
Pisiformis,	Mo. of Rivers in the European Seas.
Divaricata,	C. of Brazil, Med. Am. Seas, Naples.
Dentata,	
Digitaria,	Med., Nicobar Isles.
Cornea,	Riv. & Ponds in Europe.
Lacustris,	Denmark, Britain.
Amnica,	do. do.
Pusilla,	Rivers in Europe & Virg.
Limosa,	do. in South America.
Fluminalis,	Euphrates.
Hermaphrodita,	Guinea.
Fluminea,	Rivers of China.
Fluviatilis,	Canton.

No. 7. CARDIUM.

A Cockle. *Inhabitant a Tethys.*

Shell bivalve, nearly equilateral. Equivalves generally convex, longitudinally ribbed, striated or sulcated, with the margin toothed. Hinge with two alternate teeth in the middle, near the beak, in most incurved, lateral teeth remote, and inserted or locking into the opposite. Forty-nine species of this genus were described in the last edition of the Systema Naturæ.

The genus Cardium is somewhat cordiform in its shape, with the valves denticulated or folded at the margin, beaks turned inward, hinge with the two oblique teeth in each valve near the back, locking into each other; the ribs and furrows of the two valves are so disposed as to alternate at the margin, and to lock accurately and firmly into each other.

The word *cardium* is derived from καρδια, signifying heartlike, from the cordate appearance of the genus.

Upon the sandy shores of all the known seas, some of the species of Cockle are to be observed. Most are found immersed in the sand, at the depth of a few inches. Their size varies from five or six inches to half an inch in diameter. The common Cockle is well known. All the locomotive powers of the Cockle are concentrated in the triangular yellow foot, which is so conspicuous when we open the shells. This foot is not only capable of great inflexion, but also of seizing with its point the glutinous matter which proceeds from it, drawing this into threads, and thereby, in some measure, securing the animals within the sand. Few shell fish are more common in inlets and bays, and near the mouths of rivers, than these. In such situations they are usually found, the place of each being marked by a small circular depressed spot. When they open their shells, the entrance into these is protected by a soft membrane, which entirely closes up the front, except in two places, at each of which there is a small yellow and fringed tube, by means of which it is that the animals receive and eject the water which conveys to their body the nutriment necessary for their support. Women and children easily dig up this shell fish. Cockles in England and Wales are sold by measure, and eat either raw, boiled, or pickled. They are deserv-

edly esteemed a delicious and wholesome food in Great Britain; in France little regarded. They are in season during March, April, and May, after which they become milky. They are not used generally as a bait. This genus is divided into three divisions, with families.

DIVISION I. *Heart-shaped valves, compressed umbones alternating.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Cardissa,	East Indies.	Roseum,	Malay Coast.
Humanum,	do. do.	Monstrosum,	South Sea Isles.

DIVISION II. *Sub-cordate, longitudinally ribbed.*

One of the most rare species of this division is the C. costatum, which has rows of white, hollow, elevated ribs, situated at regular distances, proceeding from the umbones to the margin ; and the spaces between them are imperfect specimens of a fine dark brown color.

FAMILY 1*st*. *Having a crescent-shaped cavity beneath the umbones.*

Retusum,	India.

FAMILY 2*d*. *Ribs armed with nodules, elevated, rough striæ, wrinkles or scales.*

Edule,	Britain.	Glaucum,	Mediterranean.
Unedo,	India.	Fasciatum,	Britain.
Fragum,	do.	Elongatum,	do.
Hemicardium,	do.	Leucostomum,	West Indies.
Tuberculatum,	Mediterranean.	Magnum,	
Isocardia,	E. and W. Indies.	Rigidum,	
Pectiniforme,		Maculatum,	Ceylon.
Regulare,	West Indies.		

FAMILY 3*d*. *With ribs armed, more or less spined.*

Flavum,	Ceylon.	Rugatum,	E. and W. Indies.
Spinosum,	Mediterranean.	Latum,	East Indies.
Echinatum,	Britain.	Ciliatum,	Greenland.
Lima,	East Indies.	Aculcatum,	Britain.
Muricatum,	West Indies.	Muricatum,	Coast of Kent.

FAMILY 4*th*. *With ribs unarmed.*

Costatum,	Africa.	Papyraceum,	Med. and Ind. Ocean.
Medium,	W. Indies, Britain.	Fimbriatum,	
Donaciforme,	do. do. do.	Rusticum,	Mediterranean.
Exiguum,	Britain.	Islandicum,	Greenland.
Ringens,	Africa.	Parvum,	Coast of Hampshire.
Oblongum,	Mediterranean.		

DIVISION III. *Sub-cordate, obsoletely ribbed, striated or smooth.*

Family 1st. *Obsoletely ribbed.*

Lævigatum,	Britain, Mediterranean.

Family 2d. *Lightly striated, approaching smooth.*

Lineatum,	East Indies.	Æolicum,	Africa.
Serratum,	W. I., Mediterranean.	Rubrum,	Britain.
Groenlandicum,	Greenland Seas.		

No. 8. MACTRA.

Kneading-trough. *Inhabitant a Tethys.*

Shell bivalve, inequilateral, valves equal, middle tooth of the hinge complicated with a small hollow on each side, and lateral remote teeth inserted into each other. Twenty-seven of this species are described by Grewelin (Μακτρα signifies a kneading trough; but the resemblance to this article in any one of the Mactræ is very slight,) and the number of species now known amounts to forty-two.

These are generally found at the mouths of rivers, immediately beneath the surface of the sand, or among substances that have been thrown up, and left by the sea. The prevailing color is a bluish or yellowish white. One kind is used as food by the common people at Dartmouth, Devonshire, England.

The genus Mactra possesses little beauty or variety, and a similarity of coloring and form pervades the whole.

DIVISION I.

Family 1*st*.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Spengleri,	Cape of Good Hope.	Stultorum,	Britain.
Carinata,	Mediterranean.	Grandis,	New Jersey.
Maculata,	Nicobar Isles.	Achatina,	do.
Corallina,	Mediterranean, Guinea.	Triangularis,	Britain.
Lactea,	Tranquebar.	Minutissima,	do.
Cinerea,	Britain.	Donaciformis,	Ceylon.

Family 2*d*. *Having a striated or wrinkled surface.*

Striatula,	West Indies.	Striata,	
Plicataria,	Indian Ocean.	Radiata,	Britain.
Papyracea,	Nicobar Isles.	Solida,	do.
Vitræa,	Ceylon.	Solidissima,	North America.
Cygnea,	Tranquebar.	Truncata,	Britain.
Turgida,	do.	Sub-truncata,	do.
Violacea,	do.	Australis,	New Zealand.
Cuneata,	do.	Piperata,	Mouth of the Niger.
Rotundata,		Tenuis,	Britain.
Glabrata,	African Ocean.	Boysii,	do.
Nitida,			

DIVISION II. *Shell ovate, oblong.*

Family 1*st*. *Closed at both ends.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Glauca,	Spain and Britain.	Egyptica,	Red Sea.
Ragusa,	Med., Nicobar.		

Family 2*d*. *Gaping at the anterior end.*

Pellucida,	Guinea.	Listeri,	Britain.
Fragilis,	Nicobar.		

Family 3*d*. *Gaping at both ends.*

Planata,	Tranquebar, Britain.	Hians,	Britain.
Lutraria,	Britain.		

No. 9. DONAX.

Wedge Shell. *Inhabitant a Tethys.*

The shell bivalve, with the margin generally crenulated, the anterior end very obtuse, hinge with two teeth, a solitary one somewhat remote, (the latter rarely double, triple on none.) According to Grewelin, this genus has 19 species. Δόναξ signifies an arrow: on account of the rapidity of its darting through the sand, this term might have been invented.

It is generally found in the sand on the sea shores, when left dry by the reflux of the tide. The prevailing color is a fine rich purple, but many species are of a fine rich olive yellow cast. The Donax may probably derive its name from its shape, which resembles the head of a javelin or arrow; or its activity on the approach of danger, its arrowy shell being well calculated for penetrating quickly the yielding substance of the shore.

The Donax presents so great a diversity in external character that it has occasioned the genus to be separated into five divisions.

DIVISION I. *With decussated and muricated striæ.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Scortum,	Ceylon, East Indies.	Muricata,	Indian Ocean.
Pubescens,	Amboyna.	Spinosa,	Tranquebar.

DIVISION II. *Longitudinally striated.*

Rugosa,	So. Sea, Mediterranean, Mouth of the Niger.	Striata,	Jamaica, Mediterranean.
		Denticulata,	Med., Africa, G. Britain.
Serra,	Tranquebar, C. G. Hope.	Incarnata,	Tranquebar.
Trunculus,	G. Britain, Med. Sea, West Indies.	Elongata,	Red Sea.

DIVISION III. *Transversely striated.*

Plebeia,	Dorsetshire, E.	Candida,	Tranquebar.
Castanea,	West of England.	Radiata,	do.
Faba,	Malabar.	Cuneata,	do. E. Indies.
Straminea,		Madagascarensis,	Madagascar.

DIVISION IV. *Smooth.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Complanata,	Germany, G. Britain.	Scripta,	E.Indies, Mediterranean.
Lævigata,	Tranquebar.	Stultorum,	Indian Seas.

DIVISION V. *Shell with transverse membranaceous ridges.*

Irus,	Great Britain, Med.

No. 10. VENUS.

Venus Shell. *Inhabitant a Tethys.*

Shell bivalve, anterior margin, with incumbent lips, hinge with three teeth, all which are approximate; the lateral ones divergent at the tip. The Area and Areola are well defined: the animal differs from the Tethys that inhabits the Cardium, chiefly in having the foot of the animal when protruded, lamina formed, instead of hooked, and as a moluscus animal, taking a variety of forms as the creature moves. Many of the shells of this genus were classed by writers among the Chamas. Previous to the time of Linnæus, the Grewlinean system describes 145 species, which are divided into five divisions.

The Venus Mercenaria, (called by the Indians *quahaug*,) was used by the Indians of North America to form their wampum. The Venus was so termed because of the general beauty of the genus, and also because it is fabled by the ancients that one of them was the chariot of the Sea-born Goddess, when she came in triumph to the shores of Paphos.

The whole of this elegant shell or genus are oceanic, being either found in the mud or sand when the tide has receded, or fished up from very deep water. The Venus shells, of which there are so many species, are remarkable for the brilliancy of their colors and the smoothness of their surfaces, the interior being often adorned with the most lovely tints. In some species of the richest purple, especially that called by the inhabitants of Devonshire, Eng. (Pullet,) and ate by them: the same is also known in the Northern Islands by the name of Cullyack, and there used as a bait.

DIVISION I. *With the anterior depression spinous.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Venus Dione,	S. Am., W. Indies, Brazil, Trinidad.	Marica,	American Seas, West Indies.

DIVISION II. *Subcordate.*

Many species of this division are remarkable for the smoothness and brilliant lustre, as well as the high and rich coloring of their surfaces.

Scientific name.	*Locality.*
Paphia,	W. Indies, Med.
Fasciata,	do. do. G. Britain.
Succincta,	
Cinginda,	do. do. Frith of Forth.
Dysera,	Am. and Asiatic Ocean.
Tiara,	East Indies.
Plicata,	Levant Sea.
Excavata,	Great Britain.
Spinifera,	Devonshire.
Verrucosa,	Great Britain, Med.
Rigida,	W. Indies, Brazil.
Casina,	Great Britain.
Cancellata,	E. and W. Indies.
Subcordata,	
Minima,	Falmouth Harbor.
Sulcata,	Coast of Scotland.
Montagui,	do. do.
Scotica,	do. do.
Danmonia,	Devonshire.
Reflexa,	
Gallina,	Med., Norway, G. Brit.
Chione,	Asiatic O., Med., G. Br.
Maculata,	W. I. Brazil, N.S.Wales.
Casta,	East Indies.
Meretrix,	I. Seas, Mo. of R.Ceylon.
Paradoxa,	Coast of Peru.
Læta,	Medit. and Indian Seas.
Pinguis,	East Indies.
Triradiata,	Tranquebar.
Nebulosa,	do.
Exilis,	Malabar.
Recens,	Coromandel.
Japonica,	Japan.
Striata,	Nicobar Isles.
Castrensis,	E. and W. Indies.
Pedunculus,	Red Sea, E. Indies.
Lorenziana,	Ceylon.
Circinati,	Guinea, Frith of Forth.
Caliste,	Red Sea.
Compressa,	
Exalbida,	Falkland Isles.
Petulca,	So. Coast of Europe.
Granulata,	W. Indies, G. Britain.
Ovata,	Great Britain.
Paupercula,	Coromandel.
Flexuosa,	West Indies.
Mactroides,	Guinea, W. Indies.
Tripla,	Africa, Mo. of the Niger.
Triangularis,	C. of Devonshire.
Malabarica,	Malabar.
Flammea,	Red Sea.
Erycina,	Europe, E. Indies.
Costata,	Ceylon.
Pacifica,	South Seas, China.
Mercenaria,	N. America, Norway.
Islandica,	Iceland, G. Britain.
Coaxans,	Rivers in Ceylon.
Lusoria,	Amboyna, China.
Ornata,	Tranquebar, Mauritius.
Phryne,	S. Ocean, Persian Gulf.
Meroe,	E. Indies, Brazil.
Callipyga,	Red Sea.
Deflorata,	G. Britain, W. Indies.
Fimbriata,	E. Indies, Pacific Ocean.
Reticulata,	Tranquebar, N.S.Wales.
Puerpera,	E. Indies, China.
Crenulata,	do. Campeachy.
Radiata,	
Cincta,	
Squamosa,	Amboyna.
Lapicida,	W. Indies, in Corals.
Divergens,	do.
Plumbea,	New Zealand.

DIVISION III. *Sub orbicular.*

Tigrina,	W. Indies, Britain.
Sinensis,	China.
Prostrata,	Tranquebar.
Punctata,	New South Wales.
Excisa,	Tranquebar.
Exoleta,	Jamaica, G. Britain.
Concentrica,	N. Am. Jamaica, Brazil.
Juvenis,	E. Indies.
Histrio,	do.
Undata,	Coast of Britain.
Timidula,	
Borealis,	Coast of Europe.
Aculeata,	
Pectinata,	Amboyna, South Sea.
Discors,	Mauritius, China.
Dispar,	South Sea.
Equivoca,	E. Indies.
Divaricata,	do.
Contraria,	Guinea, W. Indies.
Corrugata,	Red Sea.
Scripta,	Amboyna, Naples, South Seas.

DIVISION IV. *Shell inflected with a longitudinal furrow on the anterior end.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pensylvanica,	Pennsylvania, West Indies.	Jamaicensis,	Jamaica.
		Spuria,	Britain, Mediterranean.
Edentula,	Jamaica, St. Croix.	Globosa,	Red Sea.

DIVISION V. *Shell suboval, and slightly angulated on the anterior side.*

FAMILY 1*st*. *Smooth or striated.*

Gigantea,	Florida, Antigua.	Senegalensis,	Senegal.
Literata,	Amboyna.	Perforans,	Plymouth, in Lime-stone.
Geographica,	Mediterranean.	Virginea,	E. & W. Indies, Britain, Adriatic.
Rotundata,	I. Ocean, Ceylon.		
Undulata,	E. Ind. Medit. Red Sea.	Aurea,	Great Britain.
Obsoleta,	Mediterranean.	Palustris,	do.
Decussata,	I. Ocean, G. Brit. Med.	Monstrosa,	Nicobar Isles.

FAMILY 2*d*. *Foliated.*

Agaracoides,	New Holland.

No. 11. SPONDYLUS.

Artichoke-head Shell. *Inhabitant a Tethys.*

Shell with unequal valves, hard and rigid hinge, with two recurved teeth, and a small hollow between. The Linnæan Spondyli are few in number, the last edition of the Systema Naturæ comprehending no more than four species. Rumphius, Argenville, Seba and Davilla rank the Spondyli as Oyster; while Lister, Gualteri, Linnæus, Da Costa, &c., consider them as constituting a distinct genus, under the name of Spondylus: there are now 10 species known. The Spondyli form in their exterior (generally) an intermediate family between the Ostrea and Pecten.

Lamarck divides this genus into two, viz. Spondylus and Plicatulus. The Spondylus has ears, but the Plicatula are without; this constitutes an essential distinction, but it is not the only one. A striking character is drawn from the structure and appearance of the back of the lower valve, which projects beyond the beak of the upper one, and, in Spondylus, exhibits a plain, triangular, flat space, divided by a furrow; while, in the genus Plicatula, the beak has no such characteristic space, or flat surface; and the edges are rumpled or folded. These new genera are well exemplified in the two Linnæan shells, Spondylus gedaropus, and Spondylus plicatulus.

The name Spondylus is derived from σπονδυλος, signifying an artichoke, to which plant some small resemblance may be traced.

These shells are found at a considerable depth in the ocean, firmly attached to rocks, particularly on the coasts of the Mediterranean, where the animal is eaten as food. The colors of the Spondylus, which are orange, purple, &c., are sometimes extremely brilliant.

DIVISION I. *Shell armed with spines or ramifications.*

FAMILY 1*st*. *Sharp spines.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Gædaropus,	Amboyna, W. Indies.	Citrinus,	East Indies.
Regius,	India.	Histrix,	Indian Seas.
Aurantius,	Mauritius.		

FAMILY 2d. *Having palmated or foliated ramifications.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Palmatus,		Ducalis.	
Spathuliferus,			

DIVISION II. *Shell unarmed.*

FAMILY 1st. *Upper valve longitudinally striated.*

Anacanthus,	Indian Seas.

FAMILY 2d. *Valves longitudinally plaited*

Plicatus,	West Indies.

No. 12. CHAMA.

Clamp Shell. *Inhabitant a Tethys.*

Chama shell bivalve, rather coarse hinge, with a callous gilbosity obliquely inserted into an oblique hollow, anterior slope closed. The Chama is so termed from the gaping observable in two of its species. Large pearls are sometimes found in the Chama Gigas. One in the possession of the late Sir Joseph Banks, was valued at between two and three hundred pounds sterling, the color a dirty white, or yellowish brown, which when polished is as beautifully irriducent as the *Opal* (*Mawe.*)

The Chama genus is divided, by the last French writers, into Tridacna, (to which Chama Gigas belong,) Hyppopus, Cardita, and Isocardia: this last is founded on the peculiar structure of the Chama Cor of Linnæus, and is thought an excellent genus.

These, like the last genus, all inhabit the sea, and are found in very deep water: they are all edible. Some species of the Chama grow to an uncommon size: the bear-paw clamp shells, usually of a yellowish cast, with pink spots, are found from one inch to near a foot in length. But this appears as nothing, when compared with the giant clamp, which from a quarter of an inch will grow to the enormous size of four and a half feet in breadth, and will weigh from 100 to 140 pounds. Specimens occur in most public museums of natural history. In Europe, one individual of this species is recorded (by conchological writers) that weighed 532 pounds; including both shell and animal, and the latter was so large as to furnish one hundred and twenty men with food for a meal; and it is recorded, that by the sudden collapsing or snapping of its valves, it would cut asunder a cable rope, or take off the hand of a man.

This enormous species inhabits the Indian Seas. Those of the largest size we are acquainted with, are from the seas contiguous to the Island of Borneo, from whence they are occasionally brought, as objects of curiosity, into Europe, and kept as ornaments in gardens. During the early part of the last century, they were in much request for the ornament or decoration of fountains, grottos, and reservoirs of water, especially in Italy. This gigantic shell was perfectly familiar to the poets and sculptors of antiquity. Venus is

fabled to have risen in one of them from the bottom of the sea,—an allegory which has afforded matter for several of the most exquisite compositions of ancient as well as of modern artists. On antique gems and cameos, Venus, under various characters, Amphitrite, Doris, and other goddesses and nymphs, in the train of Oceanus, frequently appear upborne upon the waves. Driden thus alludes to the pagan allegory:

> Albion
> Was to Neptune recommended;
> Peace and plenty spread the sails;
> Venus, in her shell before him,
> From the sands in safety bore him.

This genus contains at present 27 species, which present considerable diversity of character. Its divisions are two, divided into families.

DIVISION I. *Shell equivalve.*

Family 1*st*. *With longitudinal ribs, gaping at the posterior slope.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Gigas,	Red Sea, Amboyna, China, New Holland.	Hippopus,	East Indies, China, Amboyna.

Family 2*d*. *With longitudinal ribs, posterior slope closed.*

Antiquata,	Med., Gibraltar.	Calyculata,	E. Ind., Med., Senegal.
Ajar,	Mo. of the Niger, Tranquebar.	Pectunculus,	
Trapezia,	Norway.	Satiata,	
Rosea,	West Indies.	Rugosa,	

Family 3*d*. *Shell longitudinally ribbed, having an ovate chamber in the interior of each valve.*

Concamerata,	Cape of Good Hope.

Family 4*th*. *Shell decussated or transversely striated, without ribs.*

Semiorbiculata,	Arabia.	Oblonga,	Guinea, Pulo, Condore.
Cordata,	do.	Coralliophaga,	E. Indies, in Coral.

Family 5*th*. *Shell tuberculated.*

Plumbea,	South Seas.

FAMILY 6th. *Heart shaped, umbones prominent, and apices spirally recurved.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Cor,	Med., France, Bantry bay.	Moltkiana,	China.

DIVISION II. *Shell inequivalve.*

Lazarus,	Med., W. Ind., China.	Lamellosa,	
Gryphoides,	E. and W. Indies, Med., Africa.	Punctata,	Guadaloupe.
		Sinistrorsa,	E. and W. Indies.
Cornuta,	Mediterranean.	Arcinella,	do. Brazils.
Sessilis,	W. Indies, Med.	Ponderosa,	South Seas.

No. 13. ARCA.

Ark Shell. *Inhabitant a Tethys.*

Shell bivalve, æquivalve, hinge with numerous sharp teeth alternately inserted between each other. This genus is divided into two principal families; those having the margin entire, and those having the margin crenated; and both families are again subdivided into two sections, the first distinguished by having beaks recurved, the other inflected. The species described in the Systema Naturæ, amount to forty-two.

This genus derives its name from Arca Ark, Noah's Ark shell, from the similitudes which most of the species bear, when the valves are closed, to a boat or hull of a ship. Lister places some of these shells among the multarticulate cockles, and the rest with muscles, under the title of Many-toothed muscles.

Argenville ranks them as a family of Heart Cockles, and D'Avila and Gualtieri as a distinct genus; the first, under the title of Arca, the other as Concha Rhomboidal. These writers were succeeded by Linnæus, who considered these shells as a distinct genus, called Arca. The principal alteration in the Linnæan classification of the genus Arca, proposed by late writers, is, to reclaim only such shells under the title of Arca, as are uniquilateral with the beaks remote, and have the line of the hinge simple and straight throughout, with numerous teeth placed parallel to each other, and fitting between those on the opposite valve, admitting this as the character of the Arca, and it exactly corresponds with the Arca Noæ, and most others. The little Arca, Nucleus of Linnæus, with its analogous species, is excluded. To comprehend the latter, a new genus is recently established by the French writers, under the name of Nuculus, or Nucula, the character of which is remarkably decisive. It is described as a triangular or oblong shell, with the sides unequal, the hinge consisting of an angulated or broken line, beset with numerous teeth, which are transverse and parallel, and a single oblique tooth placed under the beak, and out of the range of parallel teeth above mentioned. The beaks also, instead of being remote, as in Arca Noæ, are placed close together, and turn backwards. The Arca Tortuosa is the rarest of this genus, and is seldom to be met with.

The Ark shells are to be found in the sea, and on the sands and mud on the shores of the ocean, generally between low and high water marks. Some of them are occasionally used as food.

DIVISION I. *With the teeth of the hinge in a straight line.*

FAMILY 1st. *Shell twisted.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Tortuoso,	Amboyna, Red Sea.		

FAMILY 2d. *Shell rhomboidal.*

Noæ,	E. & W. Indies, Britain.	Candida,	West Indies, Guinea.
Imbricata,	W. Indies, Britain, Med., C. of Good Hope.	Indica,	Coromandel.
		Lactea,	Britain, Mediterranean.
Navicularis,	St. Domingo.	Reticulata,	West Indies.
Plicata,	Red Sea.		

FAMILY 3d. *Shell oblong or transversely ovate.*

Magellanica,	Straits of Magellan.	Modiolus,	Med. W., Indies.
Lacerata,	East Indies.	Corbula,	Nicobar Isle, C. G. Hope.
Fusca,	W. Indies, Madagascar.	Senagalensis,	Mouth of the Niger.
Bicolorata,	Red Sea.		

FAMILY 4th. *Shell subcordate.*

Lœvigata,	Nicobar Isles.	Granosa,	China, E. Indies.
Pella,	Mediterranean, Spain.	Rhombia,	E. & W. Indies, Brazil.
Antiquata,	E. & W. Indies, Africa.	Senilis,	Guinea.

FAMILY 5th. *Gaping.*

Complanata,	Guinea, Madagascar.	Nivea,	Red Sea.
Barbata,	Med. & Red Sea.	Cancellata,	Curaçoa.

FAMILY 6th. *With an ear-shaped appendage in the interior of each valve.*

Concamerata,	Nicobar Isles.

DIVISION II. *With the teeth of the hinge in a curved line.*

FAMILY 1st. *Subcordate.*

Campechensis,	Campeachy, Carolina.	Angulosa,	Brazil, Africa.
Equilatua,	West Indies.		

FAMILY 2*d*. *Suborbicular, margins crenated or plaited.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pectunculus,	South America, Red Sea.	Glycymeris,	Red Sea, Guernsey.
Pectinata,	West Indies.		Britain, Mediterranean.
Decussata,	East & West Indies.	Pilosa,	Med., Britain, Spain.
Pallens,	India.	Stellata,	Portugal, Africa.
Undata,	West Indies, Med.	Scripta,	St. Domingo.
		Nummaria,	Mediterranean, Spain.

FAMILY 3*d*. *Suborbicular, margin entire.*

Multistriata,	Red Sea.

DIVISION III. *With the teeth of the hinge produced and sharply pointed.*

Nucleus,	Britain, Mediterranean, St. Domingo.	Minuta,	Baltic, Britain.
		Tenuis,	Dunbar, Leith Roads.
Rastrata,	Norway, Scotland.		

No. 14. OSTREA.

Oyster and Scallop. *Inhabitant a Tethys.*

Shell bivalve, generally unequal valves, and slightly cared hinge without teeth, furnished with an ovate hollow, and mostly lateral, transverse furrows; "Vulva unusque nullus," Linnæus; these are divided into three families; valves, radiated and cared, as in the Pectens; rugged and rough, as in the Oedulis; hinge with a perpendicular, furrowed line, as in the species Perna, and isonogmon. The Pectens are again subdivided into three sections, viz., those with the valves inequilateral, and the ears equal; those with the ears unequal, and having one of them ciliated, with spines within; and those with the valves gibbous one side: the two other families are not subdivided. The difference between the Pecten and the Oyster tribe is so obviously impressed by the hand of Nature, on the respective shells which compose them, that few writers on this subject have passed over silently the impropriety of placing them together. As Linnæus considers the animals which inhabit the Scallop and Pecten as the same, and describes them as a Tethys, it may not be improper to speak more fully on this subject.

The Scallop differs from the Oyster, the animal having the branchiæ cirrated or fringed, in being furnished with a kind of foot, which it protrudes from the shell near the article of the hinge, and of throwing abiscus, like the pinna and the muscles, by which it affixes itself to other bodies.

The Ostra has the branchiæ simple and not fringed, and is unfurnished, either with a foot or with byssus, and its powers of motion consist in turning either the flat or the convex side upwards or downwards; and even to effect this, the animal takes the advantage of the ebbing or flowing of the tide to assist it. See Lister on Scallop, P. T. 1st vol.

Eighty species of this genus are at present known.

In Lamarck's arrangement, the two genera, Huître Ostræa, and Pieque Pecten are retained; but four other genera are constituted under the names of Gryphus, the Ostræa Gryphus of Linnæus, a shell as yet found only in a fossile state. The most remarkable species of oyster is the Ostræa Malleus, or Hammer oyster, which resembles a pick-axe, and is (particularly the white

variety) very hard to be obtained. Argenville describes the process of the movements of the Scallop, both in the water and out. He relates that, "when left dry by a sudden and violent closing of its valves, assisted by its foot, it has the power of springing four or five inches at a jerk, repeating this motion in order to regain its element." In the water he asserts, "The Scallop has the power of rising and sustaining itself near the surface, turning about in various directions; and, on any alarm, suddenly closing its valves, sinking to the bottom."

OSTREA.

This shell fish is widely distributed, being found, not only in great abundance in our own seas, but in Europe, Asia, and Africa. But since the days of the luxurious Romans, the oysters of Great Britain have been held in the highest estimation : they were noted in the time of Juvenal, who, satyrizing an Epicure, says,

> He whether Circe's rock his Oysters bore,
> Or Lucrine Lake, on distant Richborough's shore
> Knew at first taste.

The luxurious Romans were very fond of this fish, and had their layers or stews for oysters, as is at present practised. The ancients ate them raw, and sometimes roasted. They had also a custom of stewing them with mallows and docks, or with fish, and esteemed them very nourishing. Oysters are found on various parts of the coast of England, from the southern to the sheltered bays, among the Shetland Islands; but those chiefly celebrated for them are the Essex and Suffolk coasts : here they are dredged up by means of nets, with an iron scraper at the mouth, which is dragged by a rope from a boat over the beds. As soon as taken from their native beds, they are stored in pits formed for the purpose, furnished with sluices, through which at spring tides the water is suffered to flow. This water being stagnant, soon becomes green in warm weather, and in a few days afterwards, the oysters acquire the same tinge, which renders them of greater value in the market; but they do not acquire their full quality, and become fit for sale, till the end of six or eight weeks. The principal breeding time of oysters is in the months of April and May, when they cast their spawn or spat, as the fishermen call them, upon rocks, stones, shells, or any other hard substance that happens to be near the place where they lie, to which the spats immediately adhere.

These, till they obtain their film, or crust, are something like the drop of a candle, but are of a greenish hue: the substances to which they adhere, of whatever kind, are called Cultch: from the spawning time, until the end of July, the oysters are said to be sick; but by the end of August they become perfectly recovered: during these months, they are out of season, and bad eating.

The Oyster Fisheries, of the principal coasts in England, are regulated by a Court of Admiralty. In May, the fishermen are allowed to take the oysters, in order to separate the spawn from the cultch, the latter of which is thrown in again, for the purpose of preserving the bed for the future. After this month it is felony to carry away the cultch, and otherwise punishable to take away the oyster, between whose shells, when closed, a piece of money would rattle. The reason of the heavy penalty on destroying the cultch is, that when this is taken away, the oose will increase, and muscles and cockles will breed on the bed, and destroy the oysters, by gradually occupying all the places on which the spawn should be cast. There is likewise some penalty for not treading and killing or throwing on shore any star-fish that happen to be seen.

The prickly star creeps on, with full deceit
To force the Oysters from his full retreat:
When gaping lids their widened void display,
The watchful star thrusts in appointed ray,
Of all its treasures spoils: the rifled case,
And empty shells the sandy hillocks grace.

The common Oyster is contented to remain fixed to his first station, surrounded by an innumerable progeny, continually increasing with wonderful fecundity. His motions consist only in turning from one side to the other, which he accomplishes more by sagacity than any natural agility or inherent strength. He contrives to bolster up one side by a gradual deposition of soft mud, till he stands nearly upright; then availing himself of the ebbing or flowing tide, he opens his shell, and is tumbled on by the pressure of the water; and as expedition is not his object, this mode may answer well. It has, however, been observed, that the young fry possess the power of swimming very swiftly by means of an undulatory motion of the bronchiæ. The Poet of nature thus characterizes the Oyster:—

Condemned to dwell
For ever in his native cell;
Ordained to move where others please—
Not for his own content or ease;
But tossed and buffetted about,
Now in the water, and now out.

Yet in his grotto work enclosed,
He nothing feels, in that rough coat,
Save when the knife is at his throat;
Wherever driven by wind or tide,
Exempt from every ill beside. *Cowper.*

DIVISION I. *Valves with ears equal.*

FAMILY 1*st*. *Valves ribbed, upper valve flat.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Maxima,	European Seas.	Striatula,	Indian Ocean.
Jacobœa,	Britain, Mediterranean.	Minuta,	do.
Ziczac,	West Indies, Red Sea.		

FAMILY 2*d*. *Valves ribbed, ears equal.*

Hybrida,	Norway.	Plica,	Amboyna, Indian Sea.
Radula,	Amboyna, China.	Hyans,	Norway.
Imbricata,	Red Sea.		

FAMILY 3*d*. *Valves thickish on one side and gaping.*

Lima,	Ceylon, Med., Red Sea.	Scabra,	West Indies.
Fasciata,	Brit., W. I., C. G. Hope.	Glacialis,	St. Domingo, Med.
Bullata,	Mediterranean.	Excavata,	Norway.
Fragilis,	Nicobar Isles.	Loscombia,	Devonshire.

FAMILY 4*th*. *Valves smooth or striated, and not closing.*

Plurancetes,	Amboyna, Molucca.	Magellanica,	Magellan.
Japonica,	China, Japan.		

DIVISION II. *Valves with unequal ears.*

FAMILY 1*st*. *Ribbed valves.*

Pes Lutræ,		Sauciata,	Red Sea.
Pallium,	Amboyna, China.	Pusio,	Nicobar Isles.
Sanguinolenta,	Red Sea.	Sinuosa,	Britain.
Palliata,	Mediterranean.	Miniata,	
Nodosa,	Africa, E. & W. Indies.	Triradiata,	Norway, Denmark.
Pesfelis,	do. Medit.	Solaris,	Adriatic.
Sulcatis,		Glabra,	Med., Portugal.
Cinnabarica,	Norway, Brit., America.	Opercularis,	Britain, America.
Senatoria,	Moluccas.	Linneata,	do.
Citrina,	Indian Isles.	Nucleus,	East Indies.
Pellucens,	West Indies.	Gibba,	South America, Africa,
Obliterata,	Moluccas, So. of Europe.		W. Indies.
Sanguinea,	W. Indies, South Seas.	Turgida,	E. & W. Indies.
Porphyria,	Red Sea.	Pyaidata,	Malabar.
Varia,	Britain, Med.	Flavicans,	Southern India.

DIVISION III. *Oblong linear.*

Family 1*st*. *With a transverse lobe on each side of the hinge.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Malleus,	Pulo condore, So. Seas, Ceylon.		

Family 2*d*. *With a slight beak on one side of the hinge.*

Figurata,	Nicobar Isles.

Family 3*d*. *Rounded at the hinge.*

Regula,	Red Sea.

Family 4*th*. *Valves diverging at the hinge, and the inside vaulted.*

Fornicata,	Red Sea.

DIVISION IV. *Parasitical, or attached to other substances.*

Family 1*st*. *With one valve produced at the summit.*

Cucullata,	Africa, Arabia, S. Seas.	Forskalii,	Coast of Egypt.
Virginea,	Virginia.	Cristata,	
Rostrata,	Mediterranean.	Sinensis,	China.

Family 2*d*. *With the valves nearly equal.*

Orientalis,	Indian Seas.	Orbicularis,	Indian Ocean.
Folium,	Amboyna, W. I., Med.	Arborea,	Atlan. & Ind. Seas.
Plicata,	W. I., Med., Spain.	Senegalensis,	Senegal.

Family 3*d*. *With the valves strongly plaited longitudinally.*

Crista Galli,	Indian Ocean, China.	Frons,	West Indies.
Hyotis,			

DIVISION V. *With the hinge composed of transverse furrows in a straight line.*

Crenatula,	Red Sea.	Ephippium,	Tranquebar, Africa.
Semiaurita,	Mediterranean.	Alata,	West Indies.
Perna,	E. & W. Indies, China.	Picta,	Red Sea.
Isognomon,	Amboyna.	Legumen,	Nicobar Isles.

DIVISION VI. *Valves slightly striated, lower valve turning up at its sides, and the cartilage of the hinge placed in a deep, narrow groove.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Spondyloidea,	Indian Ocean.	Ovalis,	

DIVISION VII. *Valves coarse and rugged, and not comprehended in the former divisions.*

Denticulata,	Cape of Good Hope.	Edulis,	British and other seas.

No. 15. ANOMIA.

Antique Lamp.

Of this peculiar genus of bivalves there are thirty species, many of which are extremely rare and valuable. The Anomia differ materially in form; some resemble the shape of an oyster, others again are imperforated, and nearly orbicular, as the A. Placentia, and some are oblong, as the A. Bifida, &c. Many species, particularly the A. Caput Serpentis, when seen in profile, resemble the form of an antique lamp; and a few, as the A. Psittacea, &c. are very similar to the hooked or curved beak of a parrot.

Animal aciliated, strap-shaped body, with bristles or fins affixed to the upper valve. Arms two, linear, longer than the body, convenient, projecting, alternate on the valve, and ciliated each side; the fringe affixed to each valve. Shell inequivalve, one flattish the other gibbous at the base, with the beak produced and generally curved over the hinge; one of the valves often perforated near the base hinge, with a linear prominent cicatrix, and a lateral tooth placed within, but in the flat valve, on the very margin. Two bony rings for the base of the animal. Many of this genus are only found fossil, and therefore it is not reasonable to imagine, that we shall ever know the animals by which they were inhabited. It is remarked by Dr. Pulteney, that the animal of the Anomia is different from any other shell fish, and is not reducible to any of those in a molusceus state hitherto known. Hence probably the name Linnæus imposed upon it, Anomia, (ανόμια) quasi irregularis dis misclis a lege discrepans. The animal of the Anomia Cepa is figured by Murray in his "Fundamenta Testaceologia," tom. 2, page 23; and that of Anomia Tridentata, by Forskael, in his "Icones Animalium," t. 6. 40 B. The dissimilarity of the two, renders it highly probable, that in the different shells which come under the appellations, the inhabiting animal is various. In the Anomia Tridentata the animal is furnished with two flat, wedge-shaped, trilotated arms, placed opposite to each other; these it protrudes out of the shell, when it moves, and they are the organs by means of which it swims in the sea. Some other kinds have, instead of arms or the above-mentioned wedge-shaped organs, only a ligament passing through the perforations of the shell, by means

of which it is firmly fixed to other bodies. Columna is the first writer, who speaks of shells of this description. He mentions some few of the fossil tribe, (the only ones known in his time) under the title of "Conchæ variores Anomia." Hence the term was afterwards employed by other writers, and has since become the universal name for this family of shells. The Anomia Terebratula is not common, and the Anomia Tridentata very rare: there are thirty species known, and its divisions are three.

DIVISION I. *Lower valve flat and perforated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Craniolaris,	Philippine Isles.	Aculeata,	Norway, Britain.
Turbinata,	Norway.	Muricata,	Guinea.
Ephippium,	China, Britain, Med.	Undulata,	Brit., Norway, Med.
Cepa,	So. Seas, France, Africa, Britain.	Pattelliformis,	Norway.
		Squama,	do.
Electrica,	France, Africa, Med.	Bifida,	Mauritius, Med.
Punctata,	Ferroe Islands.	Cylindrica,	Norway, Britain.

DIVISION II. *Having the umbo perforated, and generally a cartilaginous substance in the interior of the shell.*

Scobinata,	Mediterranean.	Caput Serpentis,	Norway.
Aurita,		Terebratula,	do. Mediterranean.
Retusa,	Norway.	Cranium,	Norway.
Truncata,	do. Mediterranean.	Crescenta,	New Zealand.
Capensis,	Cape of Good Hope.	Dorsata,	Magellan.
Dacollata,	Mediterranean.	Prittacea,	Newfoundland, Ind. S.
Pubescens,	Norway.	Rosea,	South Seas.
Sanguinea,	Indian Seas.		

DIVISION III. *Imperforated, and having a truncated triangular hinge.*

Placonta,	Tranquebar, China.	Sella,	Tranq., China, Amboyna.

No. 16. MITYLUS.

Muscle. *Inhabitant allied to an Ascidia.*

For a description of Mitylus see Pholas. Shell bivalve, rough, usually affixed by a beard or byssus of silky filaments, hinge in general without teeth, and, except in a few species, with a subulate excavated longitudinal line. The Linnæan Mityli are by no means inconsiderable in numbers; and as they comprehend many shells, very distinct in appearance, some essential particulars are necessarily distributed into several sections or families, such as parasitici, hose affixed by classes exemplified in Mitylus Crista Galli, Plani, i. e. flat or compressed into a flattened form, and slightly eared, as in Mitylus Margatiferus or ventri esculi, ventricose as in Mityli Edulis; Lamarck separates them into Mitylus Modiolus and Anodonta. 46 species of the Mitylus are enumerated. The animal inhabitant of the Mitylus Lithofagus shines like phosphorus in the dark. This animal is found in the Indian, European and Mediterranean Seas. The Mitylus Hirundo, or Swallow muscle, inhabits the Asiatic, West Indian and Mediterranean Seas—is rare and much valued.

Some muscles penetrate into the interior of calcareous rocks, where they reside out of the reach of danger; others adhere, by their beard, to the exterior of rocks, or stones; and so tenacious is their hold, that in the larger of their species they cannot be separated without considerable exertion. One species is gathered from the depths of the sea, on account of the pearls, which are found within their shells. Of these the Romans were extravagantly fond. "It is not enough (says Pliny) to despoil the sea of its riches, in order to gorge our appetites—we must likewise, both men and women, carry them about on our hands, in our ears, upon our heads, and on our whole body." Persons of every rank purchased them with eagerness: they were worn on every part of dress; and there is such a difference both in size and value among pearls, that while such as were large, and of superior lustre, adorned the wealthy and the great, smaller ones, of inferior quality, gratified the variety of persons in more humble life. Julius Cæsar presented Servilia, the mother of Brutus, with a pearl, for which he paid £48,457. The famed earrings of Cleopatra were estimated in value £161,458,000.

The common, or edible muscle, is found both in the European and Indian Seas, adhering to rocks by the silky thread which it forms from its body ; but it grows to a much larger size between the tropics, than in the northern climates. It abounds on the British shores, being one of the commonest of our shells. All the muscles have for an instrument of motion, a tongue or foot capable of considerable elongation, and also of being shortened into the form of a heart. When the animal feels inclined to change its place, it thrusts its foot out of the shell, and raises itself on its edge; then, by reaching this to as great a distance as it will extend, it uses it as a kind of arm, drawing the body up to it ; and thus it proceeds, until it has found a convenient situation. If the muscle be inclined to make this his residence, the instrument of his motion is now put to a very different employment in spinning those silky threads which fix it firmly to the spot, and, like a ship at anchor, enable it to bear all the agitations of the water. This is accomplished by seizing, with its point, the gluton supplied by a gland situated under its base, and drawing it out through the furrow into threads. When the muscle is thus fixed, it lives upon the little earthy particles, or upon the bodies of such smaller animals as the water transports to its shell.

The common muscle is generally esteemed a rich, nutritious and wholesome food ; but to some constitutions it often occasions disorders, the symptoms of which are great swellings, eruptions, blotches and pimples, shortness of breath, convulsive motions, and sometimes even deliriums. A remedy that has been recommended is two spoonfuls of oil, and one of lemon juice, or in want of this about two of vinegar, shaken well together, and swallowed as soon as possible after any of the symptoms take place. This unwholesome quality has been attributed to a small species of crab, that sometimes is found within the shells: it seems, however, not to have its seat in any thing essential to the muscle ; for when accidents of this kind have happened, some persons have been affected, and others have not, who have eat at the same time, and at least in equal quantity.

The pearl bearing the muscle of the Indian Seas is most abundant and in greatest perfection, on the coast of the Persian Gulf, and of the island of Ceylon. In the great fisheries established to supply the eastern market, the number of fish annually taken up from their beds by divers, whose perilous trade it is to search for them, is almost incredible. Some of the shells contain one or more pearls; others not any: they are usually detached, but often adhere to the valves, and are extricated by opening the shell and washing.

After the day's work, the pearls which have dropped out are selected and assorted. The small, or seed pearl, are worth from $15 to $35 per oz. Those of half a grain weight are sold from 30 to 40 cents each, and those of one grain from 75 cents to a dollar; of two grains, from 180 cents to 225. Those weighing five grains from $7 to $10; and those above 8 grains, if of fine color and shape, are of arbitrary value.

The finest specimens of extremely rare occurrence have fetched enormous prices, and have even been considered invaluable, fit only to adorn the regalia of princes, and contribute to the costly splendor of Asiatic potentates. These beautiful and unassuming productions, so delicate and varied in their tints, so elegant in their forms, are more highly estimated, and more generally used as ornaments in Asia, than in Europe; and consequently the most precious are returned by the Asiatic merchants.

DIVISION I. *Shell oblong, umbones or apices terminal and pointed, slightly angulated at one side, and rounded at the lower margin.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Edulis,	Brit., Baltic & Ind. Seas.	Perna,	Straits of Magellan.
Pellucidus,		Smaragdinus,	Tranquebar, Guinea.
Vulgaris,	West Indies.	Confusus,	
Bilocularis,	Indian Ocean, Nicobar.	Bidens,	Amer., So. Seas, Med., Magellan.
Ungulatus,	West Indies.		
Exustus,	Jamaica, Tranquebar.	Puniceus,	Goree.
Striatulus,	Northern Ocean.	Demissus,	Carolina, N. America.
Niger,	West Coast of Africa.	Ruber.	Southern Ocean.
Latus,	New Holland, China.		

DIVISION II. *Transversely ovate, with longitudinal ribs on each side, and plain or striated in the middle.*

Discrepans,	Baltic.	Impactus,	New Zealand.
Discors,	Norway, Britain.		

DIVISION III. *Found burrowed in rocks, coral, &c.*

Lithophagus,	Ind. Eu. and Med. Seas.	Præsisus,	Britain.
Aristatus,	Senegal.	Fuscus,	East Indies.
Ambiguus,	Weymouth, Dev. Coast.	Plicatus,	Nicobar Isles.
Rugosus,	Britain, Norway.	Niveus,	do. do.
Caralliophagus,	E. and W. Indies.	Arborescens,	China, St. Domingo.

DIVISION IV. *Shell oblong, gibbous, with the posterior side dilated and elevated above the hinge, apex rounded.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Modiolus,	Brit. W. Indies, Africa.		

DIVISION V. *Only found in fresh water.*

Cygneus,	Europe.	Fucatus,	Wiltshire, N. America.
Fluviatilis,	North America.	Dubius,	Senegal, China.
Stagnalis,	Lake of Schwanzee.	Americanus,	North America.
Anatinus,	Europe.		

DIVISION VI. *Eared.*

FAMILY 1*st*. *Valves rather compressed.*

Margaratiferus,	Amboyna, China.	Unguis,	Mediterranean.
Radiatus,	Tranquebar.		

FAMILY 2*d*. *With one valve more convex than the other.*

Hirundo,	West Indies, Ceylon, Mausilius, Britain.	Moria,	Red Sea.
		Ala Corva,	South Seas.

DIVISION VII. *Shell suborbicular, longitudinally striated, and margin crenulated.*

Faba,	Greenland.

DIVISION VIII. *Somewhat tongue-shaped, apices acute.*

Lingua,	Amboyna.	Camella,	Japan.

No. 17. PINNA.

Nacre, or Sea-wing. *Inhabitant a Limax.*

This shell, which forms the connecting link between the bivalve and the univalve, is so formed as to possess equal claims to either division. The Pinna are all inhabitants of the ocean, in the sand and mud, on the shore of sheltered bays: they may be often obtained standing erect, or affixed by their beards, to rocks and stones. A bed of these shells was discovered a few years ago, in Salcomb Bay, near Kingsbridge, Devonshire, in England, by Colonel Montague. The animals are accounted a very palatable food, but require at least five or six hours' stewing.

The Pinna is sub-bivalve, fragile, erect, gaping, and furnished with a byssus or beard, hinge without teeth, the valves uniting into one. This genus is well defined: the shell of which it consists is wedge-shaped, or somewhat of a triangular form, widening from a pointed top to a very broad end: the hinge is inarticulate, the two valves being united in that by a part, and thus forming what Linnæus truly terms it, a sub-bivalve, for it is not strictly two valves being thus connected. Pinna is derived from the Latin, signifying a pin, &c.

The Pinnæ are termed by some writers Silk Worms of the Sea, from the quantity of fine strong byssus which the animals produce: it consists of a silky filament of a brown color, and which is easily woven into small articles of dress. There is a considerable manufactory of this at Palermo. These animals are found in smooth water, and in bays. The Mediterranean produces a considerable number. They are also discovered in the Indian, American, Atlantic and European Oceans, as well as in the Adriatic or Red Seas. The byssus is thus produced by the animal:—on any sudden emergency, it darts out an extensive member, and discharges from its lip a drop of gluton, which, by the drawing back of the same organ, immediately forms a silky thread, till by a repetition of this simple operation, a thick tuft is at length completed.

The Earl of Shaftesbury has referred to the production of these industrious insects, in this elegant manner: "How shining, strong and lasting are the subtle threads spun from their artful mouths! Who besides the All-wise

and Omnipotent has taught them to compose, the beautiful shells, in which, recluse and buried, yet still alive, they form those excellent threads, when not destroyed by men, who clothe and adorn themselves, with the labor of these industrious creatures, and are proud of wearing such inglorious spoils.

The number of this species at present known, are twenty-one, and are in two divisions.

DIVISION I. *Shell longitudinally ribbed.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Rudis,	Med., So. & Asiat. Seas.	Adusta,	So. Seas, Manilla.
Pectinata,	Coromandel, Britain.	Vexillum,	East Indies.
Inflata,	Nicobar Isles.	Squamosa,	Mediterranean.
Carnea,	Dorsetshire, W. Indies.	Vitroa,	East Indies.
Rigida,	Curacoa.	Papyracea,	do. do.
Nobilis,	Med. and Adriatic Seas.	Saccata,	Indian Ocean.
Muricata,	do. and East Indies.	Cancellata,	Ceylon.

DIVISION II. *Shell nearly smooth and plain.*

Nigra,	South Seas, Amboyna.	Incurva,	Amboyna.
Ingens,	Hebrides.	Digitiformis,	Indian Ocean.
Rotundata,	Mediterranean.	Lobata,	do. do.
Bicolor,	Red Sea.		

UNIVALVES.

The almost imperceptible gradation in this beautiful class of animals renders the present mode of classification peculiarly interesting, as we are not under the necessity of separating nearly allied families, as in the classing of most other natural productions. Most of the shells of this division possess a regular spiral curve very conspicuous in many of the genera, but gradually becoming obsolete.

> Learn of the little Nautilus to sail;
> Spread the light oar, and catch the passing gale.

No. 18. ARGONAUTA.

Proper Nautilus. *Inhabitant a Sepia or Clio.*

All the Argonauta are marine shells of exceeding brittle texture, and possess great elegance of form. The ancients are said to have derived their art of navigation from the animals inhabiting these shells, which raise themselves to the surface by ejecting the sea-water from their shells, and, on the approach of danger, draw in their arms, and with them a quantity of water, which occasions them to sink immediately. By possessing this power, they are but rarely taken perfect, as the instant they are disturbed they disappear, and are only accidentally brought up, in the nets of fishermen, or found left dry on rocks.

Two feet they upward raise, and steady keep :
These are the masts and rigging of the ship:
A membrane, stretched betwēen, supplies the sail,
Bends from the masts, and swells before the gale.
The other feet hang paddling on each side,
And serve for oars to row, and helm to guide,
'T is thus they sail, pleased with the wanton game;
The fish, the sailor, and the ship, the same:
But, when the swimmers dread some danger near,
The sportive pleasure yields to stronger fear :
No more they wanton drive before the blasts,
But strike the sails, and bring down all the masts:
The rolling waves their sinking shells o'erflow,
And dash them down again to sands below.

Shell univalve, spiral, involute, membranaceous and unilocular, or consisting of a single shell.—*Linnæus.*

The Sepia body is fleshy, receiving the breast in a sheath, with a tubular aperture at its base; arms eight, beset with numerous warts or suckers, and in most species two pedunculated tentacula; head sharp, eyes large, with mouth resembling a parrot's beak.

The Clio body oblong, natant generally sheathed, and furnished with two dilated membranaceous arms, or wing-like processes; tentacula three, besides two in the mouth.

The Argonauta Argo is the principal species in this genus. It is ascertained that the ancients were acquainted with this species, by many passages in their writings. That very rare shell, known in collections as the Glossy Nautilus, (the Argonauta Vitræus of Greuelin,) is separated from the Argonauta of Lamarck, and considered a new genus, under the name of Carinavia. Linnæus placed it among the Patella, under the name of Patella Crystata. In the last edition of the Systema Naturæ, it is placed, with more propriety, among the Argonauta; but it is still a matter of dispute, that it is what Lamarck styles it, a new genus. The difference between the two genera is very distinct. In the true Argonauta, the spiral evolution turns into the opening of the shell; whereas, in Carinavia, the spire is situated at the summit of the shell, and the mouth entire.

The shells or species are in three divisions.

DIVISION I. *Keel toothed.*

FAMILY 1*st*. *Summit interiorly curved.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Argo,	Cape of Good Hope.	Gondola,	Mozambique, Mauritius.
Tuberculata,	So. Seas, Brazils.	Haustrum,	East Indies.
Hians,	China, Red Sea.		

FAMILY 2*d*. *Summit exteriorly curved.*

Vitrea,	Amboyna.

DIVISION II. *Keel not toothed.*

Cymbium,	Mediterranean.	Cornu,	Cape of Good Hope.

DIVISION III. *Umbilicus perforated.*

Arctica,	Greenland.

No. 19. NAUTILUS.

Sail Shell. *Inhabitant a Sepia.*

Shell univalve, divided into several apartments, communicating with each other by an aperture or sephunculus. The Linnæan Nautili consist of two principal families; those which are spiral and rounded, and those elongated and straight. The Nautilus Spirala (Linnæus) affords an essential character, which at once removes it from the Nautili; namely, the last character, which is alone sufficient to distinguish it. This is a very common West India shell, but scarcely one has the least vestige of this chamber. The chamber of this shell is very thin and brittle; and as these shells inhabit deep water, and are collected only from the rejectamenta of the sea, cast upon the beach in storms, there is rarely seen a perfect specimen.

The Nautili bear a considerable resemblance to the last genus; like which, they are often seen floating on the ocean. The larger kind are entirely marine; some of the smaller kinds are found in rivers and ponds, frequently adhering to the leaves and scum of aquatic plants, and to pieces of wood; others are found only in a fossil state. They are in three divisions.

DIVISION I. *Spiral, with contiguous whorls.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pompilius,	Africa, Amboyna, China, India.	Scrobiculatus,	New Guinea.
		Lacustris,	Kent, Denmark.

MINUTE OR MICROSCOPIC SHELLS.

Calear,	Adriatic.	Balthicus,	Baltic.
Rotatus,	Brit., Shores of Rimini.	Crassulus,	Reculver, Kent.
Lævigatulus,	Sandwich, Kent.	Umbilicatulus,	Kent, Devonshire.
Depressulus,	Reculver, do.	Lobatulus,	Britain, Norway.
Crispus,	Britain, Mediterranean.	Rugosus,	Southern Ocean.
Beccarii,	do. So. Seas, Adriatic.	Umbilicatus,	Croatia.

DIVISION II. *Spiral, with detached whorls.*

Spirula.	E. & W. Ind., America.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Spengleri,	India.	Unguiculatus,	India.

DIVISION III. *Elongated and almost straight.*

MINUTE.

Semilituus,	Kent, shores of Liburni.	Spinurosus,	Britain.
Lituus,	Red Sea.	Subarcuatus,	Sandwich.
Carnatulus,	Kent.	Bicarinatus,	do.
Obliquus,	Britain, Mediterranean.	Fascia,	Adriatic.
Raphanistrum,	Mediterranean.	Inæqualis,	Red Sea.
Raphanus,	Adriatic, do.	Siphunculus,	Sicily.
Costatus,	Kent.	Legumen,	Britain, Adriatic.
Granum,	Mediterranean.	Linearis,	Dunbar.
Radicula,	Kent, Adriatic.	Rectus,	Sandwich.

No. 20. CONUS.

Cone Shell. *Inhabitant a Slug.*

Shell univalve, convoluted and turbinated, aperture or opening efflute, longitudinal, linear, toothless, with the base entire, pillar smooth; the total number of the spires in this genus, in the last edition of the Systema Naturæ, amounts to seventy-one. Many of the Cone tribe are beautiful shells, and bear high prices. Of this genus is the Conus Gloria Maris, which was lately sold at auction, in London, for the sum of £54 sterling, or $250. The Cedo Nulli was formerly sold for three hundred guineas.

Most of the Cone shells are covered with an epidermis, under which the surface bears a most brilliant polish. All the species are marine, and are generally found on rocky coasts. There is no genus, throughout the whole of the shell tribes, which holds so important a station in cabinets or collections as Cones; and it is difficult to decide whether they are most to be valued for their rarity or beauty. The Admiral Cone ranks first; of this, the varieties are incalculable: next comes the Vice Admiral, Guinea Admirals, and others equally rare; most of which, when fine, are of high price in England—from five to twenty guineas.

There is perhaps no other species, which affords so much beauty and diversity of coloring and making as the Cone. The species Literatus, for instance, has its spots arranged in such a manner, as often to resemble Hebrew, Greek, or Arabic characters. In other species, the colors assume different shades of cloudings, veins, marblings, dots, stripes, brands, &c. &c., each surpassing the other in beauty and elegance.

DIVISION I. *Spiral subtruncated.*

Family 1*st*. *Spire coronated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Marmoreus,	E. & W. Indies, Asiatic Ocean.	Imperialis,	Amboyna, S. Seas, Mauritius.
Nocturnus,	Amboyna, Moluccas.	Fuscatus,	So. Seas, Mauritius, Tranquebar.
Nicobaricus,	East Indian Seas.		
Arachnoideus,	Coroman., Tranquebar.	Candidus,	
Zonatus,	Asiatic Ocean.		

Family 2d. *Spire plain or channelled.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Literatus,	Amboyna, So. Seas, Af.	Mustelinus,	Batavia, Philippines.
Eburneus,	East Indian Ocean.	Leopardus,	E. & W. Ind., Sumatra.
Tessellatus,	Batavia, Af., Mauritius.	Hyæna,	New Zealand, Africa.
Generalus,	Amboyna, Cape of Good Hope, do. do.	Miles,	Amboyna, Mauritius.
		Centurio,	St. Domingo, Martinico.
Monile,	Nicobar Isles.	Fusiformis,	California.
Canaliculatus,	do. Ceylon.	Spurius,	E. and W. Indies.
Radiatus,	West Indies.	Leopinus,	Amboyna, W. I., Mex.
Virgo,	Af., Amboyna, Maurit.	Characteristicus,	St. Bartholomew.
Capitaneous,	E. Indies, do. do.	Cærulescens,	St. Thomas.
Chemnitzii,	Ceylon.	Zebra,	New Guinea.

DIVISION II. *Pyriform, rounded at the base.*

Family 1st. *Spire coronated.*

Cedo Nulli,	Caraccas, S. America.	Pulicarius,	So. Seas, Moluccas.
Aurantius,	Philippines.	Obesus,	Madagascar, China.
Leucosticus,	W. Indies, Mauritius.	Piperatus,	Indian Seas, Af. Ocean.
Tæniatus,	Africa, China, N. Amer.	Varius,	Maritius, W. Indies.
Musicus,	China.	Coronatus,	E. Ind. Seas.
Miliaris,	do.	Barbadensis,	Barbadoes, W. Indies.
Luzonicus,	Philippines.	Roseus,	Antilles.
Lividus,	E. & W. I., C. G. Hope.	Coccineus,	St. Domingo, Martinico.
Mus,	A. Ocean, W. Indies.	Citrinus,	Curacoa, Str. of Mag.
Distans,	So. Seas, Nicobar.	Sponsalis,	So. Seas, Isle of St. Geo.
Calidonicus,	New Caledonia.	Puncturatus,	Botany Bay.
Costatus,	So. Seas, China.	Ceylonensis,	Ceylon.
Ebræus,	E. In., Amboyna, China.	Exiguus,	Asiatic Seas.
Princeps,	Asiatic Ocean.	Pusellus,	Guinea.
Arenatus,	Batavia, Mauritius, C. G. Hope.	Lamellosus,	Ceylon.
		Sulcatus,	West Indian Seas.

Family 2d. *Spire plain or channelled.*

Janus,	E. I. Ocean.	Betulinus,	do. E. Indies, Amboyna.
Guinaicus,	Guinea.	Figulinus,	Isle of France, Nicobar Isles.
Fulmineus,	Africa, N. Zealand.		
Lorenzianus,	E. Indian Seas, Africa.	Inoratus,	Sumatra.
Amadis,	Bantam, China, Ceylon.	Quercinus,	So. Seas, C. G. Hope, Madagascar.
Acuminatus,	Amboyna, Red Sea, Moluccas.	Lineatus,	Mauritius, Philippine Isl.
Thomæ,	Isl. of Oma, Asiatic O.	Eques,	New Zealand.
Amirallis,	Amboyna, Ceylon, Ceram.	Erminius,	E. Ind., Maurit., China.
		Vexillum,	Batavia, Malabar.
Archithalassus,	do. do. Ind. Ocean.	Testudinarius,	Surinam, W. I., Guinea.
Vitulinus,	West Indies, Mauritius.	Venulatus,	Manilla, American Seas.
Planorbis,	Guinea.	Namocanus,	Isle of Namoca, So. Seas.
Senator,	do.	Stercusmuscarum,	Amboyna, C. G. Hope, Ceylon.
Catus,	St. Domin., C. G. Hope.		

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Nobilis,	Amboyna, China, Moluc.	Cancellatus,	South Seas.
Siamensis,	China, Siam.	Portoricanus,	Porto Rico, A. Seas.
Genuanus,	Batavia, Senegal, E. Ind.	Tinianus,	Isle of Tinean, So. Seas.
Papilionaceus,	So. Seas, Mauritius, W. Indies.	Taitensis,	Otaheite.
		Scabriusculus,	Guinea, Sierra Leone.
Fluctifer,	Java, Mozambique.	Rattus,	Coast of America.
Glaucus,	Amboyna, Moluccas.	Jamaicensus,	Jamaica.
Suratensus,	E. Ind. Ocean.	Mediterraneus,	Algiers, Mediterranean.
Monachess,	Med., Mauritius, China.	Puncticulatus,	St. Domingo, Martinico.
Ranunculus,	American Ocean.	Mauritianus,	Coast of Africa.
Anemone,	New Holland.	Verrucosus,	Africa, C. of G. Hope.
Achatinus,	Batavia, Mauritius.	Colomba,	Mauritius.
Rusticus,	Amboyna.	Madurensis,	Asiatic Ocean.
Nisus,	E. Ind. Ocean.	Jaspideus,	St. Domingo, Martinico.
Coffæ,	American Seas.	Japonicus,	Japan.
Vittatus,	Asiatic Ocean.	Mindanus,	Philippine Isles.
Classiarius,	Asiatic Ocean.	Festivus,	Molucca Isles.
Mercator,	do. Senegal, Mauritius, C. G. Hope.	Reticulatus,	South Seas.
		Ferruginosus,	do.

DIVISION III. *Elongated and rounded at the base.*

Clavus,	East Indies, Guinea.	Adansoni,	Senegal.
Gradatus,	California.	Augur,	Ceylon, Amboyna.
Aureus,	China.	Magus,	Mauritius, do.
Circunsisus,	E. Indian Ocean.	Striatus,	do. S. Seas, E. & W. Ind.
Terebellum,	Mauritius, Madagascar.	Gubernator,	Asiatic Ocean.
Australis,	N. South Wales, China.	Gloria Maris,	Japan.
Lævis,	Africa.	Pyramidalis,	Torrid Zone.
Acholeuchus,	American Seas.	Textile,	So. Seas. China, Africa.
Strigatus,	East Indian Seas.	Abbas,	Mauritius.
Mitratus,	do.	Archiepiscopus,	E. Ind. Seas.
Glans,	Mauritius, Africa, Moluccas.	Canonicus,	do.
		Episcopus,	do.
Tenellus,	do.	Prælatus,	do.
Nussatella,	Nussatella.	Panaceus,	Amboyna, China.
Granulatus,	Africa, Am., Brazils.	Rubiginosus,	do. Philippines.
Fusus,	West Indies.	Amaria,	N. Guinea, Madagascar.
Aurisiacus,	Amboyna, Ceram.	Aulicus,	Mauritius, Amboyna, Ceylon, China.
Terebra,	Batavia, Mauritius.		
Raphanus,	Asiatic Ocean.	Elongatus,	Guinea.

DIVISION IV. *Ventriose with a wide aperture.*

Spectrum,	Amboyna, China, New Guinea.	Timorensus,	E. I. Ocean.
		Nimbosus,	do.
Informis,	N. Zealand, Am. Ocean.	Tulipa,	E. and W. Ind., Africa.
Ventricosus,	Mediterranean, do. do.	Geographicus,	Amboyna.
Bullatus,	Moluccas, China.		

No. 21. CYPREA.

Cowry. *Inhabitant a Limax.*

Shell univalve, involuted, subovate, obtuse and smooth, aperture effuse at each end, linear, dentated at both sides, and longitudinal. In their young state, the Cyprea have the appearance of a Volute; insomuch that writers have been misled, and have classed them among the Voluta.

There is no tribe of shells which, on the whole, are more beautiful than these. From their high polish and brilliant colors, they have derived the name (by which they are known in France, most commonly) of Porcelains. The species are very numerous. In civilized countries, several of them are used as an ornament for the persons of men and women; and some are worn as amulets or charms against disease. They reside in the sand at the bottom of the sea, and are furnished with a membrane which is so extensive, that they are able to throw it over their whole shells, and thus preserve them always pure and polished. The animals have two horns, and the canal by which they respire is situated on the top of their head.

The Tiger Cowry, (C. Tigris,) and Money Cowry, (C. Moneta.)—There are few shells more common, of the present tribe, in collections, than the former of these species. It is found both in the Indian and Adriatic Seas. The latter are well known in almost all the coasts of Africa and India, where they are employed by the natives, in commerce, instead of money, and about two thousand of them are esteemed equal to a rupee. The negro women, it is stated, fish for them usually three days, before or after the full moon; and thirty or forty vessels are annually laden with them, in the Maldivian islands, for exportation to Africa, Bengal, Siam, and the adjacent islands, for the purposes of commerce. Of the Cowries, a very remarkable fact has been stated by Mons. Brugiere, that when the animals find their shells too small for the increased dimensions of their bodies, they quit them, and proceed to the formation of new ones of larger size, and consequently better adapted to their wants.

DIVISION I. *Spire not quite concealed.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Exanthema,	Am. Ocean, W. Indies.	Talpa,	Asia, Madagascar.
Mappa,	Africa, Amboyna.	Lurida,	Med., Senegal, Brazils.
Arabica,	Madagascar, do.	Vanella,	Barbadoes, Jamaica.
Histrio,	So. Seas, Ind. Ocean.	Lota,	Sicilian Seas.
Argus,	Amboyna, Guinea, W. I.	Guttala,	
Testudinaria,	Persian Gulf, Amboyna.	Sanguinolenta,	
Stercoraria,	Coast of Guinea.	Undata,	Mauritius.
Aurora,	So. Seas.	Teres,	
Carmeola,	Amboyna, East Indies.	Aperta,	

DIVISION II. *Obtuse spire quite concealed.*

Achatina,	So. Seas, New Holland.	Lynx,	Mauritius, Madagascar.
Caput serpentis,	do. do. Mauritius, E. Ind.	Felina,	Maldives,
Mauritiana,	Persian Gulf, do.	Cynerea,	Barbadoes, Jamaica.
Vitellus,	Amboyna, South Seas.	Isabella,	Amboyna, Mauritius, Madagascar.
Mus,	Mediterranean, Africa.		
Tigris,	Red Sea, South Seas, Amboyna.	Cylindrica,	
		Indica,	Eastern Ocean.
Pantherina,	Red Sea.		

DIVISION III. *Umbilicated.*

Onyx,	Coast of Asia.	Ursellus,	
Subflava,		Lutea,	
Clandestina,		Asellus,	Amboyna, Senegal.
Succincta,		Errones,	East Indies.
Ziczac,	East Indian Ocean.	Pyrum,	Sicily, Africa.
Zonata,	Coast of Guinea.	Punctata,	
Hirundo,	Maldives, Antilles.		

DIVISION IV. *With the margin thickened.*

Moneta,	Indian Islands.	Tabescens,	Amboyna, Madagascar.
Annulus,	Amboyna, E. Indies.	Halvoca,	do. Maldives.
Caurica,	do. Madagascar.	Angustata,	
Dracæna,	do. do.	Ocellato,	Indian Ocean, China.
Cruenta,	do. do.	Albuginosa,	California.
Cribraria,	China, do.	Podraria	Jamaica.
Erosa,	Mauritius, Bengal.	Gangranosa,	China.
Flaveola,		Fimbriata,	
Spurca,	Mediterranean.	Tesselata,	
Stolida,	Eastern Ocean.		

DIVISION V. *With the backs ribbed, wrinkled, or tuberculated.*

Oniscus,	Adriatic Sea.	Madagascariensis,	Madagascar.
Sulcata,	Jamaica, Barbadoes.	Pustulata,	Acapulca, China.
Europea,	Britain, N. of Europe.		

DIVISION VI. *Beaked at the extremities.*

Family 1*st*. *Having raised dots on the back.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Nucleus,	East Indian Ocean.	Cicercula,	Med., Amboyna, China.
Staphylea,	do.		

Family 2*d*. *With back smooth.*

Margarita,	Amboyna, Asia.	Globulus,	Amboyna, Asia.

No. 22. BULLA.

Dipper. *Inhabitant a Slug.*

This shell is univalve, convoluted, and unarmed with teeth; somewhat straightened, oblong, longitudinal, and very entire at the base; pillar less oblique, and smooth. The arrangements of the Bulla family, among the old writers on the subject, are very confused. Lister makes them a genus of the Cowry; which one species, the Bulla Remicosa, much resembles. Grew and Buonanori place it among the snails; Argenville and D'Avila, with the Cochlea Globosæ; and Gaulteri, as a species between the Argonauta Argo and the Cyprea. The term Bulla, implying the bubble-like form, was applied by Rumphius to the Bulla Ampula, from whom it was adopted by Linnæus as a generic appellation.

The animal of Bulla Lignaria is furnished with masticatory organs, consisting of three testaceous bodies, placed within the stomach or gizzard, by the help of which, it is enabled to break small shells and hard substances. These latter named testaceous substances were first introduced as a new genus by Giœnia, a Sicilian naturalist; after whom, it was named Giœnia, by Brugiere. These organs are figured in the Linnæan transactions.

The Dippers inhabit the sea, rivers, lakes and ditches. The texture of most of the sorts is exceedingly thin. The marine kinds are found on shallows, during the recess of the tide.

DIVISION I. *Shell resembling the Cyprœ genus, but toothed on the outer lip only.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Ovum,	Amboyna, India, China.	Nucleus,	Med., Africa.
Imperialis,	South Seas.	Verucosa,	Amboyna, China.

DIVISION II. *Shell oblong, beaked at the ends.*

Volva,	Japan, China.	Secale,	American Seas, Jamaica.
Lepida,	Africa, Leghorn.	Spelta,	Mediterranean.
Birostris,	Java, China.	Gibbosa,	Brazils.

DIVISION III. *Shell thin, gibbous, and aperture large.*

Family 1st. *Apex generally umbilicated and without a spire.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Naucum,	Amboyna, Africa, Asia.	Amygdalus,	W. Indies, Niger.
Aperta,	C. G. Hope, Britain.	Lignaria,	Adriatic, Britain.
Catena,	Devonshire.	Pectinata,	Denmark.
Plumala,	do.	Soluta,	Ceylon.
Hydatis,	Med., Britain.	Akera,	Norway, Britain.
Ampulla,	Amboyna, E. Indies.	Cylindrica,	South Seas.

SHELLS MINUTE.

Cylindracea,	Britain.	Retusa,	Britain.
Umbilicata,	do.	Obtusa,	do.

Family 2d. *Having a spire.*

Physis,	East Indies, So. Seas.	Undulata,	Tranquebar.
Amplustre,	China, Moluccas.	Scabra,	Java.
Zonata,	Tranquebar.		

DIVISION IV. *Shell pyriform, with produced beak.*

Ficus,	Ind. Ocean, Amboyna.	Rapa,	Amboyna, Asiat. Ocean.
Pyrum,		Canalicula,	

DIVISION V. *Shell generally thin, spire prominent, and body whorl inflated.*

Voluta,		Strigata,	
Dominicensis,	St. Domingo.	Striatula,	
Crassula,	Virginia, W. Indies.	Exarata,	Guinea.
Frontinalis,	Britain.	Truncata,	
Rivalis,	do.	Priamis,	Guinea, W. Indies.
Hypnorum,	do.	Zebra,	do.
Gelatinosa,	Denmark.	Achatina,	E. Indies, Africa, Amer.
Virginea,	West Indies.	Purpurea,	Africa.
Fasciata,	E. and W. Indies.	Sinistrorsa,	do.

DIVISION VI. *Shell cylindrical, with a subulate spire and truncate base.*

Terebellum,	Amboyna.

No. 23. VOLUTA.

Volute. *Inhabitant a Slug.*

Voluta shell single celled and spiral, aperture without a beak, somewhat effuse, pillar folded or plaited, and generally without lips or perforations. This genus includes 142 species. Linnæus, in the establishment of this new genus, has been less particular than could have been wished; having brought together, promiscuously, shells which scarcely agree in one individual respect, except in having plaits or folds upon the pillar.

The Volute is a very extensive genus; the greater part of which are natives of the tropical seas, and only found on the shores after storms: but few kinds are European, and those do not possess any great degree of beauty; while the tropical kinds are amongst the most beautiful of the whole tribe. The marks on that called the Music shell, exactly resemble the notes and other characters used in music.

DIVISION I. *Shell ovate, with the aperture generally ear-shaped and entire.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Auris Midæ,	E. Indies, Salt Marshes, Ceram.	Auris Virginis,	East Indies.
		Auris Vulpina,	St. Helena.
Auris Judæ,	Moluccas, Fens in India.	Auris Cuti,	
Australis,	N. Holland, N. Caledon.	Tornatilis,	England.
Auris Malchi,		Flammea,	
Glabra,		Solidula,	So. Ocean, China.
Auris Sileni,		Livida,	Africa.
Fasciata,	Australasia.	Coffea,	Barbadoes.

MINUTE SHELLS.

Minuta,	Barbadoes.	Pelluceda,	Salcomb Bay, Devon.
Flava,	East Indies.	Unidentata,	Devonshire.
Denticulata,	Great Britain.	Interstincta,	Bigberry Bay, Devon.
Triplicata,	Guernsey.	Inscupta,	Devonshire.
Pusilla,		Plicatula,	do.
Bidentata,	Scotland, Devonshire.	Ambigua,	do.
Alba,	Sandwich, Sheppy Isl.		

DIVISION II. *Shell ovate, smooth, outer margin thickened, aperture nearly entire.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Elegans,		Faba,	Bombay.
Pallida,	Senegal, Britain.	Strigata,	Guinea.
Exilis,	do.	Prunum,	Goree.
Monilis,	China.	Chimnitzii,	Guinea.
Miliaria,	Mediterranean.	Glabella,	do.
Guttata,	Jamaica.	Picta,	Brazils.
Marginata,	Guinea.	Castanea,	do.

DIVISION III. *Shell ovate, smooth, spire flat, aperture effuse, linear.*

Porcellana,	Indian Ocean.	Bullata,	East Indies.
Persecula,	African Ocean.	Lævis,	Devon., W. Indies.
Cingulata,	Cape Verd, Goree.	Catenata,	England, do.

DIVISION IV. *Shell subcylindrical, enamelled and emarginated.*

FAMILY 1*st*. *Spire rather obtuse.*

Porphyrea,	W. Indies, S. America.	Incrassata,	Brazils, do.
Erythrostoma,	Amboyna, Mauritius, So. Seas.	Pinguis,	Brazils.
		Tigrina,	Eastern Ocean.
Oliva,	do. Brazils, E. W. Ind. South Seas.	Cameola,	Moluccas.
		Micans,	do. Mauritius.
Ventricosa,	Mendana, Moluccas.		

FAMILY 2*d*. *Spire prominent or conical.*

Cruenta,	Amboyna, Mauritius.	Nivea,	West Indies.
Annulata,	do.	Jaspedea,	Philippine Isles.
Gibbosa,	Coromandel, Madagas.	Ancilla,	
Ispedula,	Moluccas.	Nitidula,	do. Moluccas, Mauritius.
Hiatula,	Africa.	Oryza,	
Ampla,			

DIVISION V. *Shell fusiform, generally striated or ribbed, either longitudinally or transversely.*

FAMILY 1*st*. *Spire less than half the length of the shell.*

Crenulata,	East Indies.	Leucozonias,	
Fenestrata,	Indian Seas.	Morio,	West Indies.
Dactylus,	Bengal, India.	Aurantia,	
Conus,		Vitulina,	Indian Seas.
Texurata,		Olivaria,	
Microzonias,	Indian Ocean, Medit.	Nubila,	Friendly Isles.
Tringa,	Mediterranean.	Pertusa,	East Indies.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Fissurata,		Spiralis,	Indian Seas.
Barbadensis,	Barbadoes.	Patriarchalis,	East Indies.
Spadicea,		Muriculata,	Indian Ocean.
Decussata,		Pauperculata,	Mediterranean.
Variegata,		Pica,	St. Bartholomew's.
Caffra,	Africa.	Ferrugata,	

FAMILY 2*d*. *Spire half the length of the shell.*

Cornicula,	Mediterranean, W. Ind.	Rugosa,	Indian Ocean.
Scroeteri,	Guinea.	Scrutulata,	
Crenifera,	Indian Seas.	Nigra,	Guinea.
Scabricula,	China.	Casta,	Amboyna.
Ruffina,	East Indies.	Serpentina,	Indian Ocean.
Vulpecula,	Amboyna.	Digitalis,	do.
Castellaris,	East Indian Ocean.	Episcopalis,	do. China, Mauritius.
Subdivisa,		Papalis,	Amboyna.
Melongena,		Thiara,	Madagascar.
Plicaria,	China.	Coronata,	West Indies.

SHELL LESS THAN HALF AN INCH IN LENGTH.

Maculosa,		Striata,	Minorca.
Biplicata,		Lavigata,	Medit., W. Indies.
Turricula,		Ocellata,	do.
Lineata,	Tarentum.	Nasuta,	do.
Sulcata,	Tranquebar.	Marmorea,	do.
Discors,	West Indies.		

FAMILY 3*d*. *Spire more than half the length of the shell.*

Acuminata,	Tranquebar.	Sarguisuga,	Amboyna, Med., South Wales.
Virgo,	Haynam.		
Filaris,		Polygona,	
Filosa,	East Indies.	Tæniata,	Bombay.
Clathrus,	China.	Cruentata,	East Indies.
Exasperata,	East Indies.	Turrita,	
Costata,		Acus,	
Granosa,	East Indian Ocean.	Abbatis,	East Indies.
Nodulosa,	West Indies.		

DIVISION VI. *Shell small, thick, strong, having the outer lip denticulated and rather angular.*

Mercatoria,	Mediterranean.	Torva,	Barbadoes.
Ziervagelii,		Mendicaria,	Mediterranean.
Rustica,	Med., Barbadoes, Africa.	Nana,	do.

DIVISION VII. *Shell emarginate, effuse, and spire rather papilary.*

Family 1st. *Whorls nodulous or plain.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Musica,	Am. Ocean, E. & W. In.	Harpa,	South Pacific.
Virescens,	Guinea.	Magnifica,	N. Holland, So. Seas.
Plicata,	East Indies.	Volva,	Guinea.
Ebræa,	Asiat. Ocean, Jamaica.	Undulata,	So. Seas.
Vespertilio,	Amboyna, E. & W. Ind.	Magellanica,	Mag., Falkland Isles.
Flavicans,	East Indies.	Rupestris,	Japan.
Nivosa,	New Holland.	Pacifica,	So. Seas.
Vexillum,	Amboyna, Ceylon, E. In.	Angulata,	
Lapponica,	Am. Ocean, E. & W. In.	Scapha,	Cape of Good Hope.
Junonia,	South Pacific.	Colocynthis,	South Seas, Brazils.

Family 2d. *Whorls crowned with spines.*

Imperialis,	Moluccas, Philippines.	Vespertilio,	East Indies.

DIVISION VIII. *Shell ventricose, and the summit of the spire papilary.*

Family 1st. *Spire coronated or nodulous.*

Ethiopia,	Per. gulf, Chi., Amboyna.	Corona,	Indian Ocean.
Diadema,		Cybiola,	
Tessellata,			

Family 2d. *Spire channelled.*

Olla,	W. Indies, Med.	Cymbium,	Spain, Senegal, Guinea.
Rubiginosa,	Coast of Peru.	Neptuni,	Persian Gulf.

Family 3d. *Spire truncated.*

Porcina,	Spain, Africa.

Family 4th. *Shell formed by one broad whorl.*

Glans,	Africa.	Navicula,	Guinea.

Family 5th. *Spire nearly buried in the body whorl.*

Melo,	East Indies, China.

DIVISION IX. *Shell nearly entire, longitudinally or transversely ribbed and sub-umbilicated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Reticulata,	Africa, Jamaica.	Fusca,	So. Seas.
Cancellata,	Mediterranean.	Nucea,	
Nasca,	Guinea.		

DIVISION X. *Shell spinous or rugged, and nodulous.*

Turbinellus,	Amboyna.	Muricata,	Jamaica, Madagascar.
Capitellum,	Indian Ocean.	Ceramica,	Ceram, Indian Ocean.
Rhinocerus,	New Guinea.	Globosa,	

DIVISION XI. *Shell with a somewhat produced beak.*

Pyrum,	Ceylon.	Scolymus,	Florida.
Gravis,	Moluccas.		

No. 24. BUCCINUM.

Whelk. *Inhabitant a Limax.*

Shell univalve, spiral, gibbous; aperture ovate, terminating in a short canal leading to the right, with a retuse beak or tip, inner lip expanded.

The Whelks are found adhering to rocks or stones, beneath the surface of the ocean; but some few are terrene. Their shells are generally strong, rough and hollow; and their flesh may with safety be used for food.

The purple-staining Whelks were formerly celebrated, on the coasts of the Mediterranean, on account of a valuable purple dye, which was extracted from them. They have, however, of late years, been entirely neglected, in consequence of the discovery of cochineal, from which a dye equally excellent, and at much less cost, is to be procured. The number of these shells necessary to be collected together for the purpose of dyeing even a small quantity of cloth, must have been very great. The matter for dyeing, like the ink in the cuttle-fish, is found in a peculiar reservoir, situated in the upper part of the body, and on one side of the stomach. This reservoir is very small, being seldom so large as a small pea. A handkerchief stained with the coloring matter of the Whelk, will retain its brilliancy for many years; but the purple tint does not appear, till the linen has been exposed for some time to the action of the sun and air. In Great Britain there are several kinds of shell-fish which furnish a dye of this sort, but these are seldom sought after.

DIVISION I. *Shell inflated, rounded, thin, slightly transparent and brittle.*

FAMILY 1*st*. *Aperture without teeth.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Olearum,	East Indies, China.	Dolium,	Mediterranean, Amboyna.
Galea,	Mediterranean.		
Perdix,	Am., S. Seas, Amboyna.	Candatum,	

FAMILY 2*d*. *Outer lip toothed.*

Sulcosum,	Coromandel, China.	Chinense,	China, Java.

DIVISION II. *Shell ovate, ribbed, aperture rather contracted, pillar lip thickened and strongly wrinkled, and outer lip toothed, thickened and marginated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pomum,	Amboyna, China.	Ringens,	China, Java.

DIVISION III. *Shell with tuberculated belts or ribs, pillar lip spread, and beak much produced and reflected.*

Echinoforum,	Mediterranean.	Rugosum,	Mediterranean.
Nodosum,			

DIVISION IV. *Shell with an exserted, reflected beak, pillar lip spread, and the outer lip unarmed outwardly.*

FAMILY 1*st*. *With the spire truncated, aperture rather linear, pillar lip much spread, the pillar slightly wrinkled, and outer lip thickened.*

Corrugatum,		Rufum,	Madagascar.
Plicatum,	Jamaica, Ascension Isl.	Testiculis,	Jamaica.
Flammeum,	do. W. Indies.		

FAMILY 2*d*. *With the spire rather elevated, pillar lip thinly spread, pillar slightly wrinkled, and outer lip thickened.*

Decussatum,	Mediterranean.	Saburon,	Mediterranean, Goree.
Areola,	do. E. Ind., Amboyna.	Abbreviatum,	
Strigatum,	do.		

FAMILY 3*d*. *Resembling the 2d, except having the pillar lip granulated.*

Granulatum,	Med., W. Indies.	Undulatum,	do. Barbadoes.

FAMILY 4*th*. *Resembling the 3d, but having the pillar lip granulated and wrinkled.*

Inflatum,	Indian and African Seas.	Bilineatum,	Weymouth.
Tessellatum,	Amboyna, S. Seas, Guin.	Cicatrecosum,	Indian Ocean.

FAMILY 5*th*. *With the pillar lip smooth.*

Recurvirostrum,	Barbadoes.	Cassis,	Bay of Naples.

DIVISION V. *Shell resembling last division, but the outer lip on the outside is muricated at the base.*

FAMILY 1*st*. *Spire short.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Erinaceous,	Tranquebar, China, Am. Ocean.	Fimbria,	East Indies.
		Glaucum,	Amboyna, China.
Biarmatum,		Vibex,	E. & W. I., Tranquebar.

FAMILY 2*d*. *With the spire elevated.*

Papillosum,	Ind. and Asiat. Occans.	Mutabile,	Senegal.
Glans,	do.	Gibbum,	Med., and Amboyna.

DIVISION VI. *Shell with the pillar lip dilated and thickened, and aperture wide.*

FAMILY 1*st*. *With the pillar lip much thickened and dilated.*

Arcularia,	China, Amboyna, Maurit.	Verrucosum,	Ceylon, Madagascar.
Coronatum,	Madagascar.	Gibbosulum,	Med., Asiatic Ocean.
Hepaticum,	Dorsetshire.	Clathratum,	East Indies.
Pullus,	Med., Malacca, Senegal.	Niveum,	Tranquebar.
Thersites,	Asiatic Ocean.	Lima,	East Indies.

FAMILY 2*d*. *With the pillar spread, but not very thick.*

Textum,		Piscatorium,	East Indies.
Reticulatum,	Britain, Med., Azores.	Mauritii,	Mauritius.
Ambiguum,	do.	Armillatum,	
Macula,	do. Norway.	Nitidulum,	Med., Goree.
Strolatum,	Tranquebar.	Ventricosum,	St. George's Bay.
Plicatulum,	East Indies.		

FAMILY 3*d*. *Obtuse, convex, depressed and smooth.*

Neritium,	Mediterranean.

DIVISION VII. *Shell with longitudinally keeled uncoronated ribs, pillar smooth.*

Harpa,	E. Ind., Mauritius, Amb.	Crenatum,	Mauritius.
Cancellatum,	Tranquebar.	Costatum,	Philippine Isles.

DIVISION VIII. *Pillar lip appearing as if worn flat, aperture very wide and open.*

FAMILY 1*st*. *Armed with a subulate tooth at the base.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Monodon,	So. Seas, Cape Horn.	Narval,	South Seas.
Imbricatum,	do. do.	Cingulatum,	Peru.
Crassilibrum,		Rhinoceros,	

FAMILY 2*d*. *Without the tooth, and the outside striated.*

Persicum,	Asiat. Ocean, Amboyna.	Haustrum,	New Zealand.
Sertum,	do. Red Sea.	Vexillum,	

FAMILY 3*d*. *With the outside tuberculated.*

Patulum,	E. & W. Ind., America.	Armigerum,	South Seas.
Lateostomum,	South Seas, China.	Dentex,	
Hæmastoma,	Eu., Med. & Asiat. Seas.		

DIVISION IX. *Shell with spire obliquely recurved, aperture very large, outer lip reflected, and pillar lip with two obsolete teeth at the base.*

Concholepas, Peru, Magellan.

DIVISION X. *Shell coarse, spire acute, aperture ovate, pillar lip smooth or flattish.*

Lapilless,	Britain, Norway, Azores.	Smaragdulus,	Tranquebar.
Varium,		Undosum,	Amboyna.
Undatum,	do. do.	Affine,	So. Seas, Moluccas.
Ciliatum,	Greenland.	Fumosum,	
Solutum,		Tranquebaricum,	Tranquebar.
Porcatum,	Mexico.	Cruentatum,	
Papyraceum,	Norway.	Pyrozonias,	
Otaheitense,	Otaheite.	Versicolor,	East Indies.
Glaciale,	Northern Ocean.	Lamellosum,	New Zealand.
Carinatum,	Spitzbergen.	Lamellatum,	
Filosum,		Crispatum,	
Sulcatum,	Tranquebar.		

DIVISION XI. *Shell strongly ribbed transversely.*

Orbitum,	New Zealand.	Indicum,	East Indies.
Scala,	East Indies.		

DIVISION XII. *Shell subglobose, ponderous, aperture large, pillar lip very thick.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Plumbeum,	California.	Crassum,	

DIVISION XIII. *Shell with the pillar abrupt and strongly umbilicated.*

Spiratum,	E. Ind., Med., Arabia.	Zeylanicum,	Ceylon.
Eburneum,	China.	Glabratum,	Tranquebar.

DIVISION XIV. *Shells somewhat polished and not enumerated in the former divisions.*

Tigrinum,	New Zealand.	Lævissimum,	East Indian Seas.
Turgitum,	do.	Cyaneum,	Greenland.
Scutulatum,	do.	Læve,	East Indies.
Testudineum,	do.	Igneum,	
Cochledeum,	South Seas.	Lyratum,	
Catarracta,	N. Zealand, C. G. Hope.	Plumatum,	Jamaica.

MINUTE SHELLS.

Glaberrimum,		Exile,	
Nucleus,	New Zealand, Madagascar.	Prærosum.	Southern Europe.
		Cinctum,	Britain.
Lineatum,	Britain, W. Indies.	Minimum,	

DIVISION XV. *Shell roundish, spire flat, whorls lamellated or spinous, beak produced and umbilicated, and aperture large.*

Pezoar,	China.	Bulbosum,	Tranquebar.

DIVISION XVI. *Shell turreted, subulate, and slightly polished.*

FAMILY 1*st*. *Whorls entire.*

Maculatum,	Africa, E. In., Amboyna.	Lanceatum,	East Indies, Amboyna.
Oculatum,	do.	Murinum,	Africa.
Subulatum,	China, do. do.	Hastatum,	
Felinum,		Sinuatum,	East Indies.
Vittatum,	Ceylon.	Bifasciatum,	do.
Digitale,	Bombay, Senegal.	Radiatum,	Coast of Naples.
Concinnum,		Virgineum,	Virginia.
Cinereum,	Amboyna.	Acicula,	Britain, Paris.
Succinctum,	East Indies.		

FAMILY 2d. *Whorls divided by a transverse line or furrow.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Crenulatum,	China.	Strigilatum,	Asiatic Ocean.
Hecticum,	Africa.	Duplicatum,	Ind. Ocean, Haynam.
Geminum,		Acus,	
Proximatum,		Dimidiatum,	China.
Monile,		Pertusum,	

No. 25. STROMBUS.

Skrew Shell. *Inhabitant a Limax.*

Shell univalve and spiral, lip of the aperture often much dilated and produced into a groove, leaning to the left. The young shells of the Strombus do not possess the dilated lip, and have, therefore, been referred to different genera ; an error committed by some of the best early writers.

The greater part of the shells which constitute the first and second divisions, have their outer lip extended, either in the form of a wing, (hence called Alatæ, or Winged shells,) or projecting in distinct linear divisions, or pointed claws: but these appearances are only manifest in adult shells. These are all inhabitants of the ocean, and usually found on rocky shores in the African, Indian, American and European seas : some few are also found in the Mediterranean, Red, and Arctic seas.

This genus derives its name from some of its species bearing the resemblance to a whipping-top, (στρόβος.)

DIVISION I. *Shell with linear segments or claws at the margin of the outer lip.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Chiragra,	China, Mauritius.	Purpureus,	
Scorpius,	Amboyna, China.	Elongatus,	
Lambis,	S. Seas, Asia, Red Sea.	Truncatus,	E. Indies, China.
Millepeda,	Chi., Ceyl., Coromandel.	Pes Pelicani,	Britain, Med., Norway.

DIVISION II. *Shell with the outer lip much expanded.*

FAMILY 1*st*. *With the margin of the outer lip thickened or lobed.*

Gigas,	West Indies, America.	Papilio,	East Indies.
Accepeten,	Asiatic Ocean.	Auris Dianæ,	Amb., China, As. Ocean.
Gallus,	West Indies.	Pacifica,	So. Seas.
Tricornis,	do. Red Sea.	Granulatus,	California.
Pugilis,	do. Florida.	Polyfasciatus,	Red Sea.
Fasciatus,	Jamaica, Goree.	Luhuanus,	So. Seas.
Lentiginosus,	Amboyna, China, Maurit.	Canarium,	E. Indies, Red Sea, Amb.

FAMILY 2d. *With the outer lip curved inwards.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Latissimus,	Asiat. O., Amboy., China.	Laciniatus,	East Indies.

FAMILY 3d. *Spire elevated, and outer lip rounded and short.*

Vittatus,	Asia, China, Red Sea, Amboyna.	Epidromis,	Amboyna.
		Sulcatus,	China.

FAMILY 4th. *With both lips pointed, and attached to the whorls of the spire.*

Marginatus,	China.	Accinctus,	do. Batavia, do.
Minimus,	do. E. Indies, Amboyna.		

DIVISION III. *Shell smooth or plaited, outer lip striated within, and but slightly expanded.*

Gibberulus,	Asiat. Ocean, Mauritius, China.	Erythrinus,	Red Sea.
		Samar,	Amboyna, East Indies.
Urceus,	do.	Dentatus,	Mauritius.

DIVISION IV. *Shell turreted, with a longitudinal fissure extending from the aperture to the summit.*

Fissus,		Fisurella,	East Indies.

DIVISION V. *Shell turreted with a very long spire.*

FAMILY 1st. *The aperture ending in a long beak, and outer lip toothed.*

Fusus,	Red Sea.	Unicornis,	East Indies.

FAMILY 2d. *Without the beak, and the aperture not toothed.*

Tuberculatus,	Mediterranean.	Auritus,	Guinea.
Palustris,	East Indies.	Lividus,	
Ater,	Marshes in Amboyna.	Costatus,	Britain.

DIVISION VI. *Shell obovate, with transverse nodulous belts, pillar lip granulated, and the outer lip thickened and toothed.*

Oniscus,	West Indies.

No. 26. MUREX.

Rock Shell. *Inhabitant a Limax.*

Shell inequivalve, spiral, rough, with membranaceous sutures, aperture oval, ending in an entire, straight, or slightly ascending canal. In the last edition of the Systema Naturæ, 193 species are described.

The most prominent character which distinguishes the species of this genus from those of the two preceding genera, consists in the beak being almost invariably straight and very much produced, sometimes turning a little upwards.

The Murices are shells of irregular form, arising from their surfaces being usually armed with spines, knobs, striæ, or foliations. The shells of the first division have the beak considerably produced, and are distinguished from those of the second, by the spines with which their surfaces are armed. The most remarkable species is the M. Tribulus, of which there are two varieties; the more common being called the Thorny Woodcock, and the rarer, Venus Comb. The latter is one of the most elegant shells of the genus. When perfect, its exterior is most beautifully adorned with regular rows of thin and delicate spines.

Inhabitants of the ocean, they are usually found upon rocky shores, within the influx of the tide. Some few burrow in the sand. Their shells are mostly rugged, strong and heavy; from which circumstances, they have obtained the name of Rock shells. The Purpurea of the ancients belong to this genus. From these shells, or rather from their inhabitants, is furnished the famous Tyrian purple. (See Ezekiel xxvii. 7, 16, &c.) A single vein, situated near the head of the fish, contains this beauteous coloring liquor.

DIVISION I. *Shell spinous, with a produced beak.*

FAMILY 1*st*. *With three varices.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Tribulus,	Asiatic Sea.	Motacilla,	East Indian Sea.
Scolopax,	Red Sea.		

FAMILY 2d. *With seven varices.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Cormitus,	Africa, Amboyna.	Brandarus,	Africa, Med., Guinea.

DIVISION II. *Shell with a produced beak, similar to the first division, but not spinous.*

Haustellum,	Asiat. O., Red S., China.	Spirillis,	Tranquebar, Malabar.

DIVISION III. *Shell foliated, with a short beak.*

FAMILY 1st. *With three varices.*

Ramosus,	So. Seas, E. & W. Ind., Amboyna.	Lingua,	Goree.
		Tripterus,	Batavia.
Foliatus,	New Zealand.	Triqueter,	Tranquebar, China

FAMILY 2d. *With more than three varices.*

Scorpio,	Amboyna, China.	Miliaris,	Nicobar Isles.
Rota,	Red Sea.	Radex,	Peru.
Saxatilis,	Medit., Guinea, Asiatic Ocean.	Melansmethos,	East Indian Seas.
		Lamellosus,	Straights of Magellan.
Trunculus,	do.	Clathratus,	Iceland, Norway.
Rosarium,		Erinaceous,	Britain, Mediterranean.
Pomum,	do. Senegal.	Scala,	East Indies.

DIVISION IV. *Shell with thick, protuberent, rounded varices.*

FAMILY 1st. *With two opposite varices.*

Rana,	Af., China, Amboyna.	Bufonius,	South Seas.
Crassus,	Madagascar.	Lampas,	Med., Madagascar, E. In.
Spinosus,	Tranquebar.	Scrobilater,	do. Senegal.
Gyrinus,	Scotland, Med., E. Ind.	Reticularis,	do. W. Ind., Carolina.

FAMILY 2d. *With two subalternate varices.*

Argus,	Amboyna, Med.	Maculosus,	Amboyna, Mauritius.
Olearum,	Africa, So. Europe, do.	Spengleri,	New South Wales.
Rubocula,	Red Sea.	Pyrum,	Coromandel.
Femorale,	Guinea, E. & W. Ind.	Clavator,	Ceylon.
Lotorium,	Jamaica, Amboyna.	Caudatus,	Coromandel.
Pileare,	Mediterranean.	Dolarium,	Portugal.
Candisatus,			

FAMILY 3d. *With a single varix.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Parthenopus,	Bay of Naples.	Clandestinus,	
Cutaceus,	Af., W. I., Coromandel.	Lyratus,	New Zealand.

DIVISION V. *Shell with unequally gibbous whorls, decussated ribs, and the aperture surrounded by a thin, dilated membrane.*

Anus,	Asiat. Ocean, Med.	Mulus,	Coasts of Hitoe.

DIVISION VI. *Shell somewhat spinous, and without a beak.*

Ricinus,	Asiatic Ocean, China.	Sacellum,	Nicobar Isles.
Nodus,	Jamaica.	Nodatus,	New Holland.
Neritoideus,	Guinea, So. Seas.	Lacerus,	Guinea.
Fimbriatus,		Virgatus,	East Indies.
Hystrix,	E. Indies, do.	Columborium,	South Seas.
Mancinella,	Amboyna, Madagascar.	Senticosus,	do. China.
Hippocastanum,	Batavia, Banda.		

DIVISION VII. *Shell nodulous or longitudinally plaited, with a short beak.*

Plicatus,	East Indies.	Fiscellum,	Pulo Condore.
Morbosus,	West Indies.	Dubious,	
Consul,	East Indies.	Fenestratus,	Amboyna.
Undatus,	Tranquebar.		

DIVISION VIII. *Shell ovate, aperture wide, inner lip thickened and spread, outer lip thick and undulated.*

Stramineus,	New Zealand.	Australis,	So. Seas.

DIVISION IX. *Shell with a long, straight, subulate beak, unarmed.*

FAMILY 1st. *Turreted outer lip, having a notch at the summit.*

Babylonius,	Asia, Amboyna, China.	Virgineus,	Guinea.
Clavatulus,	Guinea.	Javanus,	Java, Tranquebar, China.
Gibbosus,	Red Sea.	Tornatus,	do. Magellan.

FAMILY 2d. *With the column plaited.*

Tulipa,	W. Indies, South Seas.	Infundibulum,	West Indies.
Massa,	do.	Lancea,	Amboyna.
Amplustre,	America, So. Seas.	Ocellatus,	West Indies.
Trapezium,	R. Sea, Amboyna, China.	Craticulatus,	Mediterranean.
Polygonus,	I. of France, B. of Napl.		

FAMILY 3d. *With the outer lip entire, and the column smooth.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Colus,	Amboyna.	Carica,	
Striatulus,		Perversus,	Mex., Jamaica, N. Amer.
Versicolor,	East Indian Seas.	Ternatanus,	Isle of Ternata.
Verrucosus,	Red Sea.	Pardalis,	
Aruanus,	China, Isl. of Aru, Af.	Maroccensis,	Morocco.
Tuba,	China.	Cariosus,	
Canaliculatus,	Canada, Virginia.		

DIVISION X. *Shell with the spire rather depressed, aperture dilated nearly the length of the shell, and beak short.*

Melongena,	Am., Amboyna, Jamaica.	Corona,	Gulf of Mexico.
Calcaratus,	do. China.	Morio,	Af., W. Ind., Magellan.
Ficus,	Red Sea.	Pugilinus,	Tranquebar, Moluccas.
Spadiceum,	W. Indies.	Cochlidium,	East Indies.
Umbilicatum,	Red. Sea.	Harpa,	
Candidum,	do.		

DIVISION XI. *Shell oblong, ventricose, aperture dilated and ovate, spire produced, and beak short.*

Antiquus,	Norway, Brit., Denmark.	Bamffius,	Scotland, England.
Magellanicus,	Straights of Magellan.	Gracilis,	Britain.
Norwegicus,	Norway.	Attenuatas,	West of England.
Fornicatus,	Greenland.	Nebula,	Britain.
Despectus,	North. Ocean, Iceland.	Costatus,	do. Norway.
Subantiquatus,	Britain.	Proximus,	Scotland.
Tritonis,	Med., Amboyna, Amer.	Septangularis,	West of England.
Nerei,	So. Seas.	Turricula,	Britain.
Vulpinus,		Rufus,	do.
Pusio,	Mediterranean.	Sinuosus,	Weymouth.
Corneous,	G. Brit., So. of Europe.	Linearis,	West of England.
Lineatus,	New Zealand.	Purpureus,	Devonshire.
Lignarious,	Southern Europe.	Muricatus,	do.
Syracusanus,	Mediterranean.	Minutissimus,	Pembrokeshire.
Perron,	So. Seas.	Arenosus,	India.
Prismaticus,	do. Pulo Condore.	Scriptus,	Mediterranean.

DIVISION XII. *Turreted and subulate, with a very short beak.*

Obeliscus,	West Indies.	Radula,	Africa, W. Indies.
Vertagus,	Amboyna, East Indies.	Marginatus,	East Indies.
Plicatulus,	do.	Serratus,	New Zealand.
Aluco,	Amboyna, Medit.	Asper,	West Indies.
Tuberosus,	do. Red Sea.	Granulatus,	Asiatic Ocean.
Adansoni,	River Gambia.	Sulcatus,	Marshes in Molucca.

Scientific name.	*Locality.*
Clava,	Pulo Condore.
Uncinatus,	
Atratas,	
Alucoides,	Med., Adriatic.
Ebeninus,	So. Seas.
Fuscatus,	Medit., Senegal.
Torulosus,	East Indies.
Literatus,	Gaudalope.
Hexagonus,	So. Seas.
Reticulatus,	Britain.
Tubercularis,	do.
Adversus,	do.
Subulatus,	Scotland.
Decollatus,	

No. 27. TROCHUS.

Top Shell. *Inhabitant a Slug.*

Shell univalve, spiral and subconic, aperture somewhat angular or rounded, upper side transverse and contracted, pillar placed obliquely.

The leading characteristic of the Trochus is the conical shape of its species, the base being broad, and the whorls gradually tapering towards the apex. This form prevails, with very few exceptions, throughout the genus. Some, however, have so strong a resemblance to the Turbo, that frequent mistakes have been made in their classification. A few species of this genus have their surfaces smooth; but the greater number are covered with knobs, spines, tuberculations, or undulations; of which, the Trochus Solaris and the T. Imperialis are striking examples. The former has its margin beset with long spines, placed at regular distances, and, when the shell is perfect, resembling the rays of the sun, as represented in carved work. Many, when uncoated, present a brilliant mother-of-pearl appearance; others have only a pearly aperture; and a few exhibit a bronze-like hue. The aperture to the shell, in this, as well as in many other genera of univalves, is closed by a stony or horn-like operculum, affixed to the animal.

Most kinds are marine, and some few are found on land, in moist places. The generality of them reside in deep water; others, in shallows that are left nearly dry at the reflux of the tide. The species are very numerous, and several kinds are common to the British shores. The Trochus Conchyliophorus possesses the remarkable faculty of attaching stones, and frequently shells or fragments of shells, to his testaceous covering, during his period of formation. Mawe says it is highly valued for its rarity and beauty.

DIVISION I. *Shell umbilicated, erect.*

FAMILY 1*st*.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Niloticus,	I. Ocean, China, S. Seas.	Concavus,	Coroman., N. Zealand.
Conus,	E. Indies, New Guinea.	Vernalis,	East Indies.
Spinosus,	New Zealand.	Conspersus,	East Indian Ocean.
Jujubinus,	Mauritius, W. Indies.	Ochroleuchus,	do.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Stellatus,	East Indian Ocean.	Varius,	Mediterranean.
Spengleri,		Obliquatus,	do. Britain.
Costatus,		Cenerarius,	do. W. Ind., Norway.
Inæqualis,	Mozambique.	Neritoideus,	Greenland.
Regius,		Albidus,	
Verucosus,	East Indian Ocean.	Vittatus,	
Radiatus,	W. Indies, Mauritius.	Divaricatus,	Medit., Norway.
Veridis,	New Zealand.	Fuscatus,	
Fanulum,	Pernambuco.	Umbilicaris,	Mediterranean.
Strigosus,	Morocco.	Cinereus,	do.
Dubius,		Fasciatus,	
Depressus,		Planus,	
Lævis,		Solaris,	E. & W. In., In. S. Seas.
Greenlandicus,	Norway, Greenland.	Inermis,	West Indies.
Magus,	Britain.	Imperiallis,	New Zealand.
Variegatus,	Cape of Good Hope.	Conchyliophorus,	St. Domingo, China.
Afer,	C. Daker in Senegal.	Tectum,	West Indies, Mauritius.
Muricatus,	Mediterranean.	Pumilio,	Africa.
Roseus,	C. G. Hope, Naples.	Terrestris,	Britain, Italy, Tunis.
Patholatus,	West of England.	Bidens,	Botan. gard., Strasburg.
Scaber,		Fragilis,	
Quadratus,	Mediterranean.	Carinatus,	Saxe Wiemar.
Croceus,	Morocco.	Flumineus,	River Huines.

FAMILY 2*d*. *With pillar toothed or plaited, and umbilicus smooth.*

Maculatus,	Madagascar.	Cruceatus,	Mediterranean.
Alveare,	Mauritius.	Modulus,	W. Indies, Red Sea.
Tentorium,		Declivis,	Red Sea.
Agrestis,	China.	Viridulus,	
Niger,	do.	Perlatus,	

FAMILY 3*d*. *With pillar smooth, and umbilicus toothed or crenated.*

Cylindraceous,	Areola,
Carneus,	

FAMILY 4*th*. *With pillar and umbilicus crenated.*

Pharaonis,	R. Sea, Med., E. Indies.	Guineænsis,	Guinea.
Corallinus,	Magdalen Isles.	Urbanus,	

FAMILY 5*th*. *Shell depressed, with the umbilicus large, pervious and crenated, in which the course of the whorls is strongly marked.*

Perspectivus,	Amboyna.	Hybridus,	Mediterranean.
Perspectiviunculus,		Stramineus,	Tranquebar.
Infundebuliformis,		Indicus,	East Indies.

DIVISION II. *Shell imperforate, erect.*

FAMILY 1*st*. *With the pillar smooth.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Grandinatus,	South Seas.	Purpurascens,	
Tuber,	Med., West Indies.	Imbricatus,	West Indies.
Melanastomus,	Southern Ocean.	Cælatus,	do.
Striatus,	Med., Britain.	Gibberosus,	New Zealand.
Minutus,	France, Morocco.	Virgatus,	East Indies, Amboyna.
Punctulatus,	do. W. Ind., Morocco.	Cookii,	New Zealand.
Conulus,	Mediterranean.	Iris,	do.
Zizyphinus,	do. Red Sea, Britain.	Elegans,	do.
Papillosus,	do. E. Indies, do.	Notatus,	South Seas.
Undatus,	California.	Ziczac,	Britain, West Indies.
Granatum,	New Zealand.	Obtusus,	East Indies.
Virgineus,	do. Magellan.	Crocatus,	
Draphanus,	do.	Hortensis,	Southern Climates.
Selectus,	do.		

FAMILY 2*d*. *With the pillar toothed.*

Labeo,	Amboyna, South Seas.	Argyrostomus,	New Zealand, Arabia.
Asper,	New Zealand.	Merula,	China, South Seas.
Quadricarinatus,	Mediterranean.	Crassus,	Britain.
Tessellatus,	St. Croix, Naples.	Americanus,	America.
Turbinatus,	Mauritius, Medit.		

FAMILY 3*d*. *With the pillar twisted.*

Mauritianus,	Mauritius, New Guinea.	Pyramis,	South Seas, E. Indies.
Fenestratus,	Amb., Frederick's Isl.	Dentatus,	Red Sea, Guinea.

FAMILY 4*th*. *Shell convex, smooth, with a thick vitrious matter which covers the centre of the base.*

Vestiarius,	Med., C. G. Hope, Ind.

DIVISION III. *Shell tapering, with the pillar exserted, and the shell falling to one side when placed upon its base.*

FAMILY 1*st*. *With pillar twisted.*

Telescopium,	East Indies.	Dolabratus,	Africa.
Terebellus,	West Indies.		

Family 2d. *With pillar straight.*

MINUTE SHELLS.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Punctatus,	Mediterranean.	Striatellus,	Mediterranean.

REVERSED SHELLS.

Perversus,	Mediterranean.	Ventricosus,	East Indies.
Pusillus,	East Indies.	Annulatus,	do.
Undulatus,	do.	Lunaris,	

No. 28. TURBO.

Wreath Shell. *Inhabitant a Slug.*

Shell univalve, spiral and solid, aperture contracted, orbicular and entire. The species which shows the character of this genus best, is the rare Turbo Scalaris.

Some of the species in this and the preceding genera, are very likely to be confounded; but, by attentively observing the round or angular form of their apertures, their proper families may readily be determined. Most of the kinds inhabit the sea; some, fresh waters; and others are met with on land. The most valuable marine specimens are fished up from deep waters, or found adhering to rocks and stones, below high water mark. This is a very extensive genus, and a very considerable number are found on the shores of Great Britain. The common periwinkle is there more extensively used as food, than any of the other testaceous univalves. This shell is easily gathered, as it is found on most rocks which are left uncovered by the ebbing of the tide. Children are principally employed in this fishery, and the shells are sold by measure. They are, in general, used after being boiled, and are consumed in great quantities by the poor inhabitants of the coast.

The generic name, Turbo, is derived from the Latin, and has the same signification with the Greek derivative of the preceding genus. This species is exceedingly numerous, being in ten divisions, with families.

DIVISION I. *Shell imperforate, and pillar lip flat.*

FAMILY 1*st*. *With a smooth exterior.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Obtusatus,	Northern Ocean.	Rudis,	Norway, Britain.
Neritoides,	Mediterranean.	Punctatus,	Goree.
Nicobaricus,	Nicobar Isles.	Petræus,	Dorset. Devon.
Nigerrimus,	New Zealand.	Fulgidus,	Pembroke, Cornwall.

FAMILY 2*d*. *With the exterior striated or ribbed.*

Littoreus,	Britain, Norway.	Jugosus,	England.
Tennebrosus,	England.	Fulgidus,	New Zealand.
Crassior,	do.		

DIVISION II. *Shell imperforate, solid.*

Family 1*st*. *With a smooth exterior.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Personatus,		Helicinus,	
Petholatus,	Amboyna, Mauritius.	Imperialis,	China.
Cidaris,	Moluccas.		

Family 2*d*. *With the exterior striated.*

Simex,	Britain.	Cochlus,	Maurit. Asia, China.
Calathiscus,	do.	Smaragdus,	New Zealand.

Family 3*d*. *With the exterior granulated.*

Castaneus,	West Indies.	Papyraceus,	East Indies.
Crenulatus,			

Family 4*th*. *Exterior nodulous.*

Trochiformis,	Southern Ocean.	Olearius,	India, Coromandel.
Marmoratus,	Asiatic Ocean, China.	Coronatus,	Moluccas, Nicobar Isles.
Sarmaticus,	Moluccas, C. G. Hope.		

Family 5*th*. *Exterior ribbed or grooved.*

Canaliculatus,	Moluccas, Philippines.	Spawerius,	East Indies.
Setosus,	Mauritius.	Spenglerianus,	do.

Family 6*th*. *Exterior somewhat spinous.*

Chrysostomus,	S. Seas, R. Sea, Amboy.	Stellatus,	
Tectumpersicum,	Asiatic Ocean.	Armatus,	Med., Scotland.
Pagodus,	do. do.	Rugosus,	East and West Indies.
Calcar,	China. do.	Cornutus,	China.
Stellaris,	South Seas.	Radiatus,	Red Sea.
Aculeatus,	Nicobar Isles.	Moltkianus,	

MINUTE SHELLS.

Semicostatus,	Devon. Scotland.	Ulvæ,	Britain.
Ruber,	Pembroke, Cornwall.	Ventrosus,	do.
Vitreus,	Cornwall.	Subumbilicatus,	Weymouth.
Punctura,	West of England.	Cengillus,	Britain.
Arenarius,	Salcomb Bay.	Interruptus,	England and Wales.
Unifasciatus,	Britain.	Semistriatus,	Devonshire.
Nivosus,	Devonshire.	Albulus,	Greenland Seas.
Labiosus,	Britain.		

DIVISION III. *Shell umbilicated and solid.*

Family 1st. *Umbilicus toothed.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pica,	West Indies, Sardinia.	Nodolus,	

Family 2d. *Umbilicus without teeth.*

Dentatus,		Undulatus,	Van Dieman's Land, N. Holland.
Muricatus,	Southern Europe.		
Auricularis,	Southampton.	Argyrostomus,	I. O., R. Sea, C. G. Hope.
Vinctus,	Devonshire.	Margaritaceous,	Frederic's Island.
Quadrifasciatus,	Cornwall, Swanzea.	Porphyrites,	New Caledonia.
Sanguineous,	Med., Algiers.	Mespilus,	South Seas.
Atratus,	Nicobar Isles.	Granulatus,	do. Nicobar Isles.
Anguis,	South Seas.	Cinireus,	
Diadema,	New Zealand.	Torquatus,	New Zealand.

DIVISION IV. *Shell depressed, foliated, spinous or nodulous, umbilicus large, pervious and armed within.*

Delphinus,	Asiat. Ocean, Mauritius, Amboyna.	Exasperatus,	East Indies.
		Distortus,	

DIVISION V. *Cancellated.*

Family 1st. *Umbilicated.*

Scalaris,	China.

Family 2d. *Imperforated.*

Principalis,	Coromandel.	Lacteus,	Mediterranean.
Clathrus,	Europe, America.	Pulcher,	West Indies.
Clathratulus,	Britain.	Ambiguus,	Mediterranean.

MINUTE SHELLS.

Elegantissimus,	Britain.	Denticulatus,	Weymouth.
Simillimus,	Island of Jura.	Arcuatus,	Guernsey.
Parvus,	Britain.	Striatus,	Cornwall, Dev., Ireland.
Striatulus,	Medit., England.	Costatus,	England, Wales.
Reticulatus,	Pembroke, Kent.	Unicus,	Sandwich.
Bryereus,	Britain, West Indies.	Indistinctus.	
Coniferus,	Weymouth.		

DIVISION VI. *Shell with subcylindrical whorls, similar to the last division, but not cancellated.*

FAMILY 1*st*. *Umbilicated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Crenellus,		Limbatus,	Coromandel.
Thermalis,	Denmark, Britain, Pisa.	Carinatus,	Jamaica.
Labeo,	Jamaica.	Separatista,	Indian Seas.
Ligatus,		Niveus,	Nicobar Isles.
Foliaceus,		Helicoides,	

FAMILY 2*d*. *Imperforate.*

Crenatus,		Lincinus,	
Elegans,		Lunulatus,	

DIVISION VII. *Shell oblong, glossy, beautifully marked with various colors, and aperture subovate.*

Phasianus,	Van Dieman's Land.	Pullus,	Britain.
Inflatus,	do.		

DIVISION VIII. *Shell subcylindrical, obtuse at both ends, and aperture semiovate.*

FAMILY 1*st*. *Aperture toothed.*

Uva,	Coast of Bretagny.	Juniperi,	Britain, Paris, Saxony.
Mumia,	America.	Muscorum,	Europe under moss.
Alveria,	St. Domin., Guadalope.	Sexdentatus,	West of England.
Quinque dentatus,	France.	Carychium,	Britain.
Fridens,	Britain.		

REVERSED SHELLS.

Bidens,	Britain, France, Italy.	Labiatus,	Britain.
Laminatus,	England, Europe.	Perversus,	England.
Biplicatus,	do. do.	Quadridens,	Paris, France.
Corrugatus,	Languedoc, Provence.	Vertigo,	Sandwich, Denmark.
Nigricans,	England, France.		

FAMILY 2*d*. *Aperture without teeth.*

Cylindrus,	Jamaica.	Auris calpium,	Mediterranean.
Croceus,	do.	Politus,	Britain.
Sulcatus,	Ceylon.	Subulatus,	do.
Corneus,		Decussatus,	do.
Reflexus,			

DIVISION IX. *Shell turreted.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Imbricatus,	Jamaica.	Terebra,	European Seas, Sweden.
Replicatus,	Tranquebar.	Archimedes,	China.
Acutangulus,	do.	Variegatus,	
Duplicatus,	Britain, Persia, Med.	Ungulinus,	European Ocean.
Torcularis,		Terrebellum,	Nicobar Isles.
Obsoletus,		Annulatus,	
Exoletus,	Britain, South of Europe.	Turris Thomæ,	St. Thomas.

DIVISION X. *Shell depressed.*

Nautileus,	Britain, Germany.	Surpuloides,	Devonshire.
Cristatus,	do. Denmark.	Ludus,	South Seas.
Depressus,	Cornwall, Devonshire.	Marginellus,	

No. 29. HELIX.

Snail. *Inhabitant a Slug.*

Shell univalve, spiral, subdiaphanous and brittle, aperture contracted, semi-lunar, or roundish.

For the new division of Helices, by late writers, see Latrielle Olivica, &c.

The numerous species which compose this extensive genus, are principally land or fresh-water shells; a very few only being the produce of the ocean. They are generally of a delicate and brittle structure, and sometimes transparent.

Of the land species, almost every place produces some one or other of the kinds. They are found on trees, walls, mossy banks, under stones, &c. &c. Of the aquatic species, some are found on the sea shores, on the banks or margins of rivers, brooks and ponds, but mostly in shallow waters. They are very brittle, and exceedingly susceptible of injury. Some of the kinds are used as food. The species are very numerous: nearly seventy are found in Great Britain.

The all-wise Creator has denied to these animals the use of feet and claws, to enable them to move from place to place; but has made them ample amends, in a way more commodious to their habits and mode of life, by the broad skin along each side of the belly, and the power of motion which this possesses. By this they are enabled to creep; and by the skin, assisted by the glutinous slime emitted from their bodies, they adhere firmly and securely even to the smoothest surfaces. When the snail is in motion, four horns are distinctly seen on its head; but the two uppermost, and longest of these, deserves particular attention, both on account of the various motions with which they are endued, and also from their having eyes at the extremities. These eyes appear like two blackish points, and, when taken from the body, are of a bulbous figure; they have but one coat, and the vitreous, the aqueous, and the crystalline humors are (though not distinctly) to be seen. The animal is able to direct them towards different objects at pleasure, by a regular motion out of the body; and sometimes it hides them, by a very swift contraction into the belly. Under the smaller horns is the animal's mouth, and though its sub-

stance may appear to be too soft to be furnished with teeth, yet it has no fewer than eight; with these it chews leaves and other substances, seemingly harder than any part of its own body, and sometimes bites off pieces of its own shell. The snail, if its shell be broken, has the power of mending it. Even when apparently broken to pieces, it will set to work, and, with the slimy substance they force from their bodies, which soon hardens, they in a few days close up all the numerous chasms. The junctures are easily distinguished, and the whole shell, in some measure, resembles an old coat patched with new pieces. But, though the animal has the power of repairing its old shell, it is not able to form a new one.

> "An inadvertent step may crush the snail,
> That crawls at evening in the public path;
> Yet he that hath humanity, forewarned,
> Will step aside, and let the reptile live."

The Esculent Snail (H. Pomatia) is the largest of all the land snails produced in England. It is found in woods, and under hedges, in Northamptonshire, and in some of the southern counties. At the commencement of winter, it carefully closes up its shell, with a thick white cover or operculum, attached to its body, that just fills up the opening; and, in this enclosed state, it remains until the commencement of warm weather; seldom appearing abroad till about the beginning of April.

It is large and fleshy, and, when properly cooked, not unpleasant to the taste. Amongst the Romans it constituted a favorite dish; but if the account of Varro is to be credited, they had it of a size much larger than any known at this time; for this writer assures us that the shell of some of them would hold ten quarts: and we need not (says Mr. Pennant) admire the temperance of the supper of the younger Plinys, which consisted only of a lettuce a-piece, three snails, two eggs, a barley cake, sweet cake and snow,—in case his snails bore any proportion in size to those just mentioned. They kept these animals in what are called cochlearia, or snail stews. These were generally formed under rocks or eminences, whose bottoms were watered by lakes or rivers; and if a natural dew or moisture was not found, they formed an artificial one, by bringing into the place a pipe bored full of holes, like a watering-pot, through which it was continually sprinkled. They required little attendance or food, supplying themselves, in a great measure, as they crawled about the sides or floor of their habitation. To fatten them, they were fed on bran and sodden lees of wine.

They are, even yet, much relished on some parts of the continent, and are not always used from economical motives; for at Vienna, a short time since, seven of them were charged, at an inn, the same as a plate of veal or beef. The usual modes of preparing them for the table, are by broiling, frying them in butter, or sometimes stuffing them with force-meat; but in what manner soever they are dressed, their sliminess always, in a great measure, remains. The greatest quantities, and the finest snails, are brought from Suabia. Dr. Brown, who travelled in Vienna a century ago, remarks, that since the markets were so well supplied with other provisions, he was surprised to meet with some odd dishes at their tables, such as guinea pigs, and divers sorts of snails and tortoises. Dr. Townson was shown, at Eylau, a snailery, which the proprietor informed him was constructed on an improved plan. In our island, he says, this might have had the denomination of a patent snailery, or philosophical snailery. It consisted only of a large hole, two or three feet deep, dug in the ground, having a wooden house as a cover. The animals in this place were fed on the refuse of the garden, which was thrown in to them. There seems some doubt as to the original introduction of these animals into England. Pennant says it was by Sir Kenelm Digby; and Da Costa, that a Charles Howard, Esq., of the Arundel family, brought some of them, in the last century, from Italy, in the hope of rendering them an article of food; and, for this purpose, dispersed them about the woods and downs of Albury, an ancient seat of that family, near Box hill, in Surry. They are now to be found, in considerable plenty, not only there, but also in several parts of the confines of Sussex, where

> "The snail,
> Beneath his home, with slimy trail,
> Crawls o'er the grass."

The Garden Snail (H. Hortensis) inhabits the gardens and orchards of most parts of Europe, and abounds with a viscid, slimy juice, which it readily gives out by boiling in milk and water, so as to render them thick and glutinous; and the compound, especially with milk, is reckoned efficacious in consumptions. Snails are very destructive to wall fruit; but lime and ashes, sprinkled on the ground, will keep them away, and destroy the young brood. Fruit, already bitten, should not be taken off the tree, for they will not touch the other till they have wholly eaten the one begun, if it be left for them.

DIVISION I. *Shell with a carinated margin on the body whorls.*

Family 1st. *Umbilicated and depressed.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Lapacida,	Europe.	Exilis,	Tranquebar.
Marginata,	Jamaica.	Cantiana,	Brit., (particularly Kent.)
Cicatricosa,	do. So. Seas, China.	Rufescens,	England, Saxony.
Albella,	Europe, N. America.	Crenulata,	do. France.
Albina,		Annulata,	
Rotundata,	Eng. Denmark, France.	Fontana,	England.
Lævipes,	Guinea, Tranquebar.	Turcica,	Mogadore, Morocco.

Family 2d. *Umbilicated and convex.*

Cornu,	New Zealand.	Trochoides,	East Indies.
Oculus capri,	Asia, Pulo, Condov.	Incarnata,	Denmark, Germany.
Involvulus,		Maculosa,	
Striatula,	Algiers.	Corrugata,	Otaheite, Lucania.
Algira,	Af., Amboyna, Jamaica.	Pellis serpentis,	South America.
Leucas,	do.	Avellana,	New Zealand.

Family 3d. *Imperforated and depressed.*

Lampas,		Gualteriana,	Spain.
Carocolla,	America.	Faba,	Otaheite.

Family 4th. *Imperforated and convex or ventricose.*

Vermiculata,	Italy, Portugal.	Gothica,	Sweden.
Carnu militare,	Germany.	Scabra,	Jamaica.

Family 5th. *Umbilicated, and aperture toothed.*

Punctata,	Virginia, Saxony.	Unidentata,	Ceylon.

Family 6th. *Imperforated, and aperture toothed.*

Sinuata,	Am., Barbadoes, Jamai.	Cepa,	Jamaica.
Lucerna,	East Indies, do.	Nux denticulata,	
Lychnucus,	Jamaica.	Verruca.	

Family 7th. *Imperforate and convex, with aperture toothed and turned upwards.*

Ringens,	Brazils.

Family 8th. *Umbilicated and depressed, aperture ear-shaped, distorted, toothed and sinuated, with a marginated lip.*

Otis,	East Indies.

DIVISION II. *Shell depressed, and whorl coiled horizontally.*

Family 1st. *Umbilicated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Cornea,	Stagnant waters in Europe.	Contorta,	Europe.
		Alba,	England, Denmark.
Similis,	Denmark, Berlin.	Crystallina,	do. do.
Spirorbis,	Britain, France.	Cornu arietis,	Amboyna.
Polygrata,		Cornu venatorium,	

Family 2d. *Imperforate and keeled.*

Planorbis,	Europe.	Vortex,	Europe.
Complanata,	do.		

DIVISION III. *Shell with the aperture sublunate.*

Family 1st. *Umbilicated and depressed.*

Eructorum,	England, France, Italy.	Obvoluta,	France, Saxony, Italy.
Strigata,	Italy, England.	Zonota,	Barbary, S. of Europe.
Incisa,	East Indies.	Striata,	Saxony.
Pisana,	England, France, Spain.	Ungulina,	India.
Nitida,	do. do. Denmark.	Itala,	Europe.
Tenuis,	Penzance, Newbury.	Citrina,	Jamaica.
Cellaria,	Inhabits cellars.	Rapa.	

MINUTE SHELLS.

Minima,		Pulchella,	
Hispida,	Europe.	Trochulus,	Jamaica.
Umbilicata,		Aculeata.	
Costata,	Denmark.		

Family 2d. *Umbilicated and subglobular.*

Castanea,		Lusitanica,	South of Europe.
Globulus,	Tranquebar, Madagas.	Hispana,	do.
Lucana,	do.	Vitrea,	
Arbustorum,	England, Denmark.	Pomalia,	Britain.
Fruticum,	Denmark.	Cincta,	
Fulva,	do.	Rosacea,	
Nemorensis,	East Indies.	Extensa.	
Vittata,	Coromandel.		

Family 3d. *Imperforate and subglobular.*

Jamaicensis,	Jamaica.	Nemoralis,	Europe.
Rhodia,	Island of Rhodes.	Cartusiana,	Near Paris.
Albolabris,		Lucorum,	Europe.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Grisea,	Europe.	Versicolor,	
Sultana,	New Zealand.	Aperta,	St. Croix.
Hæmastoma,	Ceylon.	Fusca,	Britain.
Lactea,	Jamaica.	Pellucida,	Saxony, Denmark.
Picta,	Amboyna, China.		

FAMILY *4th. Imperforated, and spire rather produced.*

Vivipara,	Britain.	Dissimulis,	Tranquebar.
Fasciata,	Italy.	Angularis,	Canton.

FAMILY *5th. Umbilicated, and spire produced.*

Scalaris,	France.

DIVISION IV. *Shell ovate, oblong, ventricose, and aperture ovate.*

FAMILY *1st. Umbilicated.*

Ovata,	E. Indies, Tranquebar.	Otaheitana,	Otaheite.
Lutaria,		Læva,	East Indies.
Oblonga,	E. and W. Indies, Africa.	Dextra,	West Indies.
Flammea,	Guinea.	Stagnorum,	Holland.
Kambeul,	Senegal.	Obscura,	Britain.
Pileus,		Lackhamensis,	
Trifasciata,	Tranquebar.	Detrita,	Italy.
Bontia,	do.	Guadaloupensis,	Guadaloupe.
Labiosa,	India.	Substriata,	Britain.

FAMILY *2d. Imperforate.*

Recta,		Subcylindrica,	Europe.
Interrupta,		Pella,	Iceland.
Papyracea,	Rio Janeiro.	Pupa,	Mauritanea.
Arenaria,	Rimini.	Barbara,	Algiers.
Aspera,	Coromandel.		

DIVISION V. *Shell ovate, oblong, with the whorls transversely keeled and coronated.*

Amarula,	Asia, Ganges.

DIVISION VI. *Shell subglobular, ventricose, umbilicated, and aperture ovate, oblong.*

Ampullacea,	East and West Indies.	Glauca,	Guadaloupe.
Urceus,	America.	Lacuna,	Britain.

DIVISION VII. *Shell with the whorls longitudinally angulated on both sides.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Scarabæus,	Asia, Amboyna, China.	Afra,	Goree.

DIVISION VIII. *Shell umbilicated, roundish, obtuse, diaphanous, brittle, and aperture subtriangular.*

Ianthina,	So. Seas, Madagascar.	Globosa,	Madagascar.

DIVISION IX. *Shell conical, obtuse, distorted, the side opposite the aperture gibbous, aperture compressed.*

Lyonetiana,	Isle of France.

DIVISION X. *Shell subumbilicated, pyramidal, and summit obtuse.*

Epystilium,	South Seas.	Papilla,	

DIVISION XI. *Shell ventricose, pellucid, and aperture ovate.*

FAMILY 1*st.* *Imperforate.*

Stagnalis,	Britain.	Inflata,	Devonshire.
Fragilis,	Denmark.	Opacea,	Saxony.
Palustris,	Britain.	Tentacula,	Hamburg.
Fossaria,	do.	Lutea,	Europe.
Albicans,	Hamburg.	Sicula,	Sicily.
Putris,	Britain.	Glutinosa,	Britain.
Peregra,	Fredericksburg, Seine.	Lævigata,	do.
Limosa,	Europe.	Balthica,	Baltic.
Truncatula,	Saxony.	Neretoidea.	

FAMILY 2*d.* *Umbilicated.*

Repanda,	Thanglestadt.	Auricularia,	Britain.
Canalis,	Britain.		

DIVISION XII. *Turreted.*

FAMILY 1*st.* *Apex truncated.*

Consolidata,	Surinam.	Calcarea,	East Indies.
Decollata,	South of Europe.	Contorta plicata,	Denmark.
Truncata,	St. Domingo.		

FAMILY 2d. *Apex acute.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Cuspidata,	India.	Columna,	Guinea, Jamaica.
Plicarea,		Incumbens,	
Undulata,		Acuta,	Brit., France, Barbary.
Vibex,		Undata,	New Holland.
Crenata,	Madagascar.	Fluviatilis,	Coromandel.
Fuscata,	East Indies.	Turbinata,	Danube.
Peregrina,	Britain, W. Indies.	Carnula,	Gaudaloupe.
Coctona,	West Indies.		

DIVISION XIII. *Shell depressed, spire flattish, aperture very large, exposing the whole inside.*

Perspicua,	Mediterranean.	Haliotoidea.

No. 30. NERITA.

Nerite. *Inhabitant a Limax.*

Shell univalve, spiral, gibbous, flattish at bottom, aperture semiorbicular or semilunar, pillar lip transversely truncated, and flattish. There is considerable variation in the form and markings of the Neritæ; some are spiral, with prominent whorls; others have their whorls partly or wholly concealed; some, again, are umbilicated, while others are perfectly entire and solid; and many have the umbilicus partially covered by a repand lip, or fissurated nodule.

The back of the shell is sometimes covered with strong, elevated ribs; and, in a few species, with spines. It is often only minutely striated, and has frequently a perfectly smooth surface and a brilliant polish.

These shells inhabit the shores of the sea, rivers and lakes. Some are found adhering to sea-weed, pieces of wrecks, or other extraneous substances; others are only met with in deep waters, and may be taken in nets. Most of the kinds are exceedingly beautiful, and the animals are often eaten by the natives of the sea shores. The species are numerous. Nothing can exceed the beauty and delicacy of the miniature painting with which many of the Neritæ are adorned ; and, viewed with a magnifying glass, the most highly finished touches, upon the smallest scale, are discernible upon their enamelled surfaces. The Polished Neritæ are surpassed by none for beauty and variety. Many are smooth shells, and display a brilliant lustre, under which are discoverable the most superb party-colored marks, bands and dots, that can possibly be imagined. They are mostly clouded with green, having intermediate bands of pale pink; but those are considered the rarest, and certainly the most beautiful, which are of a perfect jet black, having three or four bright scarlet bands, which run in a parallel direction with the convolutions of the shell. Some are from India; but the most esteemed are brought from the South Seas. The aperture or mouth is of a pure white, sometimes having the throat of a beautifully delicate pale yellow. The N. Littoralis is often gathered in England with the perriwinkle, as it frequents the same situation. It is, however, much smaller, and its flesh is not reckoned so good.

DIVISION I. *Shell umbilicated.*

FAMILY 1st. *Umbilicus rather large, nearly pervious.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Vitellus,	Maurit., Amboyna, Asia.	Rugosa,	West Indies.
Punctata,	Mediterranean.	Vittata,	Morocco.
Cruentata,	Tranquebar.	Pallidula,	England.

FAMILY 2d. *Umbilicus bifid.*

Canrena,	All parts of the world.	Spadicea,	Mauritius.
Cancellata,	West Indies.	Rufa,	East and West Indies.
Sulcata,			

FAMILY 3d. *Umbilicus nearly closed by a callous, or by the inner lip.*

Glaucina,	Eu., Af., Amer., E. Ind.	Mammilla,	do., Maurit., Tranque.
Orientalis,	E. Ind., Bay of Naples.	Papilla,	New Zealand, do.
Maroceana,	Africa, W. Ind., do.	Melanostema,	Mauritius, W. Indies.
Arachnoides,		Ambigua,	Mediterranean.
Albumen,	Amb., C. G. H., Moluc.		

FAMILY 4th. *Umbilicus toothed.*

Fulminea,	Senegal, Moluccas.

DIVISION II. *Shell imperforate and toothless.*

FAMILY 1st. *Spinous.*

Corona,	Ganges, China.

FAMILY 2d. *Without spines.*

Radula,	Amboyna, Tranquebar.	Littoralis,	Europe.
Magdalena,	Magdalen Isles.	Lacustris,	do.
Cornea,	Red Sea.	Dubia,	
Fluveatilis,	Europe.	Marginata,	

DIVISION III. *Shell imperforate and toothed.*

FAMILY 1st. *Inner lip toothed.*

Pulligera,	India, Amb., So. Seas.	Turrita,	West Indies.
Aculeata,	East Indies.	Piperina,	Malabar.
Pupa,	Jamaica.	Larva,	Amboyna.
Bidens,	New Zealand.	Ascensiones,	Island of Ascension.
Flavescens,	Nicobar Isles.	Malaccensis,	Malaccas.
Virides,	West Indies.	Hieroglyphica,	East Indies.
Virginia,	do. Medit.		

FAMILY 2d. *Both lips toothed or crenated.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Polita,	Asia, South Seas.	Versicolor,	West Indies, Africa.
Peloranta,	Banda, W. I., Moluccas.	Pica,	Red Sea, Amboyna.
Maxima,		Stella,	East Indies.
Histrio,	East Indies.	Tessellata,	W. Ind., Magdalen Isles.
Lineata,	Malacca.		

FAMILY 3d. *Inner lip toothed and wrinkled.*

Atrata,	West Indies, Goree.	Flammea,	West Indies.
Nigerima,	South Seas.	Grossa,	Asiat. Ocean, Moluccas.
Antillarum,	West Indies.	Undulata,	East Indies.
Plicata,	Mauritius, Tranquebar.	Quadricolor,	Red Sea.

FAMILY 4th. *Inner lip toothed and tuberculated.*

Albicilla,	Manilla, China, Hitoe.	Fulgurans,	West Indies.
Exuvia,	Jamaica, Asia, America.		

FAMILY 5th. *Inner lip toothed, wrinkled and tuberculated.*

Plexa,	Tranq., Ceylon, Nicobar.	Chamæleon,	Banda, Moluccas.
Costata,	Nicobar Isles.	Undata,	East Indies, Africa.

No. 31. HALIOTIS.

Ear Shell. *Inhabitant a Limax.*

Shell ear-shaped, dilated, spire lateral and nearly concealed, and a longitudinal row of orifices along the surface. Linnæus is very particular about the orifices so conspicuous in this genus. It was for this reason that he referred the Helix Haliotides to the Helices rather than to the Haliotis tribe; the shell being destitute of this striking character, though in every other respect it appertains to the Haliotis rather than the Helix genera. One of the imperforate kinds (the Haliotis Imperforata, of Gruelin) was previously described by Hoblins, under the generic appellation of Stonatia ; having the shell of an oval form, and car-shaped, with the spire prominent, the aperture ample, entire, and longer than its breadth, disk imperforate. Haliotis shell, Lister places among the turbinated shells, between the Nerita and Trochus. Gaultieri ranks them among snails, with depressed spires; Adamson, in the first family of spiral shells; and Lamarck, between the Testacelli, (which follows the Helices and Neritæ,) and the Vermiculaire, or Serpula. Shells of this kind are very rarely found fossils.

This species are all marine, and are generally found closely adhering to rocks or stones, within the influx of the tide; and it requires some adroitness to detach them without injury to the shells. The animal is accounted delicate food. The species are not numerous. It inhabits the sea, near Guernsey, and is, likewise, frequently cast upon the southern shores of Devonshire. The animal is attached by so adhesive a property to the surface of the rocks, that it requires the utmost force to disengage it; though, by a spontaneous action, it is able to remove with facility from place to place.

DIVISION I. *Shell perforated.*

FAMILY 1*st*. *Roundish or ovate.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Midæ,	E. In., Maurit., C. G. H.	Australis,	New Zealand.
Pulcherrima,	King George's Sound.	Gigantea,	N. Holland, N. S. Wales.
Virginnea,	New Zealand.	Iris,	New Zealand.
Tuberculata,	Europe, West Indies.	Cracherodii,	California.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Striata,	Asiatic Ocean, Barbary.	Ovina,	
Bistriata,	Africa.	Parva,	Africa, Mauritius, China.
Varia,	East Indies.	Rufescens,	South Seas.
Marmorata,	do. Africa.	Splendens,	California.
Glabra,	South Seas.	Corrugata,	do.

FAMILY *2d. Oblong.*

Assinima,	Indian Ocean.

DIVISION II. *Shell imperforate.*

Imperforata,	E. Indies, Red Sea.	Dubia,	South Seas.
Impertusa,	do.		

No. 32. PATELLA.

Limpet. *Inhabitant a Slug.*

Shell univalve, subconic, and without a spire.—*Linnæus.* Patella limpet, are so named from their resemblance to a little plate, and are more or less conic without, and concave within. Some of them have the apex entire, others perforated. The chamber limpets are distinguished by a peculiar kind of projecting process or lip within; most have the margin entire, but some have an indent or fissure in that part; again, others are so spiral or wreathed in their outward appearance, that they resemble rather the trocha than the patella.

Limpets are found in great abundance on rocky coasts, adhering to rocks and stones. The fresh water species attach themselves to aquatic plants. They all affix themselves so tenaciously, that it is with difficulty they are removed without injury. The common limpet frequents the same situation as the perriwinkle, and is equally abundant. Although used by the ancients as an article of food, it is seldom taken to market. Among the villages along the coasts of Scotland, this shell-fish is frequently used; and the juice obtained by boiling, mixed with oatmeal, is held in high estimation. It is considered in season about the end of May. The chief excellence of the limpet is, however, as a bait. It is easily obtained from the rocks, with a knife, by the fishermen, and it is eagerly seized by all the latteral fish sought after. To the haddock it is very acceptable.

DIVISION I. *Shell with the summit obtuse, and margin entire.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Pellucida,	Britain, Norway, Med.	Flammea,	Falkland Isles.
Lævis,	England, North. Ocean.	Indica,	East Indian Seas.
Radians,	N. Zeal., Terradelfuego.	Vittellina,	
Rota,	East and West Indies.	Lævigata,	
Testudinaria,	Norway, East Indies.	Surinamensis,	Surinam.
Clealandi,	Bangor, Ireland.	Punctulata,	
Testudinalis,	Norway, St. Domingo.	Notata,	Med., W. Indies, Africa.
Compressa,	Maurit., S. Seas, C. G. H.	Cruciata,	
Mytiliformis,	Ferroe Islands.	Reticulata,	Mediterranean.
Afra,	Cape Manuel, Goree.	Cæca,	Norway.
Rustica,	Portugal, Jamai., China.	Virginea,	do. Swanzea.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Jamaicensis,	Jamaica.	Tessellata,	Norway.
Stillifera,	South Seas.	Fulva,	do.
Fusca,	Magellan, Falkland Isl.	Ambigua,	New Holland.
Areolata,	do.	Umbellata,	China, Mauritius.

DIVISION II. *Shell with the margin angular, or irregularly toothed.*

Laciniosa,	Amboyna.	Chlorostica,	Jamaica.
Plicata,		Figrina,	
Monopis,	West Indies.	Ornata,	New Zealand.
Saccharina,	Amb., China, C. G. H.	Melano Gramnea,	
Angulosa,	Provence.	Ferruginea,	Magellan, Falkland Isl.
Repanda,	Island of Cerigo.	Crenata,	Africa, Lisbon, Med.
Tenuis,		Sanguinolenta,	Africa, Mauritius.
Margaritacea,	Iceland, Patagonia.	Ulyssiponensis,	Lisbon.
Barbara,	Falkland Isles.	Radiata,	Nicobar & Moluc. Isles.
Cypria,	Mauritius, N. Zealand.	Lugubris,	Provence, Cyprus.
Oculis Capri,	Med., Africa, France.	Vulgata,	Europe.
Pentagona,		Cærulea,	do. Mediterranean.
Granularis,	Maurit., C. G. Hope.	Tuberculata,	
Granatina,	do. do. So. Eu.	Cochlear,	New Zealand.

DIVISION III. *Shell with the summit perforated.*

Noachina,	Norway, Greenland.	Pileolus,	
Pustula,	Med., West Indies.	Scuttellum,	Falkland Isles.
Græca,	Africa, do.	Picta,	do. Magellan.
Atricapula,	Barbadoes.	Nimbosa,	W. Ind., Af., So. Europe.
Nodosa,	West Indies.	Nubecula,	Medit., Jamaica.
Perforata,	do.	Porphyrozonias,	North America.
Caffra,	Cape of Good Hope.	Macroschisona,	Japan.

DIVISION IV. *Shell with the summit pointed and recurved.*

Ungarica,	Mediterranean, Britain.	Leucopleura,	West Indies.
Militaris,	W. Indies, England.	Tricaritana,	New Zealand.
Antiquata,	do.	Pectinata,	Mediterranean.
Cochleata,	South Seas.	Fusco Latea,	
Calyptra,	N. W. coast of America.	Lutea,	Amboyna.
Intorta,	So. Seas, W. Ind., Eng.	Perversa,	Africa.
Cassida,	do. France.	Lacustris,	Lakes in Europe.
Tranquebarica,	Tranquebar, Batavia.	Oblonga,	Rivers in Europe.
Mammillaris,	So. Seas, Med., W. Ind.		

DIVISION V. *Shell with a marginal fissure.*

Fissura,	Britain, Algiers.	Fissurata,	N. Zealand, Ceylon.
Incisa,	Falkland Isles.		

DIVISION VI. *Shell with an internal appendage at the summit.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Equestris,	E. & W. Ind., Amboyna.	Sinensis,	Britain, Med., Batavia.
Neptuni,	So. Seas, St. Domingo.	Auriculata,	Batavia, W. In., Borneo.
Tectum,	Batavia, China.	Duplicata.	

DIVISION VII. *Shell with an internal, transverse partition.*

Trochiformis,	Falkland Isl., Tranque.	Fornicata,	Medit., Goree.
Trochoides,		Aculeata,	Maurit., W. Indies.
Neritoida,	Maurit., Indian Ocean.	Goreensis,	Goree, do.
Porcellana,	Goree, do.	Crepidula,	Mediterranean, Barbary.

No. 33. DENTALIUM.

Tooth Shell. *Inhabitant a Terebella.*

Shell univalve, tubular, straight, or slightly curved, with the cavity open at both ends, and undivided.—*Linnæus.* There are three families. Greuelin enumerates, all together, twenty-one species of this genus, some of which are found only in a fossil state.

The shells of this genus are singular; resembling, in miniature, an elephant's tusk. The principal distinctions are in magnitude, curvature, and the number of ribs and grooves with which some of the species are marked.

These shells are all marine; they may be found on sandy banks of beaches at low water, generally in a perpendicular or oblique direction, beneath the sand or mud, and are discoverable by a slight depression of the surface.

FAMILY 1*st.* *With longitudinal ribs.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Rectum,	Indian Seas.	Striatum,	Sicily, Cornwall.
Elephantinum,	Indian and Europ. Seas, Mauritius.	Dentalis,	Med., Amb., W. of Eng.
		Fasciatum,	Sicily.
Aprinum,	Indian Seas.	Imperforatum,	Sandwich, Falmouth.

FAMILY 2*d.* *With annular striæ.*

Politum,	India, Sicily.	Trachea,	Milton in Devonshire.
Eburneum,	do.		

FAMILY 3*d.* *Smooth.*

Entalis,	Britain, India, Norway.	Minutum,	Med., Devonshire.
Corneum,	African Ocean.	Pellucidum,	North Sea.
Gadus,	British Channel.		

No. 34. SERPULA.

Worm Shell. *Inhabitant a Terebella.*

Shell univalve, tubular and adhering, often separated internally by divisions at uncertain distances. Gaultieri includes the rare Turbo Scalaris among the Vermiculi. He observes, the spires of the shells are not produced from, or supported by a pillar, as is constantly the case in turbinated shells; but possesses, on the contrary, the true character of the spiral worm shells. But, although we think that this has much truth, yet we should carefully avoid any useless innovation.

Like the last shell or genus, these are confined to the ocean, and are often found, in considerable numbers, attached to other shells, stones and plants.

Serpula is derived from *serpo*, to creep; and has three divisions.

DIVISION I. *Attached to other substances.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Spirillum,	Europe.	Conica,	America, Amboyna.
Triquetra,	do., America.	Vermicularis,	Britain.
Intricata,	Medit., Britain.	Tubularia,	Devonshire.
Corrugata,	Devonshire.	Denticulata,	Europe.
Contortuplicata,	Europe, Mediterranean.	Ochrea,	East Indian Seas.
Goreensis,	Goree.	Gigantea,	Caribbee Isles.
Glomerata,	European Seas.		

MINUTE SHELLS.

Stellaris,	Greenland.	Granulata,	
Panorbis,	Europe.	Cancellata,	Greenland.
Minuta,	do.	Heterostropha,	Britain.
Spirorbis,	do.	Lucida,	do.
Carinata,	do.	Vitræa,	Greenland.

DIVISION II. *Detached.*

Semilunum,	Britain.	Arenaria,	India.
Incurvata,	do.	Afra,	Goree.
Cereolus,	West Indies.	Volvox,	East Indies.
Nebulosa,	American Seas.	Anguinea,	do. China, Sicily.
Lumbricalis,	Amboyna.	Muricata,	Indian Ocean.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Amularis,		Decussata,	Barbadoes, America.
Retorta,	Mediterranean.	Proboscidea,	
Cornucopiæ,	Mauritius in Stones.	Protensa,	Amboyna.

DIVISON III. *With a radiated border, and perforated disk.*

Aquaria,	Amboyna, Red Sea.

No. 35. TEREDO.

Ship Worm. *Inhabitant a Terebella or Ascidia.*

The Teredo is furnished with two calcareous, hemispherical valves or maxillæ, truncated before, and two others of a lanceolate form; shell tapering, flexious, and penetrating wood. It is described and figured in Vol. 61, of the Philosophical Transactions, (see Doner British shells.) Only four species of this singular genus have yet been discovered, which are termed Navalis, Aticulus, Clara and Xytoc, carpum granatum. Two of these species of Teredo are found in holes which they perforate in wood; a third, in the seed vessels of a plant which grows in the East Indies, and called by Linnæus Xytoc, carpum granatum; and the fourth, the Gigantic Teredo, in mud, at the bottom of the ocean. On the coast, in the island of Battoo, near Sumatra, the shells of these are five or six feet in length.

Great numbers of the ship worm, which are supposed to have been introduced from India into Europe, are sometimes found in the sides and bottoms of ships; so much so as even to endanger their sinking. By means of their hard and cutting jaws, they are able to penetrate into any timber, except such as is of an extremely firm and compact substance. They, however, bore as seldom as possible across the grain; for, after they have penetrated a little way, they turn, and continue with the grain, tolerably straight, until they meet with another shell, or a knot: their course then depends on the nature of their obstruction; if considerable, they prefer making a short turn back, in the form of a syphon, rather than to continue any distance across. Colonel Montague states that he had an opportunity of examining a great number of their shells, in the dock-yard at Plymouth, G. B., where every possible means have been tried, to prevent the ravages which are committed by them. Piles which have not been in the water more than four or five years, though of solid oak, were found, on examination, to be greatly perforated by them. In the year 1730, the inhabitants of Holland were under serious alarm concerning these worms, which had made dreadful depredations in the piles that support the banks of many parts of those coasts. One of the parties who had the care of the coasts at the time, observed, to his astonishment, that some of the timbers

were, in the course of a few months, made so full of holes, that they could be beaten to pieces with only a little force. Although, when the mud was scraped off, the perforations did not appear much larger than to admit a pin's head, yet the piles, on being split lengthwise, were found to be full of large passages, or hollow cylindrical ducts, each of which contained a worm, enclosed in its testaceous tube, which it exactly fitted. The most efficacious method which has hitherto been discovered, to preserve timber from the ravages of these worms, is that which is now adopted in the several dock-yards,—to cover all the parts under water with short, broad-headed nails: these soon cover the whole surface with a strong coating of rust, which is found to be altogether impenetrable to the animal.

The generic name is derived from τερέω, to bore.

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Gigantea,	Sumatra, Ceram.	Ultriculus,	Wood in the Sea.
Navalis,	Sides & bottom of ships.	Clava,	Coromandel.

No. 36. SABELLA.

Concrete Shell. *Inhabitants various, as Nereis, Amphitrite, &c.*

Sabella with vingent mouth, and two thicker tentacula behind the head; shell tubulous, composed of particles of sand, broken shells, and vegetable substances, united to a membrane by a glutinous cement.

Of the Greuelian System, twenty-five species of Sabella, the fresh water kinds, described by Schroetten, being included. The marine Sabella shells are composed chiefly of sand and the fragments of shells; those of the supposed Sabella, found in fresh water, of the small fragments of testaceous Vermes, particularly Helices.

It is not at present determined, by the most able conchologists, whether this genus has a claim to its present situation among testaceous shells; but, as no better or more natural situation has been assigned to it, we leave it as previously arranged. These species are found in the sea, and also in fresh water ditches; sometimes affixed to rocks and shells, and at others buried in mud and sand.

FAMILY 1*st*. *Composed of grains of sand, stones, or shells.*

Scientific name.	*Locality.*	*Scientific name.*	*Locality.*
Scruposa,	India, American Islands.	Sabulosa,	Thuringia, Belgium.
Scabra,	America.	Ammoniata,	
Alveolata,	Europe.	Helicina,	Thuringia.
Chrysodon,	Eu. and Indian Seas.	Dimidiata,	do.
Belgeca,	do., Coasts.	Fixa,	do.
Rectangula,		Clavata,	do.
Capensis,	Cape of Good Hope.	Marsupialis,	do.
Nigra,	Thuringia.	Norwegica,	Norway.
Stagnalis,	do.	Lumbricalis,	Greenland Seas.
Conica,	Jena.	Indica,	Indian Ocean.
Uncinata,	Thuringia.		

FAMILY 2*d*. *Composed of vegetable substances.*

Vegetabilis,	Thuringia.	Arundinacea,	Thuringia.
Corticalis,	do.	Aculeata,	do.

GLOSSARY

OF

TERMS USED IN CONCHOLOGY.

ACUMINATED, terminated in a sharp point.

ANTERIOR, (in Univalves,) the part which forms the spire: (in Bivalves,) see MARGIN.

APERTURE, the orifice or opening of the shell. It is called *angular*, when its circumference has several angles; *bimarginated*, when the right lip forms a double margin; *coarctate*, contracted; *compressed*, flattened; *gaping*, when one of the extremities is wider than the other; *linear*, when narrow, and the length greatly exceeds the breadth; *transverse*, when the breadth is greater than the length.

APEX, the tip, or small end of a shell.

ARTICULATED, (applied to Multivalves,) when the different pieces of which the shell is composed, are so strongly united, that they appear to form one shell: (when applied to Bivalves,) see TEETH.

AURICULATED, having ears.

BASE, (applied to Multivalves,) the part on which the shell is supported: (to Univalves,) the most elevated part of the shell, opposite to the spire.

BEAK. BEAKED, having the extremity of the base of the shell elongated and contracted in the form of a beak.

BEARDED, when the epidermis is of a bristly or hairy nature.

BIFID, forked.

BYSSUS, a hair-like substance, formed by some of the animals of Bivalves, by which they attach themselves to extraneous bodies.

CALLOUS, indurated.

CALLUS, a thick excrescence.

CANAL, the prolongation of the mouth in a kind of groove or gutter, as in the Murex and Strombus.

CANALICULATED, channeled or grooved.

CARDINAL, see TEETH.

CARINATED, having the form of a boat's keel.

CARTILAGE, see LIGAMENT.

CARTILAGINOUS, resembling a ligament.

CHAMBERED, when the shell is internally divided by partitions parallel to the aperture.

CILIATED, surrounded with parallel filaments.

CLAVATE, club-shaped.

COLUMELLA, that part of the shell round which the whorls turn.

COMPRESSED, (in Bivalves,) when the valves are nearly flat, or flattened.

CONCAMERATED, see CHAMBERED.

CONVOLUTE, when the whorls turn round a lengthened cone, nearly vertical to each other.

CRENATED, crenulate, having blunt teeth.
CORDIFORM, heart-shaped.
CORONATED, having the apex surrounded with a row of tubercles or spines.

DECOLLATED, having the spire, or the upper part of the shell, truncated transversely.
DECUSSATED, intersected by striæ, at acute angles.
DENTATED, having teeth.
DIAPHANOUS, transparent.
DIGITATED, having projecting claws.
DIVARICATED, obliquely striated.
DORSAL, belonging to the back.

EARS, external projections on the sides of the hinge.
EFFUSE, having the lip separated by a gutter.
EMARGINATE, having the margin excavated by a canal.
EPIDERMIS, the outer skin or covering of a shell.
EQUILATERAL, when the anterior and posterior parts of a shell are exactly similar.
EQUIVALVE, (applied to Multivalves,) when the two principal valves have the same form, size and position: (to Bivalves,) when the two valves are exactly similar.
EXSERTED, very thin or slender.

FISSURE, a notch or slit.
FURROW, a gutter or groove, running parallel to the hinge, in Bivalves.
FUSIFORM, spindle-shaped.

GAPING, (in Bivalves,) when the valves do not shut close: (in Univalves,) when the lower part of the lips is distended.
GIBBOSITY, a swelling.
GIBBOUS, swelled.
GLABROUS, smooth.

HINGE, the part where the valves are united, and generally furnished with one or more teeth. It is said to be *compressed*, when it is formed of one compressed tooth *lateral*, when placed on one side of the shell; *reflected*, when its edges are folded over the exterior margin; *terminal*, if situated at the extremity of the shell.
HISPID, covered with hairs, as in the Helix Hispida.

IMBRICATE, when the surface is covered with scales partially covering each other.
IMPERFORATE, having no umbilicus.
INEQUILATERAL, when the anterior and posterior parts of the shell are dissimilar.
INEQUIVALVE, when the valves are dissimilar.
INVOLUTE, without a spire.

KEELED, see CARINATED.

LENTICULAR, when the valves are round, and diminish in thickness from the centre towards the edges.
LID, see OPERCULUM.
LIGAMENT, a membranous substance, which connects the valves: it is both interior and exterior, in the generality of Bivalves.
LINEAR, when the length of the shell is greater than the breadth, and its form not cylindrical.
LINGUIFORM, tongue-shaped.
LIP, (in Univalves,) the side of the aperture: (in Bivalves,) the exterior edge of the valves.
LUNAR, or LUNATE, having a crescent form.

MARGIN, the edge of the shell: *anterior*, the space in which the ligament is situated; *posterior*, the space on the other side of the hinge; *superior*, the space between the anterior and posterior parts.
MARGINATE, (in Univalves,) having the sides of the shell thickened: (in Bivalves,) surrounded with an elevated margin.
MOUTH, see APERTURE.
MUSCULAR IMPRESSIONS, are the marks made by the muscles with which the animal adheres to the shell, as in the common oyster.

OBOVATE, nearly oval.
OBSOLETE, obliterated.
OBTUSE, blunt pointed.
OPERCULUM, (in Multivalves,) the stellular valves which shut up the superior orifice: (in Univalves,) the part which exactly fits into the aperture and encloses the animal.
ORBICULAR, forming an entire circle.

PAPILLARY, having the apex rounded.
PAPYRACEOUS, of the thinness of paper.
PATULOUS, gaping.
PECTINATED, when the longitudinal ribs on the anterior surface form acute angles with the transverse striæ.
PEDUNCLE, a tendinous substance belonging to some of the Multivalves, by means of which they adhere to solid bodies.
PILLAR, see COLUMELLA.
PILLAR LIP, that side of the aperture in which the columella is situated.
PISIFORM, pea-form.
PLAITED, when the columella is toothed, as in Volutes.
POSTERIOR, see MARGIN.

RETICULATED, like net-work.
RETUSE, when the lower whorls are pressed into the body.
ROSTRUM, see BEAK.
RUGOSE, wrinkled.

SCABROUS, rough.
SERRATED, toothed like a saw.
SEMILUNAR, like a half moon.
SESSILE, low, dwarf.
SINUOUS, waved.
SINUS, a deep cut, as in the lip of the Murex Babylonis.
SLOPE, the side from the beak.
SPINOUS, having prickles or thorns.
SPIRE is formed by the whole of the upper whorls.
STRIÆ, lines flat, or slightly raised: they are called *longitudinal*, when they run from hinge to margin; *transverse*, when in a contrary direction; and *concentric*, when they form segments of circles.
SUBCORDATE, approaching the form of a heart.
SUBPELLUCID, not quite clear.
SUBULATE, tapering.
SUPERIOR, see MARGIN.
SUTURE, a toothed joint.
SYPHON, a prolonged tube, running through the partitions of chambered cells.

TEETH, (in Univalves,) angular plaits, as on the pillar lip of Volutes: (in Bivalves,) pointed protuberances within the hinge by which the valves are united: they are called *alternate*, when the teeth of one valve are received between the teeth of the other valve; *articulated*, when the tooth is received into a corresponding cavity in the opposite valve; *cardinal*, the central tooth or teeth of the hinge; *compressed*, when flattened; *erect*, perpendicular to the plane of the hinge; *forked*, having the point divided into two; *longitudinal*, when it extends along the margin.
TUBERCLE, a protuberance or knob.
TUBERCULATED, having elevations resembling warts.
TUBULAR, (applied to Multivalves,) when the greater part of the shell is cylindrical.
TURBINATED, when the belly of the shell is large in proportion to the spire, which seems to proceed from the centre.

UMBILICATED, having a hole in the base of a pillar.
UMBO, the summit.
UNDULATED, waved.

VALVES, the different pieces which compose the shell.
VARIÆ, VARICES, longitudinal elevations or ribs, formed by the junction of the different additions the shell has received.
VENTRICOSE, bellied.
VERMIFORM, having the form of worms.
VERTEX, the top or point of a shell.

WHORL, a spiral convolution.

HISTORY

OF

CONCHOLOGY.

The name of Aristotle stands high in the records of philosophy. He is called by Dr. Pulteney, "the father of testaceological science," and by Dr. Maton, "the inventor of system." The learned world is indebted certainly to the writings of Aristotle for the first account we shall probably ever possess of the state of natural science at the period in which he lived. The classification of shells, contained in the fourth book of Aristotle's "History of Animals," has withstood the test of ages, and, with improvements which recent discoveries have rendered necessary, is in general adoption with late writers. Linnæus himself was, in a great measure, indebted to Aristotle for the outlines of his system, for many of his genera, and for the names under which those genera are retained, even in the most improved state of his system of Testaceology. The "Ostracodermata" of Aristotle (for such is the title of his Conchological works) presents to us a valuable scheme for shells.

He divides shells into two principal classes, (Μονόθυρα and Διθυρα,) or univalves and multivalves. Aristotle flourished about 200 years before the Christian æra.

C. S. Pliny wrote largely on Conchology. The ninth book of his History of Animals is very copious: it is more diffuse than that of Aristotle, and the arrangement, if not so methodical, is, notwithstanding, a useful work, and may be consulted with advantage.

After the dark ages, Vincentius Belleracentis was one of the earliest writers on the subject. The "Speculum Naturæ," published in folio, in the year

1494, contains a description of the Murex Purpurea, Ostrea, and a few other remarkable shells, extracted chiefly from the works of Aristotle and Pliny, and intermingled with the absurd and superstitious notions of the times. The work of Albertus Magnus, entitled, "De Animalibus," which appeared in folio in the year 1795, contains descriptions of some shells, as also that of Adam Lonicerus "Historiæ Naturalis, opus novum," published 1551.

The first writers who distinguished themselves by any attention to the study of Conchology, after the revival of literature in Europe, were Belon, Rondeletius, and Gesner. Belon is celebrated for his travels in the east; and he was, perhaps, one of the first learned men who travelled principally with a view to natural science. On his return to Paris, in 1553, he published, besides other works, an octavo volume, entitled "De Aquatilibus." The part appropriated to Conchology is not extensive: it is rather elementary and philological, than descriptive, but contains figures of a few shells engraved on wood.

The work of Rondeletius, who was professor of physic, at Montpelier, appeared two years after. This bears the title of "Universa Aquatilium Historia," and contains upwards of 100 species of testaceous animals. This author received much assistance from the labors of Aristotle and Pliny.

In 1558, the work of Conrad Gesner, "Piscium et Aquatilium Historia," made its appearance, and acquired much reputation. The work, "De Mollibus Crustaceis, Testaceis et Zoophytis," appeared in folio, in 1606. The figures are merely cuts on wood, and are rudely executed. Fabius Columna published, in 1616, a treatise on shells, entitled "De Purpura ab animali testacea fusa, de hoc ipso animali aliisque rarioribus testaceis quibusdam." A new edition of this work, with notes, appeared in 1675, edited by John Daniel, Major. In 1655, was published at Copenhagen, a catalogue of the natural and artificial curiosities in the museum of Olaus Wormius. The sixth, seventh, and eighth chapters of this work are descriptive of shells. These he divides into Univalvia, Vivalvia, Turbinata. In 1672, an account of the collection of an Italian nobleman (Count Ludovico Mercardo) appeared at Padua. The shells are comprised in twelve plates, and the subjects are noticed specifically. Another edition of this work made its appearance at Verona in the same year; in which, beside the twelve plates above mentioned, (and which are engraved on copper,) one contains some cuts on wood.

A description of the museum of the Duke of Holstein, issued from the press, in 1666, edited by Adam Olearius, contains thirty-six plates, five of which are devoted to Conchology. It is in quarto, and all the plates of shells are

referred to by Linnæus, in his "Systema Naturæ." In the twelfth volume of the Philosophical Transactions, is a "Relation concerning Bernacles," by Sir Robert Moray, who asserts, as we have stated, that young geese proceed from them, and may actually be seen.

In 1681, Grew published his "Museum Regalis Societatis," or catalogue and description of the natural and artificial rarities belonging to the Royal Society, and preserved in Gresham college, London. This was the earliest work of its kind that appeared in the English language. The shells are described in two chapters; the first, comprehending univalves, the second, bivalves and multivalves, illustrated with about 140 figures, to which the current English names are prefixed.

Buonanni was cotemporary with Grew; and, in the same year, published at Rome his "Ricreazione," &c., a work of very superior merit, and esteemed the first professedly written at any considerable length on the subject of Conchology.

There was another edition published in Latin, three years after, with additions: the first contained a series of 450 figures, the number of which is augmented to 550 in the Latin edition. These are valuable for reference, being constantly in request. In the Linnæan Systema Naturæ, the greatest fault is, that many of the shells are reversed by the inaccuracy of the engraver, so that the apertures of the spiral, or turbinated shells, turn to the left instead of the right.*

A production of uncommon merit made its appearance about this time before the public; the great Conchological work of Dr. Lister, entitled "Historia, sive Synopsis Methodica Conchyliorum," the publication of which commenced in 1685. The author had previously distinguished himself by some excellent dissertations on the same subject; but our attention is principally directed to this as his most extensive and valuable undertaking. It was published in folio, progressively, from 1685 to 1692. Lister divides his work into four books: 1st, De Turbinibus Terrestribus; 2d, De Vivalvibus Aquædulcis; 3d, De Vivalvibus Marinis et Conchisanatiferis; 4th, De Patellis Dentalibus, &c., et de Buccinis Marinis." There is no text to this book. The whole work consists of engravings, with a brief description of the shells, and reference to their native country, where that could be ascertained, in the Latin tongue, and sometimes the current English names. The plates, which are of various dimensions, are executed with great force and delicacy by the

* A copy of this rare work is in the possession of Seth Bass, M. D. of this city.

author's two daughters, Susanna and Ann Lister. It is an extraordinary circumstance, that no two copies of this work are found alike; which renders it very complex, and ill suited for general purposes. The plates in the most perfect copies vary from 1050 to 1067, the different copies having been augmented or diminished, and the plates transposed or corrected, at various times, according to the subsequent discoveries of the author.*

The popular work ushered into the world, under the immediate patronage of Rumphius, claims particular notice. This bears the title of "Amboynsche Rariteit Kamer," the Rarity chamber of Amboyna, and contains an account of the more remarkable natural curiosities in his museum, the productions of Amboyna, where they had been collected chiefly by Rumphius himself. Of 60 plates with which this work is embellished, no less than 33 are devoted to the subject of shells, the total number of which amounts to about 400; and many of these of great rarity and price in those days. It is related as a matter of astonishment, that Rumphius himself informs us, a shell described in his work, cost no less than 500 florins, about $300 of our money. The sum is great, yet there are few cabinets in Europe that do not include specimens of equal or much greater cost. Lyonnet estimates the price of his Cedo Nulli far higher; and many other instances of immense sums being paid for shells might be adduced. Among the plates illustrative of various curious subjects contained in the museum of Gottwold, of Dantzic, dated 1714, forty-three are appropriated to shells.

The valuable work of C. N. Langius, "Methodus nova Testacea marina in suas classes, genera, et species distribuendi," was published in quarto at Lucerne, in 1722. To the writings of this able naturalist, Linnæus stands highly indebted. Gualteri's work on shells is a standard book of reference, and, as such, is well known. This is entitled "Index Testarum Conchyliorum quæ adservantur in Musæo Nicolai Gualteri, &c." It was published in Latin, at Florence, in 1747, and contains 110 plates of shells, the figures of the univalves in which are singularly placed on their summit; they are, nevertheless, tolerably correct. The descriptive matter is less interesting.† "La Conchyliologie," of D'Argenville is a voluminous work, and contains a vast number of excellent descriptions, and many figures. The first edition of this work appeared in 1742, and a second, considerably augmented, in 1754: the last edition was published in 1780, with many additions, corrections and improvements, containing also a series of plates of about 2000

* In the Boston Athenæum.

† In the library of Harvard College.

figures. The " Testaceo-Theologia," of Lepas is embellished with 137 figures of shells, and abounds with physiological and anatomical observations on the structure of these testaceous animals. The principal production of Kleins is " Tentamen Methodi Ostracologiæ, &c." published at Leyden, in 1753. Adanson's " Histoire Naturelle du Senegal," was published at Paris, in 1757. This useful work contains a new arrangement of Conchology, and a series of about 400 figures of shells with the animal appertaining to the principal families.

The Testaceological writings of Linnæus should now be particularly adverted to. One of the earliest of his productions on this subject, is the " Fauna Suecica," the first edition of which, was published in 1746, and contains an account of sixty different species of Swedish shells. In the description of the Museum of the queen of Sweden, Linnæus possessed a more favorable opportunity of treating on testaceology, as her majesty's collection was particularly rich in shells. This work describes 435 species of shells, and appeared in 1764. In the interval between the times in which the two last mentioned works were published, Linnæus brought out a second edition of the " Fauna Suecica," in which the number of shells described was augmented from 60 to 89 species. The "Mantissa Altera" contains 35 species, not described in the other works already mentioned. The " Fundamenta Testaceologiæ" was one of the latest of his tracts, and is to be found among the " Dissertationes Academicæ." These are valuable works in a limited view; but the classification of shells in the " Systema Naturæ," from the nature of the undertaking is to be considered the most general of all the Linnæan writings on the Testacea. Between the year 1735, in which that work first appeared, and 1767, the " Systema " passed through no less than 12 editions, in all of which, a progressive improvement, and nearer approach to perfection are manifested.

The third volume of the extensive and costly work of Seba, " Descriptio Thesauri Rerum Naturalium "was produced at Amsterdam, in 1758. This part contains, besides plates in other departments, 61 elucidatory of Conchology. This work is certainly valuable for reference to those species which are well known; but a profusion of engravings is expended in figuring examples of shell work, &c., which are entirely unnecessary and useless.

The magnificent work of Regenfres, " Choix de Coquillages et de Crustaces," appeared at Copenhagen on the same year as the preceding. The work comprises 12 colored plates, in imperial folio, and each plate compre-

hends 12 shells. The shells which are figured by Regenfres, are of the commonest species, such as daily fall under the notice of collectors; and it is to be lamented that the talents of this artist were not employed on subjects better deserving of elucidation.

D'Avilas' catalogue was printed at Paris, in 1767, in three vols. octavo. The first volume treats entirely of shells, and contains 22 plates of the rarer specimens of his cabinet; many of which are scarce, even at this day.

The splendid work of Martini and Chemnitz, "Neues Systematiches Konchylien Cabinet" was in a progressive course of publication. In 1769, the first part appeared; another in 1771, and a third in 1777: these were all its author lived to accomplish. Seven volumes have been since added by F. H. Chemnitz. The body of the work is in the German language: the embellishments consist of 366 plates, and exhibit a number of figures on each plate.

The Elements of Conchology, by Da Costa, was published in 1776. The publication of Born, upon shells, contains about 200 colored figures, delineated in 18 folio engravings.

Mr. Pennant's "British Zoology" contains, in the fourth volume, an enumeration of 163 species of shells, with concise descriptions, and 56 plates, exhibiting figures of nearly all, which are well described, but most miserable engravings, so bad that the shell can hardly be recognized. The "Zoophytacium Gronovianun," a description of the rich museum of L. T. Gronovius, senator at Leyden, was published in 1781. There are, in this work, scientific descriptions of 589 species of shells, and among the plates, two appropriated to the illustration of the rarer kinds.

The grand work on shells, by Martini, entitled the "Universal Conchologist," was begun in the year 1784, and continued to be published at uncertain intervals, till 160 plates appeared.

A small quarto treatise, embellished with three plates, the joint labor of Boys and Walker, appeared in London, in 1784. This work treats only of microscopic shells, and the researches of its authors were confined to the Sandwich Islands, as the title indicates.

In the year 1789, Bruguière, the well-known traveller in the east, commenced the testaceological part of the grand work carried on in France, under the title of "Encyclopédie Methodique;" but, unfortunately for the cause of science, this skilful naturalist lived only to complete the first volume, which goes no farther than the letter C. of the article Vers (worms.) This work is embellished with many plates, and nearly all the genera.

In modern times, Mr. Woods' excellent catalogue, Mr. Swainson's tracts, Perry's magnificent quarto, and Dillwyn's invaluable catalogue all demand attention. Perry's book is splendid, rare, and valuable. A copy was in the possession of the late Mr. Israel Thorndike.

Woods' plates are, though generally well executed, in some instances wanting, and in others, redundant in coloring.

I do not mention the Lamarchian system in this treatise; I only regard that of Linnæus.

Lamarck has done much for Conchology; but I consider he has increased, unnecessarily, the genera of Linnæus. Dr. Turton's books on the subject are worthy of reference. Burrows' Elements are well calculated to assist the learner. I am confident that much important matter has been omitted; but I trust to the candor of a generous public to overlook such imperfections as the want of scientific observation alone can give.

There are in Buffon 26 plates of shells, comprising 163 figures. There are in Rees' Cyclopedia 21 plates of shells, comprising 120 figures.

In the Encyclopedia Britannica there are four plates of shells, well engraved, comprising 72 figures of all the genera.

METHOD TO OBTAIN AND CLEANSE SHELLS.

Collectors should always try to get shells with the animal alive within them. This can be done by drags or trawling nets, such as fishermen use. After storms is the best time for the search of shells. Such as have lain long on the sea shore, exposed to the rain and the sun, become dead and bleached, which renders them unfit for cabinets. River shells are more frequently of an obscure color, and remarkably thin. Hard shells, which abound chiefly in hot climates, are generally very beautiful.

Immediately after extracting the fish which inhabits the shell, is the time to prepare the shell, so that it need not be injured by the salts contained in the sea water. When taken, they had better be thrown into boiling water, a sufficient time to destroy the animal; taken out, and put immediately into cold water, where they must remain till quite cold, when the animal can be easily taken out.

Shells, when encrusted with extraneous matter, should be allowed to steep for some time in warm water, both for the sake of moistening the substances, and to extract, as much as possible, the marine salts; they may be allowed to remain fifteen minutes without injury. After this, brush them well, observing that the brush for fine shells should not be too hard. If that proves insufficient to clean them, rub or brush them again with tripoli, (rotten stone) or emery and fine oil; but I have generally found that strong soap and water answers best: a ley of pearl-ashes may be used. When clean, finish with a brush and fine emery. But if the extraneous substance on the shell is found exceedingly difficult to remove, a weak acid may be used for the space of a minute, dipping into cold water immediately after. The acid may not be more than from one sixth to one tenth of the liquid (muriatic acid.)

The epidermis, in some instances, may be so thick that it must be taken off before the shell can be polished. In that case, it is absolutely necessary to use the acid, as stated, and as often repeated as is found to be wanted to take off the coating of lime, &c. When acid is used, particular care should be taken that it acts only on the coat; and therefore it is found convenient, in some instances, to coat the orifices or mouth with bees-wax. Change the situation of the shell often, so that every part may be equally noticed and cleansed. Wipe off the effervescence with a feather dipped in water, when you perceive the shell free from the epidermis; then take it out of the water, and wash away the acid; after which, rub it with fine emery powder until it is perfectly clean.

If it is only a pellicle and not a thick epidermis, it is sufficient to steep the shell in warm water, or vinegar, until the coat peels off, or is corroded away.

HABITATS.

The West Indies do not produce many rare shells. In Demerara, there are many land and fresh water shells. The land shells and muscles, which may be found over the whole of the vast territories of Surinam and Cayenne, are very desirable. In the interior of Buenos Ayres, there are many fine shells. From Pernambuco to Bahia and Rio de Janeiro, the land and fresh water shells are quite as interesting, if not more so, than those which are found on the coast. To the southward of Rio, near the isle of St. Sebastian,

the Paper Nautilus and other fine shells are frequently met with. The rocks which form the Falkland Islands, produce very fine Limpets. Many good shells are brought from Magellan Straits and Staten Island, near Lima, and on the shores of Callao, many fine varieties have been procured. The Gallipagos Islands are rich in shells. From the islands at the entrance of the Gulf of California, and from the rocks and beach, are found numerous specimens of Haliotis. The shells from the Sandwich Islands are in great request, especially the Aurantium or Orange Cowry. From the elegant group of the Marquesas and Society islands, have been brought (chiefly by circumnavigators) many very rare and beautiful shells. The shells from New Zealand, New Holland, King George's Island, Port Jackson, &c., are all valuable, because scarce. From the coasts of Passera and New Guinea, some very rare varieties have been brought. The shells from the Chinese seas are generally interesting; and from the Philippine Islands we have many fine varieties. From Java, Sumatra, and Malacca, many have been brought. From the Andaman Islands many fine Cones, rare Limpets and Chitons have been obtained. Madras presents such a surf-beaten coast that no perfect shells are found there, but many fine varieties have been sent from Tranquebar. We now come to the famed island of Ceylon, well known to Conchologists for the rare Volutes found on its coasts, and for the land and fresh water shells from the interior. From the sand of the Persian Gulf, many extremely fine shells are found, which bear the distinguished names of Persian Crown, Voluta, Gambronica, &c. The coasts of the great island Madagascar abound with shells.

The isles of Bourbon and France are highly and deservedly famous for testaceological pursuits; and it may be remarked, that whatever is produced there, is the most beautiful of its species. A curious distorted Helix shell (which is scarce) is peculiar to these islands.

The Maldive and Philippine Islands, Bengal, and the Coast of Malabar, abound with the most elegant of all the species of Snails. China abounds with the finest and greatest variety of Cypræa and Snails. Japan furnishes us with all the thicker and larger bivalves, and the isle of Cyprus is famous for the beauty and variety of the Patella found there. About Brazil and the Gulf of Mexico, there are found Murexes of great beauty, and also a great variety of Cypræa, Buccini, Pectens, Nerita and Cardia. The isle of Cayenne affords one of the most beautiful of the Buccinum tribe, and the Volutæ Auris Midæ is found principally about this place. Jamaica, and the shores about

Barbadoes, are covered with Cypræ, Chama, and Buccinum; and at St. Domingo, there are found all the same species of shells that we have from the East Indies, but not so fine, the colors being pale and dead. The Pearl Oyster is found on this coast, but smaller than in the Persian Gulf. About Canada are found the Violet Chamæ, and the lakes of that country abound with muscles of very elegant pale blue and red colors. The great bank of Newfoundland is nearly destitute of shells: the principal kind found there, are muscles of considerable beauty. The island of Magellan, at the southern point of America, furnishes us with a very remarkable species of muscle, and several very elegant species of limpets. The coast of Tranquebar is very rich in shells. We find there a vast variety of the large Cypræa, many of great beauty. Besides these and many other shells, there are found, on this coast, all the species of Nautili, many of which are very fine. The Canary Isles abound with a vast variety of Murices, and some other good shells, and we have from Madeira a great variety of the Echini different from those of the European Seas. Sea Ears are nowhere more abundant than at Madeira. The Red Sea, above all other parts of the world, abounds in shells.

The Mediterranean also abounds much more in shells than the ocean. The Gulf of Tarentum affords great variety of Murices, Cypræa, Nautili, and elegant oysters. The coasts of Naples and Sardinia afford the same, and also a vast number of Solens, of all the known species. The island of Sicily is famous for a very elegant kind of oyster, which is perfectly white. Pinnæ and Cypræa are also found in great plenty there, with Tellinæ and Chamæ of many species, and a great variety of other beautiful shells. About Syracuse, are found elegant Snails, in great variety. Corsica is famous, beyond all other places, for the Pinna, and many other beautiful shells. About Anaconda, are found vast quantities of the Pholades, buried in stone. Sea Ears are frequently found about Pezzaoli (Buccinumree.) The ports of Marseilles and Toulon are full of Pinnæ, Mitili, Tellinæ, and Chamæ. The coasts of Bretagne afford great numbers of the Lepas, Anatiferra, and Pholas. At Grainville, in lower Normandy, are very beautiful Pectens, and some of the Cordiform shells. On most of the English coasts, are found Sea Ears and Dentalia, with Pectens, and elegant varieties of the Tellinæ. Chamæ are fished up about Scarborough. Ireland affords Pectens in abundance, and the Pholades are frequent on most of the shores; also, a great variety of the Buccina, and some Volutæ; on the Guernsey coast, a particularly beautiful

Snail. About Cadiz, are found large Pinnæ, and some fine Buccina. The islands of Majorca and Minorca afford a great variety of elegant shells; the Baltic, many beautiful species, but particularly an orange colored Pecten, which is not found in any other part of the world.

TO PACK SHELLS FOR TRANSPORTATION OR REMOVAL.

The method that I should recommend, is in saw-dust; but as that is not always at hand, put some dry sand from the beach, into a chest or beef-barrel: into this, the large, heavy shells may be put, covering them with sand.

For the more fragile, elegant, and rare shells, it is necessary to provide small boxes of about a foot square, and according to requirement in depth; but in no case more than six inches; into which, put a layer of cotton wool, upon which, one layer of shells, and then filled up with cotton wool: this will, if packed with care, prevent any fractures, or particles of the finest shells from being injured, and, of course, rendered of little value. On no account, pack more than one layer in a box.

PART SECOND.

THE SYSTEM OF LAMARCK.

A TABLE

EXHIBITING

LAMARCK'S DIVISIONS OF THE LINNÆAN GENERA OF SHELLS.

WITH A REFERENCE TO THE PLATES.

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 the point.

I. Chiton.	Chiton, Chitonellus.
II. Lepas.	Tubicinella, Coronula, Balanus, Acasta, Creusia, Pyrgoma, Anatifera, Pollicipes, Cineras, Otion.
III. Pholas.	Pholas, Gastrochæna.
IV. Mya.	Panopæa, Glycymeris, Mya, Anatina, Lutraria, (some.) Amphidesma, (some.) Corbula, Unio, Hyria, Vulsella.
V. Solen.	Solen, *pl.* xv. Anatina, (some.) Sanguinolaria, Hiatella.
VI. Tellina.	Mya, (some.) Amphidesma, (some.) Pandora, Psammobia, Psammotea, Tellina, Lucina, (some.) Cyclas, Cyrena.
VII. Cardium.	Cardium.
VIII. Mactra.	Lutraria, (most.) Mactra, Crassatella, (some.) Amphidesma, (some.)
IX. Donax.	Petricola, (some.) Crassatella, Venerirupis, (some.) Donax, *pl.* v. Capsa.
X. Venus.	Petricola, (some.) Venerirupis, (some.) Sanguinolaria, (some.) Corbis, Lucina, (some.) Donax, (some.) Crassina, Cyrena, (some.) Galathea, Cyprina, Cytherea, Venus. *pl.* v. *f.* 1.

XI. Spondylus. { Plicatula, Spondylus.

XII. Chama. { Cardita, Cypricardia, Isocardia, *pl.* viii. *f.* 3. Chama, Tridacna, Hippopus. *pl.* viii. *f.* 2.

XIII. Arca. { Cucullæa, Arca, *pl.* viii. *f.* 1. Pectunculus, Nucula.

XIV. Ostrea. { Crenatulla, Perna, Malleus, *pl.* xv. Pedum, Lima, Pecten, *pl.* iii. Gryphæa, Ostrea,

XV. Anomia. { Placuna, Anomia, Crania, Orbicula, Terebratula, Hyalæa.

XVI. Mytilus. { Saxicava, Anodonta, Modiola, Mytilus, *pl.* iii. Avicula, Meleagrina, Ostrea, (some.)

XVII. Pinna. Pinna. *pl.* iii.

XVIII. Argonauta. { Limacina, Argonauta, *pl.* iii. Carinaria.

XIX. Nautilus. { Orthocera, Nodosaria, Spirula, Cristellaria, Nautilus. *pl.* iv.

XX. Conus. Conus. *pl.* ii. *f.* 5, 6.

XXI. Cypræa. Cypræa.

XXII. Bulla. { Bullæa, Acera, Bulla, Bullimus, Achatina, Physa, Pyrula, (some.) Ovula, *pl.* xiii. *f.* 1, 2. Terrebellum.

XXIII. Voluta. { Auricula, Ancilla, Tornatella, Turbinella, Cancellaria, Collumbella, Mitra, *pl.* ii. *f.* 1, 2. Voluta, Marginella, Volvaria, Achatina, Oliva.

XXIV. Buccinum. { Concholepas, Achatina, (some.) Phasianella, Pleurotoma, Turbinella, (some.) Cancellaria, (some.) Pyrula, (some.) Murex, (some.) Triton, Cassidaria, Cassis, Purpura, Monoceros, Harpa, Dolium, Buccinum, Eburna, Terebra.

XXV. Strombus. { Pirena, Cerithium, (some.) Pleurotoma, (some.) Rostellaria, Pteroceras, Strombus, Cassidaria, (some.) Purpura.

XXVI. Murex.
- Cerithium,
- Pleurotoma,
- Turbinella, (some.)
- Fasciolaria,
- Fusus,
- Pyrula,
- Struthiolaria,
- Ranella,
- Murex, *pl.*
- Triton,
- Ricinula,
- Purpura, (some.)

XXVII. Trochus.
- Pyramidella,
- Solarium, *pl.* ii. *f.* 3.
- Rotella,
- Trochus,
- Monodonta, (some.)
- Turbo, (some.)
- Cerithium, (some.)

XXVIII. Turbo.
- Pupa,
- Clausilia,
- Auricula, (some.)
- Cyclostoma,
- Planorbis, (some.)
- Paludina,
- Scalaria, *pl.* ix. *f.* 2.
- Delphinula,
- Trochus, (some.)
- Monodonta, (some.)
- Turbo,
- Turritella.

XXIX. Helix.
- Helix,
- Carocolla,
- Anastoma,
- Helicina, (some.)
- Pupa, (some.)
- Bulimus,
- Succinea,
- Auricula,
- Cyclostoma,
- Planorbis,
- Lymnæa,
- Melania,
- Melanopsis,

Helix. (contin.)
- Paludina, (some.)
- Valvata,
- Ampullaria,
- Natica,
- Ianthina,
- Sigaretus.

XXX. Nerita.
- Navicella, (some.)
- Neritina,
- Nerita, *pl.* ii. *f.* 4.
- Natica.

XXXI. Haliotis.
- Stomatia,
- Haliotis. *pl.* i.

XXXII. Patella.
- Lingula,
- Patella,
- Umbrella,
- Parmophora,
- Emarginula,
- Fissurella,
- Pileopsis,
- Calyptræa,
- Crepidula,
- Ancylus,
- Navicella, (some.)
- Stomatella.

XXXIII. Dentalium. Dentalium. *p.* iii. *f.* 2,4.

XXXIV. Serpula.
- Siliquaria, *pl.* vii. *f.* 5.
- Spirorbis,
- Serpula,
- Vermilia,
- Aspergillum,
- Septaria,
- Vermetus.

XXXV. Teredo.
- Fistulana,
- Septaria, (some.)
- Teredo, *pl.* vii. *f.* 3.

LAMARCK'S CONCHOLOGY.

ANNULATA *forms the Ninth Class of Lamarck's Division of Animal Nature.*

SEDENTARY ANNULATA

Composes the third order of the above class. They are usually found attached to marine substances, and inhabit membranous or horny tubes, more or less incrusted with grains of sand or fragments of shells; or are solid, calcareous and homogeneous; and are divided into four families, viz.—Dorsalia, Maldania, Amphitritea, and Serpulea.

DORSALIA.—Two Genera.

Arenicola. Has no shell. *Ency. Meth.* pl. XXXIV. fig. 13.

Siliquaria. Shell tubular, irregularly twisted, tapering towards the posterior end, which is sometimes spiral; anterior extremity open; and a longitudinal, subarticulated fissure throughout its whole length. *Crouch Il. of Lam.* pl. I. fig. 1.

S. anguina, S. muricata, S. lævigata, S. lactea.

MALDANIA.—Two Genera.

Clymene. Tube slender, open at both ends, the exterior incrusted with sand and pieces of shells.*

---

* I have not been able to procure a figure of the Clymene Amphystoma, of which species only the genus is composed.

DENTALIUM. Tube testaceous, nearly regular, slightly curved, gradually tapering towards the posterior end, open at both extremities.

D. elephantinum,	D. octoganum,	D. entalis,	D. nigrum,
‘ aprinum,	‘ novem costatum,	‘ tarentinum,	‘ politum,
‘ fasciatum,	‘ dentalis,	‘ corneum,	‘ eburneum.

AMPHITRITEA.—Four Genera.

PECTINARIA. Tube membranous or papyraceous, arenaceous, in shape of a reversed cone, not fixed.

P. belgica, P. capensis.

SABELLARIA. Tubes numerous, united in a common mass, composed of agglutinated fragments of shells and sand; the orifices cup-shaped.

S. alveolata, S. crassissima.

TEREBELLA. Tube elongated, cylindrical, attenuated and pointed at the base; membranous, with grains of sand and fragments of shells adhering round it; open only at the apex.

T. conchilega,	T. cranulata,	T. duplicata,	T. vittata,
‘ cristata,	‘ dimidiata,	‘ myuros,	‘ lineolata,
‘ ventricosa,	‘ muscaria,	‘ lanceata,	‘ elongata.
‘ maculata,	‘ oculata,	‘ aciculina,	

AMPHITRITE. Tube elongated, cylindrical; posterior extremity attenuated, membranous or coriaceous; the exterior generally naked.

A. ventilabrum,	A. magnifica,	A. volutacornis,	A. infundibulum.
‘ penicillus,	‘ vesiculosa,		

SERPULA.—Five Genera.

SPIRORBIS. Tube testaceous, turned into an orbicular spire, discoidal; the lower surface flat and fixed.

S. nautiloides,	S. carinata,	S. lamellosa,	S. tricostalis.
‘ spirillum,			

SERPULA. Tubes solid, calcareous, irregularly twisted, grouped or solitary, fixed; the aperture terminal, round, very plain.

S. vermicularis,	S. infundibulum,	S. intorta,	S. costalis,
‘ fasicularis,	‘ annulata,	‘ cristata,	‘ dentifera,
‘ intestinum,	‘ cereolus,	‘ spirulæa,	‘ sipho,

S. contortu plicata,	S. filograna,	S. quadrangularis,	S. arenaria,
‘ plicaria,	‘ vermicella,	‘ minima,	‘ filograna,
‘ glomerata,	‘ filaria,	‘ echinata,	‘ rosea,
‘ decussata,	‘ pellucida,	‘ sulcata,	‘ fuscata.
‘ protensa,			

Vermilia. Tube testaceous, cylindrical, gradually lessening to the posterior end, more or less twisted, and fixed at the base to marine substances. Aperture round, the margin armed with from one to three teeth.

V. rostrata,	V. bicarinata,	V. subcrenata,	V. scabra,
‘ triquetra,	‘ eruca,	‘ plicifera,	‘ tæniata.

Galeolaria. Tubes testaceous, very numerous, cylindrical, rather angular, raised, wavy, crowded and matted together, fixed at the base, the upper end open. Aperture orbicular; the margin terminating in a projecting point. Operculum orbicular, galeiform, the upper part armed with from five to nine testaceous valves, which are fixed to its margin; the middle one linear, truncate, and larger than the others.

G. cæspitosa, G. elongata.

Magilus. The base of the shell turned into a short, oval, snail-like spire; the last four whorls contiguous, convex; the last larger than the others, and lengthening into an erect, wavy and elongated tube. Tube convex above, carinated beneath, plaited and rather depressed at the sides; the plaits lamellated, crowded, undulated, vertical, thicker on one side of the tube than on the other.

M. antiquus, M. vulgaris, M. anatinus.

Tenth Class.

CIRRPHIPEDA.

Shell sessile or elevated; on a flexible, tendinous pedicle; multivalve; sometimes moveable, sometimes fixed; the inside covered by the mantle of the animal.

The Cirrphipeda are divided into two orders:—Sessile Cirrphipeda and Pedunculated Cirrphipeda.

ORDER I. SESSILE CIRRPHIPEDA.—Six Genera.

The shells of this order are fixed on marine bodies.

Tubicinella. Shell univalve, operculated, tubular, erect, a little attenuated towards the base, bound with annular, transverse ribs, truncated at both ends, open at the summit, and closed at the base with a membrane. Operculum with four obtuse valves.

T. balænarium.

Coronula. Shell sessile, fixed, conical, summit truncated, closed at the base by an adhering, testaceous lamina. Aperture subtriangular, or elliptical. Operculum internal, quadrivalve, the valves moveable, inserted near the base of the inside of the shell.

C. diadema, C. balanaris, C. testudinaria, C. pulchra.

Balanus. Shell sessile, fixed, conical, summit truncated, closed at the base by an adhering, testaceous lamina. Aperture subtriangular, or elliptical. Operculum internal, quadrivalve, the valves moveable, inserted near the base of the inside of the shell.

B. angulosus,
‘ sulcatus,
‘ tintinnabulum,
‘ nigrescens,
‘ cylindraceous,
‘ calycularis,
‘ roseus,
‘ ovularis,
B. miser,
‘ amphimorphus,
‘ perforatus,
‘ lævis,
‘ spinosus,
‘ radiatus,
‘ palmatus,
B. stalactiferus,
‘ plicatus,
‘ duploconus,
‘ patellaris,
‘ semiplicatus,
‘ galeatus,
‘ subrimbricatus,
B. rugosus,
‘ plancianus,
‘ crispatus,
‘ punctatus,
‘ fistulosus,
‘ latus,
‘ lyonsii.

Acasta. Shell sessile, oval, subconical, composed of separable pieces; cone formed of six unequal, lateral valves, united together; the base a lamina or orbicular valve, concave on the inside, resembling a patella or little cup. Operculum quadrivalve.

A. montaguii, A. glans, A. sulcata, A. tubulosa.

Creusia. Shell sessile, fixed, orbicular, convex, conical, quadrivalve; valves unequal, united together, sutures distinct. Operculum internal, quadrivalve.

C. stromia, C. spinulosa, C. verruca.

Pyrgoma. Shell sessile, univalve, rather globular, ventricose, convex above, apex perforated; aperture small, elliptical. Operculum quadrivalve.

P. cancellata.

ORDER II. PEDUNCULATED CIRRPHIPEDA.

The body is supported by a moveable, tubular pedicle, having the base fixed on marine substances. This order consists of two divisions, viz. I. The shell composed of contiguous pieces. II. The shell composed of distant pieces.

DIVISION I. *Shell composed of contiguous pieces.*—Two Genera.

Anatifera. Shell compressed at the sides, composed of five valves, which are contiguous and unequal; the lower side valves the greatest.

A. lævis, A. dentata, A. vitrea, A. aculeata.
‘ villosa, ‘ striata,

Pollicipes. Shell compressed at the sides, multivalve, valves rather contiguous, unequal; in number, thirteen or more; the lower side valves the smallest.

P. cornucopia, P. scalpellum, P. peronii, P. homii.
‘ mitella,

DIVISION II. *Shell composed of distant pieces.*—Two Genera.

Cineras. Shell composed of five testaceous, oblong valves, separate, not covering the whole of the body; two at the sides of the aperture, the others on the back.

C. vittata.

Otion. Shell composed of two small, testaceous, semilunate, separate valves, adhering near the sides of the aperture.

O. Cuvieri, O. Blainvillii.

Eleventh Class.

CONCHIFERA.

Shell always bivalve, wholly or partly covering the animal; sometimes free, sometimes fixed; the valves mostly joined at the margin by a hinge or ligament. The shell is sometimes enlarged by testaceous, accessary pieces, not belonging to the shell.

This class is divided into two orders, viz.—Conchifera Bimusculosa and Conchifera Unimusculosa.

ORDER I. CONCHIFERA BIMUSCULOSA.

The shell presents, in the interior, two separate and lateral muscular impressions. This order is divided into four sections, viz.—C. Crassipeda, C. Tenuipeda, C. Lamellipeda, and C. Ambigua, or the Chamacea.

SECTION I. CONCHIFERA CRASSIPEDA. *Shell gaping at the sides when shut.*

This section contains four families,—Tubicolaria, Pholadaria, Solenacea, and Myaria.

TUBICOLARIA.—Six Genera.

Aspergillum. Sheath tubular, testaceous, gradually attenuating to the anterior end, which is open; the other extremity larger, and club-shaped;

having two valves incrusted on one side of the club. The disk at the end of the club convex and perforated with subtubular holes, having a fissure in the centre.

A. Javanum, A. vaginiferum, A. Novæ Zeylandiæ, A. agglutinans.

Clavagella. Sheath tubular, testaceous; the anterior end attenuated and open; the posterior club-shaped, ovate and rather compressed, with spinous tubes; one valve fixed in the side of the club, the other free in the tube.

C. aperta.

Fistulana. Sheath tubular, mostly testaceous; the posterior closed and turgid; the other end attenuated and open at the summit, inclosing a free bivalve shell, the valves of which are equal, and gape when closed.

F. clava, F. corniformis, F. gregata, F. lagenula.

Septaria. Tube testaceous and very long, gradually diminishing towards the anterior end; the interior divided by arched partitions, usually incomplete; the anterior extremity terminated by two other slender tubes, which are not divided internally.

S. arenaria.

Teredina. Sheath testaceous, tubular, cylindrical; the posterior extremity closed, showing the two valves of the shell; the anterior end open.

Teredo. Tube testaceous, cylindrical, flexuous, open at both ends, not belonging to the shell, and covering the animal. Shell bivalve, situated posteriorly on the outside of the tube.

T. navalis, T. palmulatus.

PHOLADARIA.—Two Genera.

Shell without a tubular sheath, having accessary pieces which do not belong to the valves, and gapes anteriorly. Ligament external.

Pholas. Shell bivalve, equivalve, transverse, gaping at both sides, having various accessary, testaceous pieces affixed above or below the hinge. The inferior or posterior margin of the valves reflected outwards.

P. dactylus,	P. silicula,	P. callosa,	P. ovum,
‘ orientalis,	‘ costata,	‘ clavata,	‘ tuberculata,
‘ candidus,	‘ crispata,	‘ papyracea,	‘ lancellata.
‘ dactyloides,			

Gastrochæna. Shell bivalve, equivalve, rather wedge-shaped, gaping very much; the anterior aperture large, oval, oblique; scarcely any aperture posteriorly. Hinge linear, marginal, without teeth.

G. cuneiformis, G. mytiloides, G. modiolina.

SOLENACEA.—Three Genera.

Shell without accessary pieces, and gaping only at the lateral extremities. Ligament external.

Solen. Shell bivalve, equivalve, transversely elongated, gaping at both sides; beaks very small, not projecting; cardinal teeth small, the number variable, sometimes nine; rarely diverging; more rarely inserted in pits. Ligament external.

S. vagina,	S. ambiguus,	S. javanicus,	S. strigilatus,
‘ corneus,	‘ cultellus,	‘ caribæus,	‘ radiatus,
‘ vaginoides,	‘ planus,	‘ antiquatus,	‘ violaceus,
‘ siliqua,	‘ minutus,	‘ constrictus,	‘ rostratus,
‘ ensis,	‘ legumen,	‘ coarctatus,	‘ orbiculatus.
‘ pygmæus,	‘ Dombeii,		

Panopæa. Shell equivalve, transverse, unequally gaping at the sides; one cardinal conical tooth in each valve, and near it a short, compressed, ascending callosity, not projecting outwards. Ligament exterior, on the longest side of the shell, fixed to the callosities.

P. Aldrovandi.

Glycymeris. Shell transverse, gaping much on each side; hinge callous, without teeth; nymphæ projecting outside. Ligament external.

G. margaritacea, G. siliqua.

MYARIA.—Two Genera.

Ligament internal; having one large spoon-shaped tooth in each valve, or in one only, to the cavity of which the ligament is attached. The shell gapes at one or both sides.

Mya. Shell bivalve, transverse, gaping at each end; having a large cardinal tooth in the left valve, broadly compressed, rather rounded, and pro-

jecting almost vertically; a cardinal pit in the other valve. Ligament internal, inserted in the prominent tooth and the corresponding pit.

M. truncata, M. arenaria, M. erodona, M. solenimyalis.

Anatina. Shell transverse, nearly equivalve, gaping at one or both sides; one naked, broad, spoon-shaped, cardinal tooth, projecting internally in each valve, receiving the ligament. In many species, a lamina falcated rib runs obliquely below the cardinal tooth.

A. laterna, A. longirostris, A. rugosa, A. myalis,
‘ truncata, ‘ globulosa, ‘ imperfecta, ‘ rupicola.
‘ subrostrata, ‘ trapezoides,

SECTION II. CONCHIFERA TENUIPEDA. *The lateral gaping, inconsiderable.*

The shells of this section compose four families, which are separated into two divisions, viz.—I. Mactracea and Corbulea, having the ligament internal, with or without any external ligament; and II. Lithophaga and Nymphacea, having the ligament always external.

DIVISION I. *Ligament internal, with or without any external ligament.*

MACTRACEA.—Seven Genera.

Shell equivalve, mostly gaping at the lateral extremities. Ligament internal, with or without any external ligament.

1. *Shells gaping at the sides.*

Lutraria. Shell inequilateral, transversely oblong or rounded, lateral extremities gaping; hinge with one tooth folded in two; or two teeth, one of which is simple, with an adjoining, deltoid, oblique pit, projecting inwards; no lateral teeth. Ligament internal, affixed in the pits.

L. solenoides, L. compressa, L. candida, L. crassiplica,
‘ elliptica, ‘ piperata, ‘ papyracea, ‘ complanata.
‘ rugosa, ‘ tellinoides, ‘ plicatella,

Mactra. Shell transverse, inequilateral, subtriangular, gaping very little at the sides; beaks prominent. One compressed, folded, cardinal tooth in each valve, with an adjoining pit, projecting inwards; two compressed, en-

tering lateral teeth, near the hinge. Ligament internal, inserted in the cardinal pits.

M. gigantea,
‘ Spengleri,
‘ striatella,
‘ carinata,
‘ helvacea,
‘ grandis,
‘ stultorum,
‘ maculosa,
‘ straminea,
M. australis,
‘ violacea,
‘ fasciata,
‘ turgida,
‘ plicataria,
‘ rufescens,
‘ maculata,
‘ subplicata,
‘ triangularis,
M. lactea,
‘ abbreviata,
‘ ovalina,
‘ alba,
‘ solida,
‘ castanea,
‘ rufa,
‘ squalida,
M. Brasiliana,
‘ donacina,
‘ depressa,
‘ lilacea,
‘ trigonella,
‘ deltoides,
‘ crassatella,
‘ alata.

2. Shells not gaping at the sides.

Crassatella. Shell inequilateral, suborbicular or transverse; the valves close; two rather diverging, cardinal teeth, and a pit by the side of them. Ligament internal, inserted in the pit of each valve; lateral teeth, none; or obsolete.

C. Kingicola,
‘ donacina,
‘ sulcata,
C. rostrata,
‘ glabrata,
‘ subradiata,
C. contraria,
‘ cuneata,
‘ erycinæa,
C. cycladea,
‘ striata.

Erycina. Shell transverse, rather inequilateral, equivalve, rarely gaping; two unequal, diverging, cardinal teeth, having a pit between them; and two oblong, compressed, short, entering, lateral teeth. Ligament internal, fixed in the pits.

E. cardioides.

DIVISION II. *Ligament showing itself on the outside, or being double; has one internal, the other external.*

Ungulina. Shell longitudinal or transverse, rounded on the upper part, subequilateral; valves not gaping, beaks eroded. A short and rather bifid cardinal tooth in each valve; with an oblong, marginal, adjoining pit, divided in two by a contraction. Ligament internal, inserted in the pits.

U. oblonga, U. transversa.

Solenimya. Shell equilateral, equivalve, transversely oblong, the extremities obtuse; the epidermis shining, and extending beyond the margin. Beaks not prominent, scarcely distinct. One cardinal tooth in each valve,

dilated, compressed and very oblique; rather concave above, to receive the ligament, which is partly internal, and partly external.

S. australis, S. Mediterranea.

Amphidesma. Shell transverse, inequilateral, subovate or rounded, sometimes gaping a little at the sides; hinge having one or two teeth, and a narrow pit for the internal ligament. Ligament double; one external, short; the other internal, fixed in the cardinal pits.

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

A. variegatum,		A. lamellosum,	(Sowerby, Sp. C. f. 9, 10.
‘ pulchrum,	(Sowerby, C. Ill. f. 2.	‘ reticulatum,	‘ 11, 12.
‘ pallidum,	‘ 3.	‘ crenulatum,	‘ 13.
‘ formosum,	‘ 8.	‘ duplicatum,	‘ 14, 15.
‘ roseum,	‘ 1.	‘ punctatum,	‘ C. Ill. f. 7.
‘ ellipticum,	‘ Z. P. f. 17.	‘ purpurascens,	‘ 5.
‘ australe,	‘ 4.	‘ multicostatum,	‘ Sp. C. f. 16.
‘ corrugatum,	‘ 18.	‘ lenticulare,	‘ C. Ill. f. 9.
‘ subtruncatum,	‘ 19, 20.	‘ læve,	‘ 6.
‘ solidum,	(Gray, Sp. Z. Part I. pl. vi. f. 6.	‘ prismaticum,	‘ Sp. C. f. 21.
‘ cordiforme,	(Chemnitz, xi. 1941, 1942.	‘ tenue,	‘ 22.
‘ rupium,	(Sowerby, C. Ill. f. 10.	‘ Boysii,	‘ 23.
‘ cancellatum,	(Sowerby, Sp. C. f. 8.	‘ Siculum,	‘ 24.

CORBULEA.—Two Genera.

Shell inequivalve, ligament interior.

Corbula. Shell regular, inequivalve, inequilateral, closed or very slightly gaping. One large conical, curved, ascending tooth in each valve, with a pit beside it; no lateral teeth. Ligament internal, inserted in the pits.

C. australis,	C. ovalina,	C. impressa,	C. semen,
‘ sulcata,	‘ Taitensis,	‘ porcina,	4 fossil species.
‘ erythrodon,	‘ nucleus,		

Pandora. Shell regular, inequivalve, inequilateral, transversely oblong, upper valve flat, and the lower convex. Two oblong, diverging, unequal, cardinal teeth in the upper valve; two oblong pits in the other. Ligament internal.

P. rostrata, P. obtusa.

LITHOPHAGA.—Three Genera.

Boring shells, without accessary pieces or sheath, and more or less gaping at their anterior side. Ligament of the valves external.

Saxicava. Shell bivalve, transverse, inequilateral; gaping anteriorly at the superior margin; hinge almost without teeth. Ligament external.

S. rugosa, S. pholadis, S. australis, S. veneriformis.
‘ gallicana,

Petricola. Shell bivalve, subtriangular, transverse, inequilateral; the posterior side rounded, the anterior attenuated; slightly gaping. Hinge having two teeth in each valve, or in one only.

P. lamellosa, P. striata, P. exilis, P. pholadiformis,
‘ ochroleuca, ‘ costellata, ‘ ruperella, ‘ fabagella,
‘ semilamellata, ‘ rocelaria, ‘ chamoides, ‘ linguatula.
‘ lucinalis,

Venerirupis. Shell transverse, inequilateral; the posterior side very short, the anterior gaping slightly. Hinge with two teeth in the right valve, and three in the left; sometimes three in each: the teeth are small, approximate, parallel, and but little or not at all diverging. Ligament external.

V. perforans, V. irus, V. distans, V. carditoides.
‘ nucleus, ‘ exotica, ‘ crenata,

NYMPHACEA.—Ten Genera.

Two cardinal teeth, or more, on the same valve; shell often gaping slightly at the sides. Ligament external; nymphæ in general, projecting outside.

This family is divided into N. Solenaria and N. Tellinaria.

NYMPHACEA SOLENARIA.

Sanguinolaria. Shell transverse, rather elliptical, gaping slightly at the lateral extremity; the superior margin arched, not parallel to the inferior. Hinge with two approximate teeth in each valve.

S. occidens, S. rosea, S. livida, S. rugosa.

Psammobia. Shell transverse, elliptical or oblong, oval, rather flat, gaping

slightly at each side; beaks rather prominent. Hinge with two teeth on the left valve, and one entering tooth in the opposite valve.

P. virgata,	P. cærulescens,	P. Cayennensis,	P. aurantia,
‘ Ferroensis,	‘ elongata,	‘ lævigata,	‘ fragilis,
‘ vespertina,	‘ flavicans,	‘ tellinella,	‘ livida,
‘ florida,	‘ squamosa,	‘ pulchella,	‘ galathea.
‘ maculosa,	‘ alba,		

Psammotea. Shell transverse, oval or oblong oval, gaping a little at the sides; one cardinal tooth in each valve, sometimes in one valve only.

P. violacea,	P. pellucida,	P. candida,	P. donacina,
‘ zonalis,	‘ serotina,	‘ Tarentina,	1 fossil species.

NYMPHACEA TELLINARIA

Is subdivided into—1, Shells having one or two lateral teeth; and 2, those which have no lateral teeth.

1. *Having one or two lateral teeth.*

Tellina. Shell transverse or orbicular, in general rather flat; the anterior side angular, with a flexuous and irregular fold on the margin; only one or two cardinal teeth in the same valve; two lateral teeth, often remote.

T. radiata,	T. chloroleuca,	T. scalaris,	T. polygona,
‘ unimaculata,	‘ elliptica,	‘ psammotella,	‘ capsoides,
‘ semizonalis,	‘ albinella,	‘ remies,	‘ decussata,
‘ maculosa,	‘ margaritina,	‘ sulcata,	‘ Brasiliana,
‘ virgata,	‘ strigosa,	‘ striatula,	‘ obliqua,
‘ staurella,	‘ planata,	‘ scobinata,	‘ umbonella,
‘ crucigera,	‘ punicea,	‘ crassa,	‘ deltoidalis,
‘ Splengeri,	‘ depressa,	‘ lævigata,	‘ nymphalis,
‘ rostrata,	‘ pulchella,	‘ linguafelis,	‘ solidula,
‘ latirostra,	‘ fabula,	‘ rugosa,	‘ bimaculata,
‘ sulphurea,	‘ tenuis,	‘ lacunosa,	‘ sexradiata,
‘ foliacea,	‘ exilis,	‘ gargadia,	‘ ostracea,
‘ operculata,	‘ donacina,	‘ pristis,	‘ convexa.
‘ rosea,	‘ nitida,	‘ multangula,	

Tellinides. Shell transverse, inequilateral, rather flat, slightly gaping at the sides; beaks small and rather depressed, without the irregular fold on the margin. Hinge with two diverging teeth in each valve, two lateral teeth, almost obsolete; the posterior of which, in one valve, is near the cardinal teeth.

T. Timorensis.

Corbis. Shell transverse, equivalve, without any irregular fold on the anterior margin, having the beaks opposite and curved inwards; two cardinal teeth, two lateral teeth, the posterior of which is nearest the hinge. The muscular impressions simple.

C. fimbriata, 2 fossil species.

Lucina. Shell suborbicular, inequilateral; beaks small, pointed, and oblique; two diverging, cardinal teeth, one of which is fixed, and which vary or disappear with age; two lateral teeth, sometimes obsolete, the posterior approaches nearest to the cardinal teeth; two muscular impressions, very separate, the posterior extending in the shape of a band, sometimes very long. Ligament external.

L. Jamaicensis,	L. concentrica,	L. squamosa,	L. sinuata,
‘ Pennsylvanica,	‘ divaricata,	‘ lactea,	‘ pecten,
‘ edentula,	‘ carnaria,	‘ undata,	‘ lutea,
‘ multibilis,	‘ scabra,	‘ circinaria,	‘ digitalis,
‘ radula,	‘ reticulata,	‘ columbella,	‘ globularis.

Donax. Shell transverse, equivalve, inequilateral, the anterior side very short and very obtuse; two cardinal teeth, either in both valves, or in the one only; one or two lateral teeth, more or less distant. Ligament external, short, inserted in the place of the lunula.

D. scortum,	D. granosa,	D. triquetra,	D. meroe,
‘ pubescens,	‘ columbella,	‘ ringens,	‘ scripta,
‘ compressa,	‘ veneriformis,	‘ rugosa,	‘ trunculus,
‘ cuneata,	‘ australis,	‘ Cayennensis,	‘ flabagella,
‘ deltoides,	‘ epidermia,	‘ elongata,	‘ cinatinum,
‘ radians,	‘ bicolor,	‘ denticulata,	‘ Martinicensis.
‘ abbreviata,	‘ vitrata,	‘ cardioides,	

2. *Having no lateral teeth.*

Capsa. Shell transverse, equivalve, close; hinge having two teeth in the right valve, and one entering, bifid tooth on the other; no lateral teeth. Ligament external.

C. lævigata, C. Braziliensis.

Crassina. Shell suborbicular, transverse, equivalve, rather inequilateral, close; hinge with two strong diverging teeth in the right valve, and two very unequal teeth in the other. Ligament external, on the longest side.

C. danmoniensis.

SECTION III. CONCHIFERA LAMELLIPEDA.

This section is divided into five families, viz. Conchæ, Cardiacea, Arcacea, Trigoniana, and Naiada.

CONCHÆ.—Seven Genera.

Three cardinal teeth at least in one valve, with as many, or less in the other; sometimes with lateral teeth.

The Conchæ are divided into Fluviatiles and Marinæ.

CONCHÆ FLUVIATILES.

Cyclas. Shell ovate-globose, transverse, equivalve, the beaks tumid; cardinal teeth very small, sometimes scarcely perceptible; occasionally two in each valve, one of them plaited in two; sometimes only one plaited or lobed tooth in one valve, and two in the other; lateral teeth transversely elongated, compressed, lamellar. Ligament external.

C. rivicola,	C. obliqua,	C. fontinalis,	C. striatina,
‘ cornea,	‘ calyculata,	‘ australis,	‘ Saratogea.
‘ lacustris,	‘ obtusalis,	‘ sulcata,	

Cyrena. Shell rounded, triangular, turgid or ventricose, inequilateral, solid, covered with an epidermis; the beaks eroded; hinge having three teeth in each valve. The lateral teeth are nearly always two in number; one of them often near the cardinal. Ligament external, inserted in the largest side.

C. trigonella,	C. fuscata,	C. depressa,	C. Caroliniensis,
‘ orientalis,	‘ fluminea,	‘ Bengalensis,	1 fossil species.
‘ cor,	‘ violacea,	‘ Zeylanica,	

Galathea. Shell equivalve, sub-triangular, covered with a greenish epidermis; cardinal teeth sulcated; two in the right valve, approaching at their base; three in the other, the middle one advanced, and separate; lateral teeth distant. Ligament external, short, protruding, turgid, nymphæ prominent.

G. radiata.

CONCHÆ MARINÆ.

Mostly no lateral teeth; the whole shell frequently covered with an epidermis except at the beaks.

Cyprina. Shell equivalve, inequilateral, obliquely cordate, the beaks obliquely curved; three unequal, cardinal teeth, approximating at their base,

and diverging a little above. A lateral tooth distant from the hinge, placed on the anterior side, sometimes obsolete. The callosities of the nymphæ large, arched, terminated near the beaks by a pit. Ligament external, sunk in part under the beaks.

C. tenuistria, C. Islandica, 6 fossil species.

Cytherea. Shell equivalve, inequilateral, suborbicular, triangular, or transverse; four cardinal teeth in the right valve, three of which diverge and approximate at their base, and one quite insulated, situated under the lunula; three diverging cardinal teeth in the other valve, and a pit rather distant parallel to the margin. No lateral teeth.

C. lusoria,
‘ petechialis,
‘ impudica,
‘ castanea,
‘ zonaria,
‘ meretrix,
‘ graphica,
‘ morphina,
‘ purpurata,
‘ casta,
‘ corbicula,
‘ tripla,
‘ gigantea,
‘ erycina,
‘ lilacina,
‘ impa,
‘ erycinella,
‘ pectoralis,
‘ planatella,
‘ florida,
‘ nitidula,

C. chione,
‘ maculata,
‘ citrina,
‘ albina,
‘ lata,
‘ mactroides,
‘ trigonella,
‘ sulcatina,
‘ hebræa,
‘ castrensis,
‘ ornata,
‘ picta,
‘ trigrina,
‘ Venetiana,
‘ juvenilis,
‘ rufa,
‘ Guiniensis,
‘ Dione,
‘ Arabica,
‘ trimaculata,

C. immaculata,
‘ pellucida,
‘ lupatica,
‘ lucinalis,
‘ lunaris,
‘ lactea,
‘ exoleta,
‘ lincta,
‘ concentrica,
‘ prostrata,
‘ interrupta,
‘ tigerina,
‘ punctata,
‘ umbonella,
‘ unitatina,
‘ scripta,
‘ numulina,
‘ muscaria,
‘ pulicaris,
‘ mixta,

C. abbreviata,
‘ pectinata,
‘ gibbia,
‘ ranella,
‘ divaricata,
‘ testudinalis,
‘ cuneata,
‘ placunella,
‘ rugifera,
‘ plicatina,
‘ flexuosa,
‘ macrodon,
‘ linularis,
‘ squamosa,
‘ cardilla,
‘ cygnus,
‘ dentaria,
‘ hians,
‘ subrugosa,
9 fossil species.

Venus. Shell equivalve, inequilateral, transverse or suborbicular; three approximate, cardinal teeth in each valve, the lateral ones diverging at the summit. Ligament external, covering the scutcheon.

V. puerpera,
‘ reticulata,
‘ pygmea,
‘ corbis,
‘ crenulata,
‘ discina,
‘ verrucosa,
‘ rugosa,
‘ casina,
‘ crebrisulca,
‘ plicata,
‘ cancellata,

V. subrostrata,
‘ granulata,
‘ pectorina,
‘ marica,
‘ cingulata,
‘ cardioides,
‘ grisea,
‘ elliptica,
‘ Dombeii,
‘ mercenaria,
‘ lagopus,
‘ gallina,

V. gallinula,
‘ pectinula,
‘ sulcata,
‘ exalbida,
‘ rufa,
‘ dorsata,
‘ hiantina,
‘ crassisulca,
‘ corrugata,
‘ Malabarica,
‘ papilionacea,
‘ adspersa,

V. punctifera,
‘ turgida,
‘ literata,
‘ sulcaria,
‘ textile,
‘ texturata,
‘ geographica,
‘ rariflamma,
‘ decussata,
‘ pullastra,
‘ glandina,
‘ truncata,

V. retifera,	V. opima,	V. rimularis,	V. pumila,
‘ anomala,	‘ nebulosa,	‘ vulvina,	‘ ovata,
‘ galactites,	‘ phaseolina,	‘ vermiculosa,	‘ inquinata,
‘ exilis,	‘ carneola,	‘ flammiculata,	‘ lamellata,
‘ scalarina,	‘ florida,	‘ conularis,	‘ Berii,
‘ Scotica,	‘ petalina,	‘ strigosa,	‘ elegans,
‘ aurea,	‘ bicolor,	‘ aphrodina,	‘ Skutchburii,
‘ virginea,	‘ floridella,	‘ Peronii,	‘ papyracea,
‘ marmorata,	‘ catenifera,	‘ aphrodinoides,	‘ aurisiaca,
‘ ovulea,	‘ pulchella,	‘ elegantina,	‘ costulata,
‘ laterisulca,	‘ sinuosa,	‘ flammea,	6 fossil species.
‘ callipyga,	‘ tristis,	‘ undulosa,	

Venericardia. Shell equivalve, inequilateral, suborbicular, mostly with longitudinal, radiating ribs. Two oblique cardinal teeth, standing the same way.

V. australis,	V. Tankervillii,	V. crassicosta,	10 fossil species.
‘ flammea, (N. S.)			

CARDIACEA.—Five Genera.

Cardinal teeth irregular, either in their form or in their situation; and in general accompanied by one or two lateral teeth.

Cardium. Shell equivalve, rather heart-shaped; the beaks prominent; the internal margins of the valves dentated or plaited; hinge with four teeth in each valve; the two cardinal approximate and oblique, articulating cross-wise with the two in the other valve; and two rather distant, entering, lateral teeth.

C. costatum,	C. aculeatum,	C. lævigatum,	C. scobinatum,
‘ Indicum,	‘ erinaceum,	‘ biradiatum,	‘ unedo,
‘ ringens,	‘ tuberculatum,	‘ æolicum,	‘ medium,
‘ Asiaticum,	‘ isocardia,	‘ pectinatum,	‘ fragum,
‘ tenuicostatum,	‘ muricatum,	‘ rusticum,	‘ retusum,
‘ fimbriatum,	‘ angulatum,	‘ edule,	‘ tumoriferum,
‘ Brasilianum,	‘ marmoreum,	‘ Grœnlandicum,	‘ hemicardium,
‘ apertum,	‘ elongatum,	‘ latum,	‘ cardissa,
‘ papyraceum,	‘ ventricosum,	‘ crenulatum,	‘ inversum,
‘ bullatum,	‘ rugosum,	‘ exiguum,	‘ Junoniæ,
‘ ciliare,	‘ sulcatum,	‘ minutum,	‘ lineatum,
‘ echinatum,	‘ serratum,	‘ roseum,	14 fossil species.
‘ pseudolinia,			

Cardita. Shell free, regular, equivalve, inequilateral; hinge with two

unequal teeth, one short, straight, situated under the beaks; the other oblique, marginal, and extending under the corselets.

C. sulcata,
‘ ajar,
‘ turgida,
‘ squamosa,
‘ intermedia,
‘ trapezia,
C. bicolor,
‘ depressa,
‘ phrenetica,
‘ crassicosta,
‘ rufescens,
‘ calyculata,
C. subaspera,
‘ nodulosa,
‘ concamerata,
‘ sinuata,
‘ aviculina,
C. citrina,
‘ sublævigata,
‘ corbularis,
‘ lithophagella,
4 fossil species.

Cypricardia. Shell free, equivalve, inequilateral, obliquely or transversely elongated. Three cardinal teeth under the beaks, and one lateral tooth extending under the corselet.

C. Guinaica,
‘ angulata,
C. rostrata,
C. coralliophaga,
3 fossil species.

Hiatella. Shell equivalve, very inequilateral, transverse, gaping at the superior margin, hinge with a small tooth in the right valve, and two oblique teeth, larger in the left valve. Ligament external.

H. arctica.

Isocardia. Shell equivalve, heart-shaped, ventricose, the beaks distant, diverging, spirally turned on one side, two flat, entering, cardinal teeth, one of them curved, and sunk under the beak; one elongated, lateral tooth, situated under the corselet. Ligament external, forked on one side.

I. cor,
I. Moltkiana,
I. semisulcata,
1 fossil species.

ARCACEA.—Four Genera.

Cardinal teeth small, numerous, entering, and disposed in each valve, in a straight, arched or broken line.

Cucullæa. Shell equivalve, inequilateral trapeziform, ventricose; the beaks distant, separated by the facet of the ligament; the anterior muscular impression forming a projecting angular, or auricular margin; hinge linear, straight, with small transverse teeth, and having, at the extremities, from two to five ribs parallel to it. Ligament wholly external.

C. auriculifera,
1 fossil species.

Arca. Shell transverse, sub-equivalve, inequilateral; the beaks distant, separated by the facet of the linament; hinge in a straight line, without limbs

at the extremities, and furnished with numerous serial and entering teeth. Ligament wholly external.

A. tortuosa,	A. sulcata,	A. cancellaria,	A. inequivalvis,
‘ semitorta,	‘ ovata,	‘ callifera,	‘ Indica,
‘ Noæ,	‘ barbata,	‘ irudina,	‘ senilis,
‘ tetragona,	‘ fusca,	‘ Helbingii,	‘ Brasiliana,
‘ umbonata,	‘ Magellanica,	‘ scapha,	‘ corbicula,
‘ sinuata,	‘ Domingensis,	‘ antiquata,	‘ squamosa,
‘ avellana,	‘ lactea,	‘ rhombea,	‘ Cayennensis,
‘ cardissa,	‘ trapezina,	‘ granosa,	‘ bisulcata,
‘ ventricosa,	‘ pistachia,	‘ auriculata,	9 fossil species.
‘ retusa,	‘ pisolina,		

Pectunculus. Shell orbicular, almost lenticular, equivalve, subequilateral, close; hinge arched, furnished with numerous serial, oblique, entering teeth; those in the middle obsolete, nearly obliterated. Ligament external.

P. glycimeris,	P. pennaceus,	P. violacescens,	P. pectinatus,
‘ pilosus,	‘ rubens,	‘ zonalis,	‘ pectiniformis,
‘ undulatus,	‘ angulatus,	‘ striatularis,	‘ radians,
‘ marmoratus,	‘ stellatus,	‘ nummarius,	‘ vitreus,
‘ scriptus,	‘ pallens,	‘ castaneus,	9 fossil species.

Nucula. Shell transverse, ovate, triangular, or oblong, equivalve, inequilateral; no facet between the beaks; hinge linear, broken, many toothed, interrupted in the middle by an obliquely extending spoon-shaped pit; the teeth numerous, often produced, as in the pectens; the beaks contiguous, curved backwards. Ligament marginal, and partly internal, inserted in the pit or spoon of the hinge.

N. lanceolata,	N. Nicobarica,	N. margaritacea,	N. glacialis,
‘ rostrata,	‘ obliqua,	‘ tellinoides,	4 fossil species.
‘ pella,			

N. lanceolata, (Sowerby, f. 1.
‘ elongata, ‘ 2.
‘ tellinoides, ‘
‘ crenifera, ‘ 3.
‘ arctica, ‘ 4.
‘ Nicobarica, ‘ 4.
‘ curvirostra, ‘ 5.
‘ Pella, ‘ 9.
‘ glacialis, (Wood, Supp. pl. ii. f. 6.
‘ fluviatilis, (Sowerby, Gen.
‘ minuta, (Montague.
‘ para, (Sowerby, C. Ill. f. 7.
‘ costellata, ‘ 8.
‘ gibbosa, ‘ 9.
‘ eburnea, ‘ 10.
‘ polita, ‘ 11.
‘ nasuta, ‘ 12.

N. Fabula, (Sowerby, C. Ill. f. 13.
‘ Elenensis, ‘ 14.
‘ cuneata, ‘ 15.
‘ striata, ‘ 16.
‘ Mauritiania, ‘ 17.
‘ limatula, (Say, Am. C. t. 12.
‘ lævis, ‘ 12.
‘ concentrica, ‘ 12.
‘ margaritacea, (Sowerby, Gen.
‘ decussata, ‘ C. Ill. f. 18.
‘ rugulosa, ‘ 19.
‘ nitida, ‘ 20.
‘ obliqua, ‘ 21.
‘ tenuis, (Montague,
‘ convexa, (Sowerby, C. Ill. f. 22.
‘ Pisum, ‘ 23.
‘ exigua, ‘ 24.

TRIGONIANA.—Two Genera.

TRIGONIA. Shell equivalve, triangular, sometimes suborbicular; cardinal teeth oblong, laterally compressed, diverging transversely, furrowed; two in the right valve, furrowed on each side, and four in the other, furrowed only on one side. Ligament external, marginal.

T. pectinata, 15 fossil species.

CASTALIA. Shell equivalve, inequilateral, triangular; the beaks eroded, recurved posteriorly; hinge with two lamellar teeth, transversely striated; the posterior one distant, shortened, subtrilamellar; the other anterior, elongated, lateral. Ligament external.

C. ambigua.

NAIADA.—Four Genera.

Fresh water shells, the hinge of which is sometimes furnished with an irregular, simple or divided cardinal teeth, and a longitudinal one, which extends under the corselet, and sometimes no tooth, or is furnished with irregular, granular tubercles, through its whole length. Muscular impression posterior, compound; the beaks decorticated, often eroded.

UNIO. Shell transverse, equivalve, inequilateral, free; beaks decorticate, almost eroded; muscular impression posterior, compound; hinge with two teeth in each valve; one cardinal, short, irregular, simple, or divided in two, substriated; the other elongated, compressed, lateral, prolonged under the corselet. Ligament external.

U. radiatus, (Gmelin.) — radiata. Virginiata, Lam. / radiatus, Barnes. / Say's Am. C. p. ii. f. 8.

U. undulatus, Say's Am. C. p. xvi.

U. complanatus, (Solander,) hab. rivers and lakes E. of Alleghany mountains. — purpureus, Say, Am. C. pl. iii. f. 1. / rarisulcata, Lamarck. / coarctata, ' / purpurascens, ' / rhombula, ' / georgina, ' / sulcidens, ' / Caroliniana, Bosc. / fluviatilis, Green. / carinifera, Lamarck.

U. ovatus, (Say.) — ovata, Lamarck, 3 by 4 inches. / Say's Am. C. pl. ii. f. 7. 1st ed. / Hildreth in Sil. J. v. 14. f. 21.

U. cariosus, (Say.) Silliman's J. v. 6. pl. xi. f. 10. a. b. — luteola, Lamarck. / cariosa, ' / crassus, Say. (old.) / carinatus, Barnes. (rayed.) / ellipticus, ' (young.)

U. nasutus, Say's A. C. pl. iv. f. 1. 1st ed. — rostrata, Valen.

U. cylindricus, (Say.) Hild. in S. J. vol. 14, f. 13, a. b. } naviformis, Lamarck.

U. subtentus, (Say.) See Trans. Am. Phil. Soc. vol. 3, pl. xv.

U. plicata, (Le Sueur.) { crassidens of Lam. Barnes in Sil. J. of Sc. vol. 6, pl. ii. f. a. b.

U. rectus, (Lamarck.) { prœlongus, Barnes and Hildreth in S. J. f. 1.
nasuta,
purpurata,
recta.

U. torsus, (Rafinesque.)

U. mytiloides, (Rafinesque.) { undatus, (Barnes.) Sil. J. vol. 6, pl. iv. f. 4. a. b. Hildreth, white var.

U. metanever, (Rafinesque.) { nodosus, Bar. S. J. vol. 6, pl. vi. f. 7. a. b.
rugosus, Bar. S. J. vol. 6, pl. viii. f. 9. a. b.

U. scalenius, (Rafinesque.)
‘ cornutus, (Barnes.) Sil. J. vol. 6, pl. iv. f. 5. a. b. c.
‘ verrucosus, (Bar.) S. J. v. 6, pl. v. f. 6, a. b.
‘ tuberculatus, (Bar.) S. J. vol. 6, pl. vii. f. 8. a. b.
‘ gibbosus, (Barnes.) Sil. J. vol. 6, pl. xi. f. 12. a. b.
‘ cuneatus, (Barnes.) Sil. J. vol. 6, p. 263.
‘ ventricosus, (Barnes.) S. J. vol. 6, p. 267. Say, in Am. Conc. pl. xxxii. Occidens of Lea, see T. A. P. S. vol. 3, pl. x. f. 16.
‘ siliquoideus, (Barnes.) Sil. J. vol. 6, pl. xiii. f. 15. a. b. c. d. Desc. p. 269.
‘ triangularis, (Barnes.) Say's Am. C. pl. iv.
‘ parvus, (Barnes.) S. J. vol. 6, pl. xiii. f. 18.
‘ Æsopus, (Green.)
‘ calceolatus, (Lea.) Trans. Am. Phil. Soc. vol. 3, pl. iii. f. 1.
‘ lanceolatus, (Lea.) do. do. pl. iii. f. 2.
‘ donaciformis, ‘ do. do. pl. iv. f. 3.
‘ ellipsis, ‘ do. do. pl. iv. f. 4. Say, Am. Conc. pl. xiv.
‘ irroratus, (Lea.) Trans. Am. Phil. Soc. vol. 3, pl. v. f. 5.
‘ lacrymosus, (Lea.) do. do. pl. vi. f. 8.
‘ lugubris, Say's Am. C. pl. xliii.
‘ ater, (Lea.) T. A. P. S. v. 3, pl. vii, f. 9.
‘ rubiginosus, do. do. pl. viii. f. 10.
‘ heterodon, do. do. 11.

U. sulcatus, (Lea.) Trans. Am. Phil. Soc. vol. 3. pl. viii. f. 12. Say's Am. Conc. pl. v.
‘ phaseolus, Say's A. C. pl. xxii. U. planulatus, of Lea, pl. ix.
‘ circulus, (Lea.) T. A. P. S. vol. 3, pl. ix. f. 14.
‘ multiradiatus, do. do. pl. ix. f. 15.
‘ securis, do. do. pl. xi. f. 17.
‘ iris, do. do. pl. xi. f. 18.
‘ zig-zag, do. do. pl. xi. f. 19.
‘ patulus, do. do. pl. xii. f. 20.
‘ monodonta, Say's Am. C. pl. vi.
‘ ridibundus, do. do. pl. v. f. 1.
‘ abruptus, do. do. pl. xvii. f. 1.
‘ tetralasmus, do. do. pl. xxiii.
‘ foliatus, (Hildreth.) in S. J. vol. 14, f. 16.
‘ detriscens, Say's Am. Conc. pl. xxiv.
‘ interruptus, do. do. pl. xxxiii.
‘ globulus, do. do. pl. xxxiv.
‘ declivis, do. do. pl. xxxv.
‘ lapillus, do. do. pl. xli.
‘ camptodon, do. do. pl. xlii.
‘ acicularis,
‘ pustulatus, (Lea.) Trans. Am. Phil. Soc. vol. 3, pl. vii. f. 9.
‘ anodontoides, do. do. pl. viii. f. 11.
‘ littoralis, (Lamarck.) hab. France.
‘ pictorum, ‘ ‘ Europe.
‘ brevialis, ‘ ‘ Is. of France.
‘ corrugata, ‘ ‘ Coromandel.
‘ granosa, ‘ ‘ Guyana.
‘ depressa, ‘ ‘ New Holland.
‘ marginalis, ‘ ‘ Bengal.
‘ gracilis, (Hildreth.) in Sil. Jour. vol. 14, page 288, f. 23.
‘ trapezoides, (Lea.) Trans. Am. P. Soc vol. 4, pl. iii. f. 1.
‘ multiplicatus, do. do. pl. iv. f. 2.
‘ asperrimus, do. do. pl. vi. f. 3.
‘ congareus, do. do. pl. vi. f. 4.
‘ oriens, do. do. pl. vi. f. 5.
‘ brevidens, do. do. pl. vi. f. 6.
‘ pustulosus, do. do. pl. vii. f. 7.
‘ stapes, do. do. pl. vii. f. 8.
‘ lens, do. do. pl. viii. f. 10.
‘ subrotundus, do. do. pl. xvii. f. 45.
‘ subovatus, do. do. pl. xviii. f. 46.
‘ pileus, do. do. pl. xviii. f. 47.
‘ varicosus, do. do. pl. xi. f. 20.
‘ castaneus, do. do. pl. xi. f. 21.
‘ multistriatus, do. do. pl. xii. f. 22.
‘ decisus, do. do. pl. xii. f. 23.
‘ cuprinus, do. do. pl. xii. f. 24.
‘ cœruleus, do. do. pl. xiii. f. 25.

U. obesus, (Lea.) Trans. Am. Phil. Soc. vol. 4, pl. xiii. f. 26.
' incurvus, do. do. pl. xiii. f. 27.
' anodontoides, do. do. pl. viii. f. 11.
' glans, do. do. pl. viii. f. 12.
' elegans, do. do. pl. ix. 13.
' ebenus, do. do. pl. ix. 14.
' asper, do. do. pl. ix. 15.
' fabalis, do. do. pl. x. 16.
' soleniformis, do. do. pl. x. 17.
' acutissimus, do. do. pl. x. 18.
' olivarius, do. do. pl. xvi. 38.

U. pyramidatus, (Lea.) Trans. Am. P. Soc. vol. 4, pl. xvi. f. 39. [White var. Undatus of Barnes.]
' trigonus, (L.) T. A. P. S. v. 4, p. xvi. f. 40.
' formosus, do. do. pl. xvi. 41.
' perplexus, do. do. pl. xvii. 42.
' foliatus, (Hildreth.) Sil. J. vol. 14.
' angustatus, (L.) T. A. P. S. v. 4, p. xvii. f. 43.
' arcaformis, do. do. pl. xvii. f. 44.
' ochraceus, (Say.) Nich. Ency. pl. ii. f. 8.
' crassa, Say's Am. Conc. pl. i. f. 8. and Wood's Gen. Conc. pl. xx. xxi.

Hyria. Shell equivalve, obliquely triangular, eared; the base truncated and straight; hinge with two low teeth; the posterior or cardinal one divided into numerous diverging parts, of which the interior are the smallest, the other anterior or lateral, very long and lamellar. Ligament external, linear.

H. avicularis, H. corrugata.

Anodonta. Shell equivalve, inequilateral, transverse; hinge linear, without teeth: a smooth, cardinal lamina, truncated, or forming a sinus at its anterior extremity, terminates the base of the shell. Two distant, lateral subgeminal, muscular impressions. Ligament linear, external; its anterior extremity inserted in the sinus of the cardinal lamina.

A. maximus, (a new species, from Lake Superior,)—nondescript.
' undulata, (Say.) Rugosus of Swainson, an old shell.
' suborbiculata, (Say.) Am. Conc. pl. xi.
' areolatus, (Swainson.) Illus. of Zoology.
' cygnæus, (Lamarck.) Brewster's Cyclop. vol. 8, pl. ccv. f. 16.
' anatina, (Lamarck.) Turton's Biv. Shells, and Pennant's Zoology, pl. lxviii. f. 79.
' sulcata, Ency. Meth. pl. ccii. f. 1. a. b. A. marginata of Say, Am. C. pl. iii. f. 5.

A. cataracta, (Say.) Am. C. pl. iii. f. 4.
' rubens, Ency. Meth. pl. cci. f. 1. a. b. hab. Senegal.
' crispata, do. pl. cciii. f. 3. a. b. do.
' uniopsis, (South Seas.)
' intermedia, Encyc. Meth. pl. cci. f. 2. hab. France.
' trapezialis, (this may be the undulatus of Hildreth.)
' glauca, (hab. Acapulco.)
' sinuosa, Ency. Meth. pl. cciii. f. 2. a. b.
' Patagonica, do. pl. cciii. f. 1. a. b.

Iridina. Shell equivalve, inequilateral, transverse; the beaks small, reflected, almost straight; muscular impressions similar to the genus Anodon; hinge long, linear, attenuated about the middle, tuberculated throughout the whole length, almost crenated; the tubercles unequal, frequent. Ligament external, marginal.

I. Nilotica, (Sowerby.) Zool. Jour. I. exotica, Ency. 204.

ALASMODONTA. Lateral teeth none; cardinal teeth simple, or slightly divided.

A. margaritifera, (Unio sinuata of Lam'k.) Wood's Gen. Conc. pl. xxii. f. 1. 23.
' arcuata, (Barnes.) Sil. Jour. vol. 6, pl. xii. f. 20.—old and young.
A. rugosa, (Barnes.) S. J. vol. 6, pl. xiii. f. 21.
' marginata, (Say.)
' undulata, see Say's desc. and fig. in A. C.
' confragrosus, (Say.) Am. Conc. pl. xxi.

SYMPHYNOTA. Shell fluviatile, bivalve; valves connate at the dorsal margin.

S. lævissima, (Lea.) T. A. P. S. pl. xiii. f. 23.
' bialata, do. pl. xix. f. 24.
' alata, (Lam'k.) Barnes, in S. J. vol. 6.
' complanata, do. do. page 278.—rare.
' compressa, (Lea.) T. A. P. S. pl. xii. f. 22.
S. gracilis, (Barnes.) Sil. Jour. vol. 6.
' tenuissima, (Lea.) T. A. P. S. pl. xi. f. 21.
' bilineata, (Lea.) Trans. Am. Phil. Soc. vol. 4, pl. xi. f. 19.
' inflata, do. do. pl. xiv. f. 28.

CHAMACEA.—Three Genera.

Shell inequivalve, irregular, fixed; hinge with one thick tooth, or without teeth; two separate lateral muscular impressions.

DICERAS. Shell inequivalve, adhering; the beaks conical, very large, diverging, irregularly spiral; one large, thick, concave, subauricular, prominent tooth in the greater valve; two muscular impressions.

1 fossil species.

CHAMA. Shell irregular, inequivalve, fixed; the beaks curved and unequal; hinge with one thick, oblique, subcrenate tooth, fitting in a pit in the opposite valve; two distant, lateral, muscular impressions. Ligament external, sunk.

C. lazarus,
' damæcornis,
' gryphoides,
' crenulata,
' unicornis,
C. florida,
' limbula,
' æruginosa,
' asperella,
' decussata,
C. arcinella,
' radians,
' cristella,
' albida,
C. ruderalis,
' croceata,
' Japonica,
8 fossil species.

ETHERIA. Shell irregular, inequivalve, fixed; the beaks short, almost sunk in the base of the valves; hinge without teeth, rather sinuous, unequal; two distant, lateral, oblong, muscular impressions. Ligament external, tortuous, partly penetrating the shell.

E. elliptica,
' trigonula,
E. semilunata,
E. transversa,
E. Carteronii.

ORDER II. CONCHIFERA UNIMUSCULOSA.

Shell presenting internally, one muscular impression, nearly in the centre. This order is divided into three sections.

SECTION I. *Ligament marginal, elongated on the margin, sublinear.*

This section contains three families,—Tridacnea, Mytilacea, and Mallacea.

TRIDACNEA.—Two Genera.

Shell transverse, equivalve, the muscular impression under the middle of the superior margin, and is prolonged to each side under it.

TRIDACNA. Shell regular, equivalve, inequilateral, transverse, gaping at the lunula; hinge with two compressed, unequal, anterior, entering teeth. Ligament marginal, external.

T. gigas,	T. squamosa,	T. mutica,	1 fossil species.
‘ elongata,	‘ crocea,	‘ serrifera,	

HIPPOPUS. Shell equivalve, inequilateral, transverse; the lunula close; hinge with two compressed, unequal, anterior, and entering teeth. Ligament marginal, external.

H. maculatus.

MYTILACEA.—Two Genera.

The ligament at the hinge subinternal, marginal, linear, very entire, occupying a great part of the anterior margin; rarely foliated.

MODIOLA. Shell subtransverse, equivalve, regular, the posterior side very short; beaks nearly lateral, depressed on the short side; hinge without teeth, lateral, linear. Ligament marginal, subinternal; one elongated, club-shaped, sublateral, muscular impression.

M. papuana,	M. picta,	M. discrepans,	M. semen,
‘ tulipa,	‘ sulcata,	‘ discors,	‘ lithophaga,
‘ albicosta,	‘ plicatula,	‘ trapezina,	‘ caudigera,
‘ Guyanensis,	‘ semifusca,	‘ cinnamonea,	‘ vagina,
‘ Adriatica,	‘ securis,	‘ silicula,	‘ lævigata,
‘ pulex,	‘ purpurata,	‘ plicata,	5 fossil species.
‘ vagina,	‘ barbata,		

Pinna. Shell longitudinal, wedge-shaped, equivalve, gaping at the summit, pointed at the base, the beaks straight; hinge lateral, without teeth. Ligament marginal, linear, very long, almost internal.

P. rudis,	P. nobilis,	P. pectinata,	P. ingens,
‘ flabellum,	‘ squamosa,	‘ saccata,	‘ vexillum,
‘ seminuda,	‘ marginata,	‘ varicosa,	‘ nigrina,
‘ angustina,	‘ muricata,	‘ dolabrata,	1 fossil species.

MALLACEA.—Five Genera.

Ligament marginal, sublinear, either interrupted by indentations or serial teeth, or wholly simple. Shell subinequivalve, foliated.

Crenatula. Shell subequivalve, flat, lamellated, irregular; no particular opening for the byssus; hinge lateral, linear, marginal, indented; indentations serial, callous, hollowed into pits, which receive the ligament.

C. avicularis,	C. nigrina,	C. viridis,	C. phasianoptera.
‘ modiolaris,	‘ bicostalis,	‘ mytiloides,	

Perna. Shell subequivalve, flattened, rather deformed, texture lamellar; hinge linear, marginal, composed of furrow-like, transverse, parallel, nonentering teeth, between which the ligament is inserted. A posterior sinus, slightly gaping, situated at the extremity of the hinge, for the passage of the byssus; sides callous.

P. ephippium,	P. avicularis,	P. marsupiom,	P. nucleus,
‘ obliqua,	‘ femoralis,	‘ sulcata,	2 fossil species.
‘ isognomon,	‘ canina,	‘ vulsella,	

Malleus. Shell subequivalve, rude, deformed, mostly elongated, sublobate at the base; beaks small, diverging; hinge without teeth; an elongated conical pit, situated under the beaks, traversing obliquely the facet of the ligament. Ligament partly external, short, inserted in the sloping facet of each valve.

M. albus,	M. normalis,	M. anatinus,	M. decurtatus.
‘ vulgaris,	‘ vulsellatus,		

Avicula. Shell inequivalve, fragile, rather smooth; base transverse, straight; the extremities produced, the anterior caudiform or tail-like; a sinus in the left valve; hinge linear, unidentate; a cardinal tooth in each valve,

under the beaks. Facet of the ligament marginal, narrow, channelled, not traversed by the byssus.

A. macroptera,	A. falcata,	A. squamulosa,	A. physoides,
‘ rotorium,	‘ crocea,	‘ papilionacea,	‘ virens,
‘ semisagitta,	‘ Tarentina,	‘ costellata,	2 fossil species.
‘ heteroptera,	‘ Atlantica,		

Meleagrina. Shell subequivalve, rotundate, nearly square, externally squamose; the inferior cardinal margin straight, not caudate anteriorly; a sinus at the posterior base of the valves, for the passage of the byssus; the left valve being at this place narrow and channelled; hinge linear, without teeth. Facet of the ligament marginal, elongated, nearly external, dilated in the middle.

M. margaritifera, M. albina.

SECTION II. *Ligament not marginal, contracted into a short space under the beaks; always visible, and not forming a tendinous cord under the shell.*

This section is divided into two families, viz. Pectinida and Ostracea.

PECTINIDA.—Seven Genera.

Ligament internal, or demi-internal. Shell in general regular, compact, not foliated.

Pedum. Shell inequivalve, subauriculated, lower valve gaping; beaks unequal, distant; hinge without teeth. Ligament partly external, inserted in an elongated and channelled pit, formed in the lower side of the beaks. Lower valve notched near the posterior base.

P. spondyloideum.

Lima. Shell longitudinal, subequivalve, auriculated, gaping slightly on one side between the valves; beaks distant; their internal facet inclined outwards; hinge without teeth. The cardinal pit partly external, receiving the ligament.

L. inflata,	L. glacialis,	L. fragilis,	5 fossil species.
‘ squamosa,	‘ annulata,	‘ linguatula,	

Plagiostoma. Shell subequivalve, free, subauriculated, the cardinal base transverse, straight; beaks rather distant, their inner sides expanding into

transverse, flattened, external facets, one straight, the other obliquely inclined; hinge without teeth; a conical cardinal pit, situated below the beaks, partly internal, opening outwards, and receiving the ligament.

10 fossil species.

Pecten. Shell free, regular, inequivalve, auriculated; the lower margin transverse, straight; beaks contiguous; hinge without teeth, a cardinal, triangular pit, wholly internal, receiving the ligament.

P. maximus,	P. aspersus,	P. histrionicus,	P. varius,
‘ medius,	‘ flavidulus,	‘ sauciatus,	‘ sanguineus,
‘ Jacobæus,	‘ plica,	‘ opercularis,	‘ sinuosus,
‘ bifrons,	‘ glaber,	‘ lineatus,	‘ ornatus,
‘ ziczac,	‘ sulcatus,	‘ flabellatus,	‘ pellucidus,
‘ Laurentii,	‘ virgo,	‘ irradians,	‘ Tranquebaricus,
‘ pleuronectes,	‘ unicolor,	‘ flexuosus,	‘ gibbus,
‘ obliteratus,	‘ griseus,	‘ inflexus,	‘ miniaceus,
‘ Japonicus,	‘ distans,	‘ dispar,	‘ pusio,
‘ Magellanicus,	‘ isabella,	‘ quadriradiatus,	‘ hybridus,
‘ purpuratus,	‘ nodosus,	‘ Islandicus,	‘ sulphureus,
‘ lineolaris,	‘ pallium,	‘ asperrimus,	‘ lividus,
‘ radula,	‘ pes felis,	‘ senatorius,	‘ hexactes,
‘ rastellum,	‘ tigris,	‘ aurantius,	‘ muscosus,
‘ turgidus,	‘ imbricatus,	‘ florens,	27 fossil species.
‘ flagellatus,			

Plicatula. Shell inequivalve, not auriculated, attenuated towards the base, the superior margin rounded, subplicate; the beaks unequal, and without an external facet; hinge having two strong cardinal teeth in each valve; a pit between them, receiving the ligament, which is wholly external.

P. ramosa,	P. cristata,	P. australis,	6 fossil species.
‘ depressa,	‘ reniformis,		

Spondylus. Shell inequivalve, adhering, auriculated, echinated or rough, the beaks unequal, the lower valve having an external, flattened, cardinal facet, divided by a channel which lengthens with age; hinge having two strong teeth in each valve, and an intermediate pit for the ligament, communicating by the base with the external channel. Ligament internal; the remains of former ligaments are seen outside in the channel.

S. gædaropus,	S. variegatus,	S. spathuliferus,	S. aurantius,
‘ Americanus,	‘ longispina,	‘ ducalis,	‘ radians,
‘ arachnoides,	‘ regius,	‘ longitudinalis,	‘ zonalis,
‘ candidus,	‘ avicularis,	‘ microlepas,	‘ violacescens,
‘ multilamellatus,	‘ coccineus,	‘ croceus,	4 fossil species.
‘ costatus,	‘ crassisquama,		

Podopsis. Shell inequivalve, subregular, adhering by the inferior beak, not auriculated, the lower valve largest, most convex, and the beaks most produced; hinge without teeth. Ligament internal.

2 fossil species.

OSTRACEA.—Five Genera.

This family is separated into two divisions.

DIVISION I. *Ligament internal, or demi-internal. Shell irregular, foliated, sometimes very thin.*

DIVISION II. *Ligament demi-internal. Shell foliated, and often very thick.*

Gryphea. Shell free, inequivalve, the lower valve large, concave, terminating by a projecting, involute beak, the upper valve small, flat, and opercular; hinge without teeth; an oblong, arched, cardinal pit; only one muscular impression in each valve.

G. angulata, 11 fossil species.

Ostrea. Shell adhering, inequivalve, irregular; beaks distant, becoming very unequal by age, and the upper valve gradually during the life of the animal; hinge without teeth. Ligament demi-internal, inserted in the cardinal pit of the valves; the pit of the lower valve increasing by age, sometimes to a great length.

O. edulis,	O. parasitica,	O. margaritacea,	O. grucella,
‘ hippopus,	‘ denticulata,	‘ gibbosa,	‘ folium,
‘ borealis,	‘ spathulata,	‘ australis,	‘ labrella,
‘ Adriatica,	‘ ruscuriana,	‘ elliptica,	‘ plicatula,
‘ cochlear,	‘ Virginica,	‘ haliotidea,	‘ glaucina,
‘ cristata,	‘ Canadensis,	‘ deformis,	‘ fusca,
‘ gallina,	‘ excavata,	‘ fucorum,	‘ turbinata,
‘ numisma,	‘ mytiloides,	‘ cornucopiæ,	‘ cristagalli,
‘ lingua,	‘ sinuata,	‘ cucullata,	‘ imbricata,
‘ tulipa,	‘ trapezina,	‘ doridella,	‘ hyotis,
‘ Brasiliana,	‘ tuberculata,	‘ rubella.	‘ radiata,
‘ scabra,	‘ rufa,	‘ limacella,	33 fossil species.
‘ rostralis.			

Vulsella. Shell longitudinal, subequivalve, irregular, free; the beaks

equal; hinge with a prominent callosity in each valve, depressed above, showing an impression of a conical and obliquely arched pit for the ligament.

V. lingulata, V. rugosa, V. mytilina, 1 fossil species.
‘ hians, ‘ spongiarum, ‘ ovata,

Placuna. Shell free, irregular, flat, subequivalve, hinge internal, having two sharp, longitudinal ribs in one valve, approximate at their base, and diverging in form of a V.; and in the other valve, two impressions, which correspond with the cardinal ribs, to which is attached the ligament.

P. sella, P. placenta, P. papyracea, 1 fossil species.

Anomia. Shell inequivalve, irregular, operculated, adhering by the operculum, lower valve perforated, generally flattened, having a hole or channel at the beak; the other valve rather larger, concave, entire. Operculum small, elliptical, osseous, fixed to marine substances.

A. ephippium, A. electrica, A. fornicata, A. squamula,
‘ patellaris, ‘ pyriformis, ‘ membranacea, ‘ lens.
‘ cepa,

SECTION III. *Either no ligament, or none known; or represented by a tendinous cord, which supports the shell.*

This section contains two families—Rudista, and Brachiopoda.

RUDISTA.—Six Genera.

Sphærulites. Shell inequivalve, orbicular, globose, rather depressed above, echinated externally, with large subangular, horizontal scales; upper valve smallest, rather flat, opercular; the internal surface furnished with two unequal, subconical, curved, and prominent tuberosities; lower valve largest, rather ventricose, the external margin radiated with scales; cavity obliquely conical, and forming, on one side, by the folding of the internal margin, a crest or projecting keel; internal side of the cavity transversely striated. Hinge unknown.

1 fossil species.

Radiolites. Shell inequivalve, externally striated; the striæ longitudinal, radiating; lower valve turbinated, and largest; the upper, convex, or depressed, conical, opercular. Hinge unknown.

3 fossil species.

Calceola. Shell inequivalve, triangular, turbinated, flattened beneath; the largest valve hollowed or hood-shaped, obliquely truncated at the aperture. The cardinal margin straight, transverse, a small notch or indentation in the middle; the superior margin arched; the small valve flat, semi-orbicular, opercular, having a tubular on each side of the cardinal margin, and, in the middle, a pit with a small lamina.

1 fossil species.

Discini. Shell inequivalve, oval-rotundate, rather depressed valves, nearly equal, each having an orbicular disk in the centre, very distinct; disk in the upper valve not perforated, with a mamillated protuberance in the middle; that in the other valve very white, divided by a very small transverse slit.

D. ostreoides.

Birostrites. Shell inequivalve, bicornate, the disk of the valves elevated conically, unequal, obliquely diverging, nearly straight, the one enveloping the other at the base.

1 fossil species.

Crania. Shell inequivalve, suborbicular, lower valve almost flat, perforated in the internal surface by three unequal and oblique holes; the upper valve very convex, furnished interiorly with two prominent callosities.

C. personata, 4 fossil species.

BRACHIOPODA.—Three Genera.

Shell bivalve, adhering to marine bodies, either directly, or by a tendinous cord.

Orbicula. Shell suborbicular, inequivalve, without any apparent hinge; lower valve very thin, flat, adhering to marine substances; the upper valve subconical, the upper more or less elevated.*

O. Norwegica.

Terebratula. Shell inequivalve, regular, subtriangular, attached to

* I have not been able to meet with any shell agreeing with the above description.

marine bodies by a short, tendinous pedicle; the beak of the larger valve produced, curved, perforated at the summit, by a round hole, or by a notch; hinge with two teeth; two nearly osseous, slender, elevated, forked, variously ramified branches rise from the disk of the small valve, and serve as a support to the animal.

T. vitrea,
‘ dilatata,
‘ pisum,
‘ globosa,
‘ rotunda,
T. flavescens,
‘ dentata,
‘ dorsata,
‘ sanguinea,
T. caput serpentis,
‘ truncata,
‘ psittacea,
‘ pulchra,
T. rosea,
‘ rubra,
‘ bivulnerata,
47 fossil species.

Lingula. Shell subequivalve, flattened, ovate-oblong, truncated at the summit, rather pointed at the base, elevated on a fleshy, tendinous pedicle, fixed to marine bodies. Hinge without teeth.

L. anatina.

Twelfth Class.

MOLLUSCA.

Body sometimes naked, either destitute of any solid internal parts, or inclosing a shell or other hard substance, and sometimes provided externally with a shell covering or sheathing, but is never composed of two opposite valves united by a hinge.

This class is divided into five orders, viz.—Pteropoda, Gasteropoda, Trachelipoda, Cephalopoda, and Heteropoda.

ORDER I. PTEROPODA.—Six Genera.

Some only are furnished with a thin, cartilaginous or corneous shell.

Hyalæa. Shell corneous, transparent, ovate-globose; tridentated posteriorly; open at the summit, and at the two posterior sides.

H. tridentata, H. cuspata.

Clio. This genus has no shell.

C. borealis, C. australis.

Cleodora. Shell gelatinous, cartilaginous, transparent, in shape of a reversed pyramid, or lanceolate, truncated and open at the summit.

C. pyramidata, C. caudata.

Limacina. Shell thin, fragile, papyraceous, spiral; the whorls reunited in a discordal manner, like the planorbis.

L. helicialis.

Cymbulea. Shell gelatinous, cartilaginous, very transparent, crystalline, oblong, in shape of a shoe, truncated at the summit; aperture lateral and anterior.

C. Perronii.

Pneumodermon. This genus has no shell.

P. Perronii.

ORDER II. GASTEROPODA.

Some are naked, others have a dorsal shell, not enveloping; again, others have a shell more or less hidden in their mantle.

This order is divided into two sectons—Hydrobranchia, and Pneumobranchia.

SECTION I. HYDROBRANCHIA

Contains six families, viz. Tritonia, Phyllidiana, Semi-Phyllidiana, Calyptraciana, Bullæana, and Aplysiana.

TRITONIA.—Six Genera.

Without shells, either external or internal.

Glaucus. No shell.
Eolis. Do.
Tritonia. Do.
Scyllæa. Do.
Tethys. Do.
Doris. Do.

PHYLLIDIANA.—Four Genera.

Some are without shells, either internal or external; others are wholly or partly covered by a shell, sometimes composed of one single piece, sometimes of a range of moveable and distinct pieces.

PHYLLIDIA. Has no shell.

CHITONELLUS. Body elongated, rather narrow, like a caterpillar, the middle of the back furnished with a multivalve shell; valves alternate, mostly longitudinal; they are nearly connected by their extremities.

C. lævis, C. striatus.

CHITON. Body oval oblong, convex, rounded at the extremities; bordered all round by a coriaceous skin; partly covered by a longitudinal series of testaceous, imbricated, transverse, moveable pieces, set in the borders of the mantel.

C. gigas,	C. punctatus,	C. tuberculatus,	C. siculus,
‘ squamosa,	‘ indus,	‘ lævis,	‘ carmichælis,
‘ Peruvianus,	‘ viridis,	‘ tessellatus,	‘ capensis,
‘ spinosus,	‘ lineatus,	‘ crinitus,	‘ echinatus,
‘ fascicularis,	‘ sulcatus,	‘ hispidus,	‘ niger,
‘ bistriatus,	‘ bicolor,	‘ thalassinus,	‘ striatus,
‘ fulvus,	‘ crerasinus,	‘ porosus,	‘ spiniferus,
‘ piceus,	‘ Magellanicus,	‘ larvæformis,	‘ coquimbensis,
‘ granulatus,	‘ fuscus,	‘ undulatus,	‘ lumingii,
‘ aculeatus,	‘ minimus,	‘ luteolus,	‘ granosus,
‘ fasciatus,	‘ cimex,	‘ nebulosus,	‘ glauco-sinctus,
‘ marmoratus,	‘ asellus,	‘ setosus,	‘ granulosus,
‘ maculatus,	‘ Icelandicus,	‘ olivaceous,	‘ disjunctus,
‘ tunicatus,	‘ albas,	‘ variegatus,	‘ elegans,
‘ girgiculatus,	‘ marginatus,	‘ latus,	‘ lineolatus,
‘ castaneus,	‘ cinereus,	‘ asselloides,	‘ chilensis.
‘ ruber,			

PATELLA. Shell univalve, not spiral, covering the animal, shield-like or retuse, conical, concave and simple below, without any fissure on the margin; the summit entire, and inclosed anteriorly.

P. apicina,	P. barbata,	P. cœrulea,	P. deaurata,
‘ granatina,	‘ longicosta,	‘ radians,	‘ Magellanica,
‘ oculus,	‘ spinifera,	‘ scuttelaris,	‘ stellifera,
‘ barbara,	‘ aspera,	‘ safiana,	‘ vulgata,
‘ plicata,	‘ luteola,	‘ testudinaria,	‘ mamillaris,
‘ laciniosa,	‘ pyramidata,	‘ cochlear,	‘ lineata,
‘ saccharina,	‘ umbella,	‘ compressa,	‘ leucopleura,
‘ angulosa,	‘ plumbea,	‘ granularis,	‘ notata,

P. tarentina,	P. tuberculifera,	P. pectinata,	P. tricostata,
‘ punctata,	‘ miniata,	‘ galathea,	‘ australis,
‘ puncturata,	‘ viridula,	‘ pellucida,	‘ cymbularia.
‘ Javanica,			

SEMI-PHYLLIDIANA.—Two Genera.

Pleurobranchus. Shell internal, dorsal, thin, flattened, often oblique oval.

P. Peronii, P. Laqueare.

Umbrella. Shell external, orbicular, subirregular, nearly flat, slightly convex above, white, with apex near the middle; margin acute, internal surface rather concave; having a callous disc, colored, depressed in the centre, surrounded by a smooth border.

U. Indica, U. Mediterranea.

CALYPTRACIANA.—Seven Genera.

Shell always external, covering the animal.

Parmophorus. Shell oblong, subparallelopipedal, slightly convex above, obtuse at the extremities, anteriorly channelled by a slight sinus, and having towards the posterior part a small, pointed apex, inclined backwards; the lower surface slightly concave.

P. australis,	P. granulata,	P. ambigua,	1 fossil species.
‘ brevicula,			

Emarginula. Shell shield-like, conical; summit inclined; the cavity simple, having a notch or hollow cut on its posterior margin.

E. fissura,	E. rubra,	E. crystallina,	3 fossil species.

Fissurella. Shell shield-like or depressed conical, concave below, perforated at the summit; without any spire; the perforation oval or oblong.

F. picta,	F. Cayenensis,	F. viridula,	F. depressa,
‘ nimbosa,	‘ lilacina,	‘ hiantula,	‘ Peruviana,
‘ crassa,	‘ rosea,	‘ pustula,	‘ gibberula,
‘ Græca,	‘ Barbadensis,	‘ fasicularis,	‘ minuta,
‘ nodosa,	‘ radiata,	‘ Javanicensis,	1 fossil species.

Pileopsis. Shell univalve, obliquely conical, anteriorly recurved; apex bent, almost spiral; aperture rounded, elliptical; the anterior margin shortest,

acute, slightly sinuated; the posterior largest and rounded. One elongated and arched, transverse muscular impression, situated under the posterior margin.

P. ungarica, P. intorta, P. subrufa, 6 fossil species.
‘ mitrula,

Calyptræa. Shell conoidal, summit vertical, imperforate, subacute; base orbicular; the cavity furnished with a convolute lamina, or a spiral diaphragm.

C. extinctorium, C. equestris, C. anguluta, C. peziza,
‘ lævigata, ‘ tectum-sinense, ‘ poculum, ‘ scutellata.

Crepidula. Shell ovate or oblong, the back almost always convex, concave underneath; the spire very much inclined towards the margin; the aperture partly closed by a horizontal lamina.

C. fornicata, C. aculeata, C. dilata, C. Peruviana.
‘ porcellana, ‘ uguiformis,

Ancylus. Shell thin, obliquely conical, the summit pointed, inclined backwards; aperture oval; the margin very simple.

A. lacustris, A. fluviatilis, A. spina rosæ.

BULLÆANA.—Three Genera.

Acera. This genus has no shell.

A. carnosa.

Bullæa. Shell very thin, partially rolled and spiral on one side; without columella, and without spire; the aperture very large, dilated at the upper part.

B. aperta.

Bulla. Shell univalve, ovate globular, convolute, no columella, spire not projecting; aperture the whole length of the shell; external margin sharp.

B. lignaria, B. naucum, B. aplustre, B. fragilis,
‘ ampulla, ‘ physis, ‘ hydatis, ‘ solida.
‘ striata, ‘ fasciata, ‘ cornea,

APLYSIANÆ.—Two Genera.

APLYSIÆ. Shield dorsal, semicircular, subcartilaginous.

A. depilans,	A. bresili,	A. camelus,	A. pleii,
‘ fasciata,	‘ dactycomela,	‘ alba,	‘ citrini,
‘ punctata,	‘ protea,	‘ napolitana,	‘ undata,
‘ ecaudata,	‘ sorex,	‘ poliana,	‘ limacina,
‘ teremida,	‘ tigrina,	‘ fusca,	‘ longicauda,
‘ gigas,	‘ maculata,	‘ longicornis,	‘ viridis,
‘ dolabrifera,	‘ marmorata,	‘ virescens,	‘ rosea,
‘ ascifera,	‘ kerandrenii,	‘ ferrusacii,	‘ leachii,
‘ petalifera,	‘ lessonii,	‘ saviguana,	‘ hassetlii.
‘ unguifera,			

DOLABELLA. Shell oblong, slightly arched, hatchet-shaped, contracted, heavy, callous; almost spiral on one side, and larger, flatter, and thinner on the other.

D. Rumphii, D. fragilis.

SECTION II. PNEUMOBRANCHIÆ.

This section contains only one family, viz. Limaciana.

LIMACIANA.—Five Genera.

ONCHIDIUM. This genus has no shell.

O. typhæ, O. Peronii.

PARMACELLA. Lamarck has given a description of the animal of this genus, but only mentions that the scutcheon contains a shell, without describing it.

P. Oliveri.

LIMAX. Lamarck merely mentions that the animal is “furnished with a coriaceous, subrugose shield.”

L. rufus, L. albus, L. cinerus, L. agrestis.

TESTACELLA. Shell very small, external, rather ear-shaped, slightly spiral at its summit; aperture very large, oval, obliquely dilated, the left margin involute.

T. haliotideus.

VITRINA. Shell small, very thin, depressed, terminated above by a very short spire, the last whorl very large. Aperture large, rounded oval; the left margin arched, slightly involute.

V. pellucida.

ORDER III. TRACHELIPODA.

The shells of this order are spirivalve, ensheathing. It is separated into two sections, viz. Phytiphaga and Zoophaga.

SECTION I. TRACHELIPODA PHYTIPHAGA.

Aperture of the shell entire; base without any ascending dorsal notch or canal.

This section contains ten families, viz. Colimacea, Lymnæana, Melanicina, Peristomiana, Neritacea, Ianthinea, Macrostomiana, Plicacea, Scalariana and Turbinacea.

COLIMACEA.—Eleven Genera.

Shell spirivalve, with no other projecting parts on the exterior than the striæ of growth; the right margin of the aperture is often recurved, or reflected outwards.

HELIX. Shell orbicular, convex, or conoidal, sometimes globular; the spire rather elevated; aperture entire, transverse, very oblique, contiguous to the axis of the shell; the margins disunited by the projection of the penultimate whorl.

H. vesicalis,	H. melanotragus,	H. cepa,	H. Barbadensis,
‘ gigantea,	‘ extensa,	‘ heteroclites,	‘ sinuata,
‘ polyzonalis,	‘ lucana,	‘ discolor,	‘ hippocastanum,
‘ momozonalis,	‘ globulus,	‘ lactea,	‘ bidentalis,
‘ pulla,	‘ melanostoma,	‘ zonaria,	‘ argilacea,
‘ lineolata,	‘ cælatura,	‘ guttata,	‘ vittata,
‘ mutata,	‘ microstoma,	‘ Madagascarensis,	‘ arbustorum,
‘ pomatia,	‘ maculssa,	‘ Javanica,	‘ candidissima,
‘ aspersa,	‘ Richardi,	‘ Peruviana,	‘ memoralis,
‘ vermiculata,	‘ Bonplandii,	‘ simplex,	‘ hortensis,
‘ Alonensis,	‘ planulata,	‘ cidaris,	‘ sylvatica,
‘ vesicolor,	‘ labrella,	‘ citrina,	‘ pisana,
‘ naticoides,	‘ unguiina,	‘ algira,	‘ splendida,
‘ picta,	‘ pellis-serpentis,	‘ verticellus,	‘ serpentina,
‘ galactites,	‘ Senegalensis,	‘ olivetorum,	‘ niciensis,
‘ hemastoma,	‘ unidentata,	‘ planospira,	‘ variabilis,

H. fruticum,
‘ neglecta,
‘ crespitum,
‘ ericetorum,
‘ intersecta,
‘ carthusianella,
‘ diaphana,
‘ concolor,
‘ velutina,
‘ obvuluta,
‘ Cookiana,
‘ pileus,
‘ papilla,
‘ punctifera,
‘ plicatula,
‘ planorbella,
‘ scabra,
‘ cariosa,
‘ crenulata,
‘ plauorbula,
‘ macularia,
‘ maaitima,
‘ strigata,
‘ muralis,

H. rugosa,
‘ cornea,
‘ liguifera,
‘ incarnata,
‘ cinctella,
‘ cellaria,
‘ nitida,
‘ plebium,
‘ personata,
‘ hispida,
‘ rotunda,
‘ apicina,
‘ striata,
‘ conspurcata,
‘ conica,
‘ conoidea,
‘ pulchella,
‘ formosa,
‘ orbiculata,
‘ squamosa,
‘ auriculata,
‘ turgidula,
‘ helicella,
‘ zonula,

H. tridentata,
‘ septemvalva,
‘ monodon,
‘ fraterna,
‘ coniformis,
‘ concamerata,
‘ nigrescens,
‘ Tripolitana,
‘ Sayii,
‘ globulosa,
‘ Caffra,
‘ conformis,
‘ prunum,
‘ contusa,
‘ deformis,
‘ Nicæensis,
‘ meridionalis,
‘ melitensis,
‘ circumornata,
‘ gronosa,
‘ Lima,
‘ dentiens,
‘ parilis,

H. imperator,
‘ zodiaca,
‘ concisa,
‘ pellicuta,
‘ strobilus,
‘ alauda,
‘ carina,
‘ pileolus,
‘ bipartita,
‘ sinistrorsa,
‘ fibula,
‘ subplicata,
‘ Porto-santana,
‘ punctulata,
‘ exalbida,
‘ Bulverii,
‘ tectiformis,
‘ Madeirensis,
‘ bicarinata,
‘ vitrinoides,
‘ unbeculata,
‘ Gaymardii,
‘ Pouzolzii.

H. Caroliniensis, (new species,) Lea, vol. 4, pl. xv. fig. 33, a. b. c.

Carocolla. Shell orbicular, more or less convex or conoidal above; the circumference or periphery angulated or keeled; aperture transverse, contiguous to the axis of the shell; the right margin or lip subangular, often toothed or plaited beneath.

C. acutistima,
‘ albilabris,
‘ angistoma,
‘ labyrinthus,
‘ lucerna,

C. inflata,
‘ Gaulteriana,
‘ bicolor,
‘ Mauritiana,
‘ Madagascarensis,

C. marginata,
‘ lychnuchus,
‘ planata,
‘ planaria,
‘ hispidula,

C. lapicida,
‘ albella,
‘ elegans,
‘ grata.

C. helicoides, (new species,) Lea, T. A. P. S. vol. 4, pl. xv. fig. 34, a. b. c.

C. spinosa, (new species,) Lea, T. A. P. S. vol. 4, pl. xv. fig. 35, a. b. c.

Anostoma. Shell orbicular, the spire convex and obtuse; aperture round, toothed within, grinning, or showing the teeth; turned upwards to the side of the spire; the margin of the lip reflected.

A. depressa, A. globulosa.

Helicina. Shell subglobular, imperforate; aperture entire, demioval.

Columella callous, transverse, rather flat; margin acute, forming an angle at the lower base of the right lip. Operculum corneous.

H. neritella,	H. substriata,	H. major,	H. aureola,
‘ striata,	‘ Braziliensis,	‘ submarginata,	‘ orbiculata,
‘ fasciata,	‘ costata,	‘ unifasciata,	‘ scitula,
‘ viridis,	‘ aurantia,	‘ Brownii,	‘ Tankervillii.
‘ pulchella,	‘ rhodostoma,	‘ depressa,	

Pupa. Shell cylindrical, generally thick; aperture irregular, demioval, the lower part rounded and subangular; the margins nearly equal, reflected outwards, disunited at the upper part by an interposed columella lamina, always affixed.

P. numia,	P. unicarinata,	P. polyodon,	P. umbilicata,
‘ uva,	‘ maculosa,	‘ variabilis,	‘ muscorum,
‘ sulcata,	‘ clavulata,	‘ frumentum,	‘ anglicus,
‘ candida,	‘ ovularis,	‘ secale,	‘ rufescens,
‘ labrossa,	‘ Germanica,	‘ avena,	‘ edontulus,
‘ fusus,	‘ cinerea,	‘ granum,	‘ odontostoma,
‘ tridentata,	‘ tridens,	‘ fragilis,	‘ petiveriana,
‘ fasciolata,	‘ quadridens,	‘ dolium,	‘ dentata.
‘ zebra,			

Clausilia. Shell mostly fusiform, slender, the summit rather obtuse; aperture irregular, rounded oval; the margins united throughout, free, reflected outwards.

C. torticollis,	C. corrugata,	C. collaris,	C. gracilis,
‘ truncatula,	‘ inflata,	‘ papillaris,	‘ chrysalis,
‘ retusa,	‘ teres,	‘ plicatula,	‘ Mediterranea.
‘ costulata,	‘ denticulata,	‘ rugosa,	

Bulimus. Shell oval, oblong, or turreted; aperture entire, longitudinal; the margins very unequal, disunited at the upper part. Columella straight, smooth, the base entire, not channelled.

B. ovatus,	B. Peruvianus,	B. Caribæorum,	B. formosus,
‘ hæmastomus,	‘ Favannii,	‘ octonus,	‘ Listeri,
‘ gallina,	‘ Kambeul,	‘ terebraster,	‘ Kingii,
‘ sultana,	‘ calcareus,	‘ articulatus,	‘ Dufresnii,
‘ zigzag,	‘ decollatus,	‘ acutus,	‘ pulcher,
‘ undatus,	‘ Lyonetianus,	‘ ventricosus,	‘ Maugeri,
‘ Richii,	‘ inflatus,	‘ montanus,	‘ lævis,
‘ inversus,	‘ radiatus,	‘ hordaceus,	‘ auris leporis,
‘ citrinus,	‘ fragilis,	‘ lubricus,	‘ papyraceus,
‘ sultanus,	‘ Gaudalupinsis,	‘ iostoma,	‘ scobinatus,
‘ Pythogaster,	‘ Mexicanus,	‘ goniostoma,	‘ vexillum,
‘ ovoideus,	‘ multifasciatus,	‘ odontostoma,	‘ planidens.
‘ interruptus,	‘ Bengalensis,		

Achatina. Shell oval or oblong; aperture entire, longitudinal; the right lip sharp, never reflected. Columella smooth, truncated at the base.

A. perdix,	A. Mauritiana,	A. glans,	A. columnaria,
‘ zebra,	‘ castanea,	‘ Peruviana,	‘ folliculus,
‘ immaculata,	‘ ustulata,	‘ albo-lineata,	‘ acicula,
‘ purpurea,	‘ vexillum,	‘ fusco-lineata,	‘ oleacea, (n. s.)
‘ acuta,	‘ virginea,	‘ fulminea,	‘ Marminii, (n. s.)
‘ bicarinata,	‘ Priamus,		

Succinea. Shell oval or ovate conical; aperture large, entire, longitudinal; the right lip sharp, not reflected, united at the lower part to a smooth, sharp, attenuated columella. No operculum.

S. cuculata,	S. oblonga,	S. patula,	S. rubescens, (n. s.)
‘ amphibia,			

Auricula. Shell suboval or ovate oblong; aperture longitudinal, very entire at the base, contracted at the upper part, where the margins are disunited. Columella with one or more plaits; the lip or margin sometimes reflected outwards, sometimes simple and sharp.

A. Midæ,	A. felis,	A. myosotis,	A. nitens,
‘ Judæ,	‘ scarabæus,	‘ minima,	‘ monile,
‘ sileni,	‘ bovina,	‘ Dombeiana,	‘ angiostoma,
‘ leporis,	‘ caprella,	‘ coniformis,	‘ labrella.

Cyclostoma. The shape of the shell variable; whorls of the spire cylindrical; aperture round, regular; the margins circularly united, or reflected by age. An operculum.

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

Doubtful species.

C. patulum,	C. læve,	C. elongatum,	C. aurantium,
‘ truncatum,	‘ Chemnitzii,	‘ maculatum,	‘ flavidum,
‘ petiverianum,	‘ fascia,	‘ columna,	‘ tortum,
‘ Jamaicense,	‘ fulvum,	‘ mirabile,	‘ compressum.
‘ pulchrum,			

LYMNÆANA.—Three Genera.

Shell spirivalve, the external surface mostly smooth; the right margin of the aperture always sharp, and not reflected.

PLANORBIS. Shell discoidal, spire depressed, the whole of the whorls shown above and beneath; aperture oblong, lunate, very distant from the axis of the shell; the margin never reflected. No operculum.

P. cornu-arietis,	P. orientalis,	P. deformis,	P. nitidus,
‘ corneus,	‘ spirorbis,	‘ contortus,	‘ imbricatus,
‘ carinatus,	‘ vortex,	‘ hispidus,	‘ angulatus.
‘ lutescens,			

PHYSA. Shell convolute, oval or oblong; the spire prominent; aperture longitudinal, contracted at the upper part; columella twisted; right lip very thin, sharp, partly projecting above the plane of the aperture. No operculum.

P. castanea,	P. fontinalis,	P. hypnorum,	P. subopaca.

LYMNÆA. Shell oblong, sometimes turreted; the spire prominent; aperture entire, longitudinal; outer lip sharp, the lower part ascending over the columella, forms a very oblique plait, re-entering the aperture. No operculum.

L. columnaris,	L. luteola,	L. peregra,	L. minuta,
‘ stagnalis,	‘ acuminata,	‘ intermedia,	‘ rubiginosus,(n.s.)
‘ palustris,	‘ auricularia,	‘ leucostoma,	‘ lessoni, (n. s.)
‘ Virginiana,	‘ ovata,		

MELANIANA.—Three Genera.

Margins of the aperture of the shell disunited, the right always sharp.

MELANIA. Shell turreted, aperture entire, oval or oblong, effuse at the base; columella smooth, incurved. Operculum horny.

M. inquinata,	M. lævigata,	M. gronifera,	M. lineolata,
‘ asperata,	‘ clavis,	‘ carinifera,	‘ Byronensis,
‘ truncata,	‘ decollata,	‘ truncatula,	‘ Sayii,
‘ coarctata,	‘ amarula,	‘ fasciolata,	‘ lineata,
‘ punctata,	‘ thiarella,	‘ lævissima,	‘ sulculata,
‘ corrugata,	‘ spinulosa,	‘ aurita,	‘ helvetica,
‘ subulata,			

M. subularis, (n. s.) Lea, vol. 4, pl. xv. fig. 30.
‘ tuberculata, (n. s.) do. pl. xv. f. 31.
M. acuta, (n. s.) Lea, Trans. Am. Phil. Soc. vol. 4, pl. xv. fig. 32.
‘ elongata, (n. s.) Lea, hab. W. Tennes.

Melanopsis. Shell turreted, aperture entire, oval oblong. Columella callous at the upper part, truncated at the base, separated from the right margin by a sinus. An operculum.

M. costata, M. lævigata, M. prærosa.

Pirena. Shell turreted; aperture longitudinal, right lip sharp, having a sinus at the base and another at the summit. Base of the columella curved towards the right margin. Operculum horny.

P. terebralis, P. aurita, P. granulosa, P. cancellata.
‘ spinosa,

PERISTOMIANA.—Three Genera.

Shell operculated, conoidal or subdiscoidal, the margins of the aperture united.

Valvata. Shell discoidal or conoidal, the whorls cylindrical, spiral cavity complete, not modified by the penultimate whorl; aperture round, the margins united, sharp. An orbicular operculum.

V. piscinalis, V. arcnifera, (n. s.) Lea, T. A. P. S. vol. 4, pl. xv. fig. 86, a. b. c.

Paludina. Shell conoidal, the whorls rounded or convex, spiral cavity modified by the last whorl; aperture rounded oval, oblong, angular at the summit; the two margins united, acute, never reflected outwards. Operculum orbicular and horny.

P. vivipara, P. impura, P. fuscus, P. subcarinata,
‘ achatina, ‘ muriatica, ‘ bulimoides, ‘ decisa,
‘ Bengalensis, ‘ viridis, ‘ Francesii, ‘ dissimilis.
‘ unicolor, ‘ australis,

Ampularia. Shell globular, ventricose, umbilicated at the base, without any callosity on the left lip; aperture entire, oblong, margins united, the right not reflected. An operculum.

A. Guyanensis, A. canaliculata, A. virens, A. intorta,
‘ rugosa, ‘ effusa, ‘ carinata, ‘ fragilis,
‘ fasciata, ‘ Guinaica, ‘ avellana, ‘ conica.

There are several fossil species described in the *Annales de Museum*, p. 30.

NERITACEA.—Four Genera.

Shell semifluviatile or marine, semiglobular or flattened oval, without columella, the left margin of the aperture resembling a half partition.

I. FRESH WATER SHELLS.

NAVICELLA. Shell elliptical or oblong, convex above, summit straight, depressed to the margin, concave beneath; the left lip flattened, sharp, narrow, without teeth, transverse. A solid, flat operculum, having an acute and lateral tooth.

N. elliptica, N. lineata, N. tessellata, N. porcellana.

NERITINA. Shell thin, semiglobular or oval, flattened beneath, not umbilicated; aperture semicircular, the left margin flattened, sharp; no teeth or crenulations on the surface of the right margin. Operculum furnished with a lateral tooth.

N. perversa,	N. corona,	N. semi-conica,	N. Oweniana,
‘ pulligera,	‘ brevi-spina,	‘ strigilata,	‘ careosa,
‘ dubia,	‘ crepidularia,	‘ meleagris,	‘ Caffra,
‘ zebra,	‘ auriculata,	‘ virginea,	‘ Smithii,
‘ zigzag,	‘ Domingensis,	‘ fluviatilis,	‘ spinosa,
‘ gagates,	‘ fasciata,	‘ viridis,	‘ Oweni,
‘ lugubris,	‘ lineolata,	‘ Bœtica,	‘ pulchella.

II. MARINE SHELLS.

NERITA. Shell solid, semiglobular, flattened beneath, not umbilicated; aperture entire, semicircular, the left margin flat, septiform, acute, often toothed; teeth or crenulations on the inner surface of the right lip. Operculum with a projecting tooth.

N. exuvia,	N. atrata,	N. Ascensionis,	N. tassellata,
‘ textilis,	‘ polita,	‘ Malaccensis,	‘ signata,
‘ undata,	‘ albicilla,	‘ lineata,	‘ ornata,
‘ peloronta,	‘ chamœleon,	‘ scabricosta,	‘ australis,
‘ chlorostoma,	‘ versicolor,	‘ plicata,	‘ rudis.

NATICA. Shell subglobular, umbilicated; aperture entire, semicircular; left lip oblique, not toothed, callous; the callosity modifying the umbilicus,

and sometimes covering it; right lip acute, always smooth inside. An operculum.

N. glaucina,
‘ albumen,
‘ mamillaris,
‘ mamilla,
‘ melanostoma,
‘ aurantia,
‘ conica,
‘ plumbea,
‘ ampullaria,
N. caurena,
‘ cruentata,
‘ millepunctata,
‘ vitellus,
‘ helvacea,
‘ collaria,
‘ monilifera,
‘ labrella,
‘ rufa,
N. unifasciata,
‘ lineata,
‘ fulminea,
‘ maculoso,
‘ vittata,
‘ castanea,
‘ Marochiensis,
‘ arachnoidea,
‘ zebra,
N. zonaria,
‘ Chinensis,
‘ Javanica,
‘ cancellata,
‘ patula,
‘ duplicata,
‘ intricata,
‘ glabra.

IANTHINEA.

Ianthina. Shell ventricose, conoidal, thin, transparent; aperture triangular; columella straight, passing beyond the base of the right lip, which has a sinus in the middle. No operculum.

I. communis, I. exigua.

MACROSTOMIANA.—Four Genera.

Shell ear-shaped, the aperture much dilated, the margins disunited, no columella, no operculum.

Sigaretus. Shell subauriform, nearly orbicular; the left lip short and spiral; aperture entire, much dilated, rounded, oblong; the margins not united.

S. haliotoideus, S. concavus, S. lævigatus, S. cancellatus.

Stomatella. Shell orbicular, oblong, ear-shaped, imperforate; aperture entire, large, sublongitudinal; right lip effuse, dilated, open.

S. imbricata, S. sulcifera, S. auricula, S. planulata.
‘ rubra,

Stomatia. Shell ear-shaped, imperforate, spire prominent; aperture entire, large, oblong; right margin and columella equally raised; a transverse and tuberculated rib on the back.

S. phimotis, S. obscurata.

Haliotis. Shell ear-shaped, mostly flattened; the spire very short, sometimes depressed, nearly lateral; aperture very large, ovate oblong, and

entire in perfect shells; disk pierced with holes, disposed in a line parallel to and near the left margin, the last commencing with a notch.

H. Midæ,	H. tuberculata,	H. unilateralis,	H. rubra,
‘ iris,	‘ striata,	‘ rugosa,	‘ tricostata,
‘ tubifera,	‘ asinina,	‘ canaliculata,	‘ Mariæ,
‘ excavata,	‘ glabra,	‘ tricostalis,	‘ corrugata.
‘ australis,	‘ lamellosa,	‘ dubia,	

PLICACEA.—Two Genera.

Aperture of the shell not effuse; columella plaited.

Tornitella. Shell convolute, ovate cylindrical, mostly striated transversely; no epidermis; aperture oblong, entire, the right lip sharp; one or more plaits on the columella.

T. flammea,	T. fasciata,	T. nitidula,	T. pedipes.
‘ solidula,	‘ auricula,		

Pyramidella. Shell turreted, no epidermis; aperture entire, demioval; outer lip sharp. Columella produced, subperforate at the base, and furnished with three transverse plaits.

P. terebellum,	P. maculosa,	P. corrugata,	P. ventricosa.
‘ dolabrata,	‘ plicata,		

SCALARIANA.—Three Genera.

Shell without plaits on the columella; the margins of the aperture circularly united.

Vermetus. Shell thin, tubular, loosely spiral, adhering by the spire; aperture orbicular, the margins united. An operculum.

V. lumbricalis, V. maximus.

Scalaria. Shell subturreted, ornamented with longitudinal, elevated, interrupted, nearly acute ribs; aperture rounded, the margins circularly united, and terminated by a thin, recurved varix.

S. pretiosa,	S. varicosa,	S. raricosta,	S. terebralis,
‘ lamellosa,	‘ communis,	‘ Martinii,	3 fossil species.
‘ coronata,	‘ australis,		

Delphinula. Shell subdiscoidal or conical, umbilicated, solid; whorls,

rough or angular; aperture entire, round, sometimes triangular; the margins united, mostly fringed or ventricose.

D. laciniata, D. distorta, D. tubinopsis, 7 fossil species.

TURBINACEA.—Eight Genera.

Shell turreted or conoidal; the aperture round or oblong, not effuse; the margins disunited.

Solarium. Shell orbicular, depressed, conical, umbilicated, crenulated or dentated on the inner margin of the whorls; aperture nearly quadrangular. No columella.

S. perspectivum, S. lævigatum, S. hybridum, S. luteum,
‘ granulatum, ‘ stramineum, ‘ variegatum, 8 fossil species.

Rotella. Shell orbicular, shining, no epidermis; spire very short, subconoidal; lower surface convex and callous; aperture semicircular.

R. lineolata, R. saturalis, R. Javanica, R. æqualis.
‘ rosea, ‘ monolifera, ‘ formosa,

Trochus. Shell conical, spire elevated, sometimes rather depressed; periphery more or less angular, often thin and sharp; aperture transversely depressed, the margins disunited at the upper part; columella arched, more or less prominent at the base. An operculum.

T. imperialis,	T. argyrostomus,	T. lineatus,	T. nanus,
‘ longispina,	‘ Cookii,	‘ zizyphinus,	‘ pyramidatus,
‘ solaris,	‘ niloticus,	‘ conuloides,	‘ erythroleucos,
‘ Indicus,	‘ pyramidalis,	‘ conulus,	‘ undosus,
‘ radians,	‘ noduliferas,	‘ jujubinus,	‘ unguis,
‘ pileus,	‘ cœrulescens,	‘ Javanicus,	‘ olivaceus,
‘ calyptræformis,	‘ obeliscus,	‘ annulatus,	‘ pellis-serpentis,
‘ fimbriatus,	‘ virgatus,	‘ doliarius,	‘ armillatus,
‘ brevispina,	‘ maculatus,	‘ granulatus,	‘ acuminatus,
‘ rotularius,	‘ granosus,	‘ granatum,	‘ elegantus,
‘ stella,	‘ squarrosus,	‘ monoliferus,	‘ granosus,
‘ stellaris,	‘ incrassatus,	‘ iris,	‘ tæniatus,
‘ asperatus,	‘ flammulatis,	‘ ornatus,	‘ lævis,
‘ rhodostomus,	‘ elatus,	‘ bicingulatus,	‘ albidus,
‘ spinulosus,	‘ marmoratus,	‘ calliferus,	‘ Clelandii,
‘ costulatus,	‘ mauritianus,	‘ umbilicaris,	‘ quadricostatus,
‘ inermis,	‘ imbricatus,	‘ undatus,	‘ Byronianus,
‘ agglutinans,	‘ triselialis,	‘ Pharaonis,	‘ elongatus,
‘ cœlatus,	‘ crenulatus,	‘ sagittiferus,	‘ Smithii,
‘ tuber,	‘ asperulus,	‘ carneolus,	‘ articulatus,
‘ magus,	‘ acutus,	‘ cinerarius,	‘ filosus,
‘ merula,	‘ concavus,	‘ excavatus,	‘ Maugeri,

T. pictus,	T. callosos,	T. clanguloides,	T. interruptus,
‘ clangulus,	‘ zonatus,	‘ sulcatus,	‘ Montagui,
‘ Mediterraneus,	‘ reticulatus,	‘ indistinctus,	‘ calyculus.

Eight fossil species are described in the *Annales de Museum*, vol. 4, p. 46.

Monodonta. Shell oval or conoidal; aperture entire, round, the margins disunited at the upper part; columella arched, truncated at the base. An operculum.

M. bicolor,	M. labio,	M. punctulata,	M. reticularis,
‘ pagodus,	‘ australis,	‘ canaliculata,	‘ trochlea,
‘ tectum-persicum,	‘ canalifera,	‘ seminigra,	‘ atrata,
‘ papillosa,	‘ viridis,	‘ rosea,	‘ obscura,
‘ coronaria,	‘ fragarioides,	‘ lineata,	‘ concamerata,
‘ Ægyptiaca,	‘ constricta,	‘ rugosa,	‘ odontis,
‘ carchedonius,	‘ tricarinata,	‘ Listeri,	‘ pulcherrima,
‘ modulus,	‘ articulata,	‘ zebra,	‘ badia.
‘ tectum,	‘ lugubris,		

Turbo. Shell conoidal or subtruncated, the periphery never compressed; aperture entire, round, not modified by the penultimate whorl; the margins disunited at the upper part; columella arched, flattened, not truncated at the base. An operculum.

T. marmoratus,	T. petholatus,	T. muricatus,	T. costatus,
‘ imperialis,	‘ undulatus,	‘ littoreus,	‘ niger,
‘ torquatus,	‘ pica,	‘ ustulatus,	‘ minimus,
‘ Sarmaticus,	‘ versicolor,	‘ Nicobaricus,	‘ tuberculatus,
‘ cornutus,	‘ samaragdus,	‘ neritoides,	‘ zebra,
‘ argyrostomus,	‘ cidaris,	‘ retusus,	‘ pintado,
‘ chrysostomus,	‘ diaphanus,	‘ rudis,	‘ crassus,
‘ radiatus,	‘ rugosus,	‘ obtusatus,	‘ fluctuatus,
‘ margaritaceus,	‘ coronatus,	‘ pullus,	‘ saxosus,
‘ setosus,	‘ crenulatus,	‘ cœrulescens,	‘ bicarinatus.
‘ splenglerianus,	‘ hippocastanum,	‘ cancellatus,	

Planaxis. Shell ovate conical, solid; aperture ovate, sublongitudinal. Columella flat and truncated at the base, separated from the right margin by a narrow sinus. Interior surface of the right margin furrowed or lineated, and a callosity running under the summit.

P. sulcata,	P. undulata,	P. planaxis,	P. lævigatum.

Phasianella. Shell ovate or conical, solid; aperture entire, oval, longitudinal; the lips disunited at the upper part, the right sharp, not reflected; columella smooth, compressed, attenuated at the base; operculum calcareous or horny.

P. bulimoides,	P. elegans,	P. nebulosa,	P. angulifera,
‘ rubens,	‘ Peruviana,	‘ sulcata,	‘ lineolatus,
‘ variegata,	‘ lineata,	‘ Mauritiana,	‘ perdix.

TURRITELLA. Shell turreted, not pearly; aperture rounded, entire, the margins disunited at the upper part; a sinus in the right lip. Operculum horny.

T. duplicata,	T. fuscata,	T. trisulcata,	T. Virginiana,
‘ terebra,	‘ cornea,	‘ exoleta,	‘ saturalis,
‘ imbricata,	‘ brevialis,	‘ catinifera,	12 fossil species.
‘ replicata,	‘ bicingulata,	‘ australis,	

SECTION II. TRACHELIPODA ZOOPHAGA.

Shell spirivalve, ensheathing; aperture either canaliculated, notched, or inclined at the base.

There are five families in this section, viz. Canalifera, Alata, Purpurifera, Columellaria and Convoluta.

CANALIFERA.—Eleven Genera.

Shell with an canal more or less long, at the base of the aperture, the right lip of which does not change its form by age.

This family is divided into two divisions.

DIVISION I. *No constant varix on the right lip.*

CERITHIUM. Shell turreted; aperture oblong, oblique, terminared at the base by a short, truncated or recurved canal, never notched; a small channel at the upper extremity of the right lip. Operculum small, orbicular and horny.

C. giganteum,	C. erythræonense,	C. subulatum,	C. eburneum,
‘ palustre,	‘ muricatum,	‘ heteroclites,	‘ punctatum,
‘ sulcatum,	‘ radula,	‘ zonale,	‘ lima,
‘ telescopium,	‘ cressum,	‘ semiferrugineum,	‘ perversum,
‘ ebeninum,	‘ decollatum,	‘ tortulosum,	‘ zonatum,
‘ nodulosum,	‘ obtusum,	‘ tuberculatum,	‘ petrosum,
‘ vulgatum,	‘ semigranosum,	‘ morus,	‘ rugosum,
‘ obeliscus,	‘ asperum,	‘ ocellatum,	‘ exasperatum,
‘ granulatum,	‘ lineatum,	‘ literatum,	‘ mitriforme,
‘ aluco,	‘ vertagus,	‘ atratum,	60 fossil species.
‘ echinatum,	‘ fasciatum,		

PLEUROTOMA. Shell turreted or fusiform, terminated at the lower part by a straight canal, more or less elongated. A fissure or sinus in the upper part of the right lip.

P. imperialis,	P. muricata,	P. flavidula,	P. crenularis,
‘ auriculifera,	‘ echinata,	‘ interrupta,	‘ cincta,

P. unizonalis,	P. cingulifera,	P. tigrina,	P. bicarinata,
‘ lineata,	‘ virgo,	‘ crispa,	‘ elegans,
‘ spirata,	‘ Babylonia,	‘ albina,	‘ pleurotoma,
‘ fascialis,	‘ undosa,	‘ nodifera,	‘ curvirostris,
‘ bimarginata,	‘ marmorata,	‘ mitra,	30 fossil species.
‘ buccinoides,			

Cancellaria. Shell oval or turreted; base of the aperture sub-canaliculated; little or no canal. Columella plaited; the plaits sometimes numerous, mostly transverse; the right lip furrowed internally.

C. reticulata, Lamarck, E. M. t. 375, f. 3.
‘ candida, Sowerby, C. Ill. f. 1.
‘ ovata, ‘ 2.
‘ obesa, ‘ 3, 4.
‘ acuminata, ‘ 5.
‘ solida, ‘ 6.
‘ gemmulata, ‘ 7.
‘ decussata, ‘ 8.
‘ indentata, ‘ 9, 10.
‘ buccinoides, ‘ 11.
‘ clavatula, ‘ 12.
‘ uniplicata, ‘ 13.
‘ mitriformis, ‘ 14.
‘ tritonis, ‘ 15.
‘ granosa, ‘ 16, 17.
‘ piscatoria, Buccinum, p. Ic. Chemnitz, iv. f. 1151, 1152.
‘ littoriniformis, Sowerby, C. Ill. f. 18.
‘ elegans, Sow. Gen. of Sh. pl. v. f. 5.
‘ asperella, Lamarck, E. M. t. 374, f. 3.
‘ oblonga, Sowerby, C. Ill. f. 19.
‘ tessellata, ‘ 20.
‘ nodulifera, ‘ 21.
‘ cassidiformis, ‘ 22.
‘ australis, ‘ 23.
C. lævigata, Sowerby, C. Ill. f. 24.
‘ spirata, ‘ 25.
‘ obliquata, ‘ 26.
‘ scalata, ‘ 27.
‘ contabulata, ‘ 28.
‘ crenifera, ‘ 29.
‘ scalarina, Lamarck, Ic. Chemnitz, iv. f. 1172, 1173.
‘ crispa, Sowerby, C. Ill. f. 30.
‘ costifera, ‘ 31.
‘ articularis, ‘ 32.
‘ brevis, ‘ 33.
‘ pusilla, ‘ 34.
‘ bullata, ‘ 35.
‘ tuberculosa, ‘ 36.
‘ pulchra, ‘ 37.
‘ cancellata, Lamarck, E. M. t. 374, f. 4.
‘ similis, Sowerby, C. Ill. f. 38.
‘ chrysostoma, ‘ 39.
‘ rugosa, Lamarck, E. M. t. 375, f. 8.
‘ hæmastoma, Sowerby, C. Ill. f. 40.
‘ rigida, ‘ 41.
‘ costata, Gray, C. Ill. f. 42.
‘ goniostoma, Sowerby, C. Ill. f. 43.
‘ trigonostoma, ‘ 44.

Fasciolaria. Shell subfusiform, base canaliculate, no varices; two or three very oblique plaits on the columella, near the canal.

F. tulipa,	F. trapezium,	F. filamentosa,	F. ferruginea,
‘ distans,	‘ aurantiaca,	‘ coronata,	‘ tarentina.

Fusus. Shell fusiform or subfusiform, base canaliculate, ventricose in the middle or at the lower part, no external varices; the spire elevated and elongated. Right lip without any fissure; columella smooth; operculum horny.

F. longissimus,	F. tuberculatus,	F. sulcatus,	F. morio,
‘ curvirostris,	‘ Nicobaricus,	‘ antiquus,	‘ coronatus,
‘ laticosta,	‘ distans,	‘ despectus,	‘ cochlidium,
‘ inconstans,	‘ tortulosus,	‘ carinatus,	‘ corona,
‘ colosseus,	‘ incrassatus,	‘ proboscidiferus,	‘ raphanus,
‘ colus,	‘ multicarinatus,	‘ Islandicus,	‘ filosus,

F. polygonoides,	F. strigosus,	F. rubens,	F. buccinatus,
‘ verruculatus,	‘ varius,	‘ sinistralis,	‘ aculeiformis,
‘ lignarius,	‘ crebricostatus,	‘ nifat,	‘ scalarinus,
‘ Syracusanus,	‘ afer,	‘ articulatus,	‘ contrarius.

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

Pyrula. Shell subpyriform, channelled at the base, the upper part ventricose, no external varices; spire short, sometimes flattened. Columella smooth; right lip without any fissure.

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

The fossil species are referred to in the *Annales de Museum*, vol. 2, p. 389.

DIVISION II. *A constant varix on the right margin, in all the species.*

Struthiolaria. Shell oval, the spire elevated; aperture oval, sinuous, terminated at the base by a very short, straight canal, without any notch. Left lip callous, expanded; right lip sinuous, with an external varix.

S. nodulosa, S. crenulata.

Ranella. Shell oval or oblong, canaliculate; two rows of varices on the exterior; aperture rounded or subovate. Varices straight or oblique, half a whorl distant from each other, and forming a longitudinal row on each side of the shell.

R. gigantea,	R. crumena,	R. granifera,	R. anceps,
‘ leucostoma,	‘ spinosa,	‘ semigranosa,	‘ pygmæa,
‘ candisata,	‘ bufonia,	‘ bitubercularis,	‘ papilla,
‘ argus,	‘ granulata,	‘ ramina,	1 fossil species.

Murex. Shell oval or oblong, channelled at the base, with rough, spined or tuberculated varices on the exterior. Three or more varices on each whorl, the lower ones uniting obliquely with the upper in a longitudinal row; operculum horny.

M. cornutus,	M. brevispina,	M. inflatus,	M. adustus,
‘ brandaris,	‘ ternispina,	‘ elongatus,	‘ rufus,
‘ crassispina,	‘ haustellum,	‘ palmarosæ,	‘ axicornis,
‘ tenuispina,	‘ tenuirostrum,	‘ brevifrons,	‘ crevicornis,
‘ rarispina,	‘ motacilla,	‘ calcitrapa,	‘ acaleatus,

M. microphyllus,
‘ capucinus,
‘ asperrimus,
‘ phyllopterus,
‘ acanthopterus,
‘ tripterus,
‘ trigonularis,
‘ uncinarius,
‘ hemitripterus,
‘ gibbosus,
‘ triqueter,
‘ trigonulus,
‘ brassica,
‘ saxatilis,

M. endivia,
‘ radix,
‘ melanomathos,
‘ hexagonus,
‘ scorpio,
‘ secundus,
‘ quadrifrons,
‘ turbinatus,
‘ trunculus,
‘ anguliferus,
‘ melonulus,
‘ Magellanicus,
‘ lamellosus,
‘ erinaceous,

M. tarentinus,
‘ scaber,
‘ costularis,
‘ polygonulus,
‘ vitulinus,
‘ angularis,
‘ crispatus,
‘ fenestratus,
‘ cingulatus,
‘ cinguliferus,
‘ subcarinatus,
‘ torosus,
‘ lyratus,

M. concatenatus,
‘ granarius,
‘ fimbriatus,
‘ pulchellus,
‘ aciculatus,
‘ regius,
‘ cristata,
‘ ferrugo,
‘ funiculus,
‘ lubiosus,
‘ pinnatus,
‘ pictus,
2 fossil species.

Triton. Shell oval or oblong, channelled at the base; varices either alternate, or rare, or nearly solitary, and never forming a longitudinal row; aperture oblong. An operculum.

T. variegatum,
‘ nodiferum,
‘ australe,
‘ lampas,
‘ scrobiculator,
‘ Splengleri,
‘ corrugatum,
‘ succinctum,

T. pileare,
‘ lotorium,
‘ femorale,
‘ pyrum,
‘ cynocephalum,
‘ tripus,
‘ canaliferum,
‘ retusum,

T. clavator,
‘ tuberosum,
‘ vespaceum,
‘ chlorostomum,
‘ anus,
‘ clathratum,
‘ subdistortum,
‘ cancellatum,

T. maculosum,
‘ clandestinum,
‘ rubecula,
‘ cutaceum,
‘ dolarium,
‘ tranquebaricum,
‘ undosum.

ALATA.—Three Genera.

Shell with a more or less elongated canal at the base of the aperture, the right lip of which changes its form with age, and has a sinus at the lower part.

Rostellaria. Shell fusiform or subturreted, terminated by a beak-shaped canal; right lip entire or toothed, more or less dilated with age; with a sinus contiguous to the canal.

R. curvirostris,
‘ rectirostris,

R. pespilicani,

R. cancellata,

3 fossil species.

Pterocera. Shell ovate oblong, ventricose, terminated at the lower part by an elongated canal; the right lip dilated by age into a digitated wing, with a sinus towards the base. Spire short.

P. truncata,
‘ lambio,

P. millepeda,
‘ pseudoscorpio,

P. scorpio,
‘ aurantia,

P. chiragra.

Strombus. Shell ventricose, terminated at the base by a short, notched, or truncated canal; right lip dilated by age into a simple wing, lobed or cre-

nated at the upper part, with a sinus at the lower part, separate from the canal or notch of the base.

S. gigas,
‘ accipitrinus,
‘ latissimus,
‘ tricornis,
‘ gallus,
‘ bituberculatus,
‘ cristatus,
‘ dilatatus,
‘ bubonius,
S. lentiginosus,
‘ auris Dianæ,
‘ pugilis,
‘ pyrulatus,
‘ gibberulus,
‘ luhuanus,
‘ Mauritianus,
‘ canarium,
S. Isabella,
‘ vittatus,
‘ epidromis,
‘ columba,
‘ succinctus,
‘ troglodytes,
‘ tridentatus,
‘ urceus,
S. plicatus,
‘ floridus,
‘ papilio,
‘ lineatus,
‘ marginatus,
‘ turritus,
‘ cancellatus,
1 fossil species.

PURPURIFERA.—Eleven Genera.

Shell with a short canal ascending posteriorly, or an oblique notch or demicanal at the base of the aperture, directed towards the back.

This family is separated into two divisions.

DIVISION I. *The canal ascending, or curved towards the back.*

Cassidaria. Shell subovate or ovate oblong; aperture longitudinal, narrow, terminated at the base by a curved, subascending canal. Right lip varicose or replicate; left lip laid over the columella, mostly rough, granulated, tuberculated or wrinkled.

C. echinophora,
‘ cingulata,
C. striata,
‘ thyrrena,
C. oniscus,
2 fossil species.

Cassis. Shell inflated; aperture longitudinal, narrow, terminated at the base by a short canal abruptly curved towards the back of the shell; columella plaited or transversely wrinkled. Right lip mostly toothed.

C. Madagascarensis,
‘ cornuta,
‘ tuberosa,
‘ flammea,
‘ fasciata,
‘ glauca,
‘ crumena,
C. areola,
‘ zebra,
‘ decussata,
‘ abbreviata,
‘ rufa,
‘ pennata,
‘ testiculus,
C. achatina,
‘ pyrum,
‘ Zeylanica,
‘ sulcosa,
‘ granulosa,
‘ saburon,
C. canaliculata,
‘ semigranosa,
‘ vibex,
‘ crinaceus,
‘ plicaria,
1 fossil species.

DIVISION II. *An oblique notch, inclining backwards.*

Ricinula. Shell ovate, the exterior mostly tubercular or spinous; aperture oblong, with a demicanal at the lower part, curved towards the back,

terminated by an oblique notch; unequally toothed on the columella and on the internal margin of the right lip, usually contracting the aperture.

R. horrida,
‘ miticula,
‘ clathrata,
R. arachnoidea,
‘ digitata,
R. aspera,
‘ morus,
R. mutica,
‘ pisolina.

Purpura. Shell oval, smooth, tubercular or angular; aperture dilated, the lower part terminating in an oblique, subcanaliculated notch. Columella flattened, pointed at the base.

P. Persica,
‘ Rudolphi,
‘ patula,
‘ columellaria,
‘ succincta,
‘ consul,
‘ armigera,
‘ bitubercularis,
‘ hippocastanum,
‘ undata,
‘ hæmastoma,
‘ mancinella,
‘ bufo,
‘ callosa,
P. neritoides,
‘ planospira,
‘ callifera,
‘ coronata,
‘ carinifera,
‘ scalariformis,
‘ sacellum,
‘ squamosa,
‘ rugosa,
‘ textilosa,
‘ sertum,
‘ Francolinus,
‘ limbosa,
‘ ligata,
P. cruentata,
‘ lapillus,
‘ imbricata,
‘ lagenaria,
‘ cateracta,
‘ bicostalis,
‘ plicata,
‘ fiscella,
‘ thiarella,
‘ rustica,
‘ semiimbricata,
‘ echinulata,
‘ hystrix,
‘ deltoides,
P. unifascialis,
‘ retusa,
‘ trochlea,
‘ clavus,
‘ fasciolaris,
‘ vexillum,
‘ bizonalis,
‘ nucleus,
‘ distorta,
‘ bulbus,
‘ subrostrata,
‘ tectum,
‘ cariosa.

Monoceros. Shell oval; aperture longitudinal, the lower part terminating in an oblique notch. A conical tooth on the internal base of the right margin.

M. cingulatum,
‘ imbricatum,
M. striatum,
M. glabratum,
M. crassilabrum.

Concholepas. Shell inflated oval, semispiral, the summit inclining obliquely towards the left margin; aperture large, longitudinal, oblique, with a slight channel at the lower part. Two teeth at the base of the margin; an oblong, thin, corneous operculum.

C. Peruvianus.

Harpa. Shell oval, more or less inflated, with longitudinal, parallel, inclined and acute ribs; spire short; aperture notched at the lower part; no canal. Columella smooth, flattened and pointed at the base.

H. imperialis,
‘ ventricosa,
‘ conoidalis,
H. nobilis,
‘ articularis,
H. rosea,
‘ minor,
H. striata,
1 fossil species.

Dolium. Shell thin, ventricose, inflated, mostly subglobular, rarely ob-

transversely banded; the outer lip dentated or crenated through its whole length; aperture oblong, notched at the lower part.

D. galea,	D. maculatum,	D. pomum,	D. perdix.
‘ olearium,	‘ fasciatum,	‘ variegatum,	

Buccinum. Shell ovate or ovate conical; aperture longitudinal, with a notch at the base; without a canal. Columella not flattened, swollen on the upper part.

B. undatum,	B. lineatum,	B. tricarinatum,	B. zebra,
‘ glaciale,	‘ fuscatum,	‘ Brasilianum,	‘ dermestoideum,
‘ Anglicanum,	‘ lineolatum,	‘ semiconvexum,	‘ aurantium,
‘ papyraceum,	‘ maculosum,	‘ fasciolatum,	‘ pediculare,
‘ annulatum,	‘ politum,	‘ vinosum,	‘ arcularia,
‘ lævissimum,	‘ suturale,	‘ tenuiplicatum,	‘ coronatum,
‘ testudineum,	‘ mutabile,	‘ subspinosum,	‘ thersites,
‘ achatinum,	‘ inflatum,	‘ Ascanias,	‘ gibbosulum,
‘ glans,	‘ retusum,	‘ lævigatum,	‘ pullus,
‘ papillosum,	‘ ventricosum,	‘ flexuosum,	‘ marginulatum,
‘ olivaceum,	‘ gemmulatum,	‘ aciculatum,	‘ pauperatum,
‘ canaliculatum,	‘ Coromandelianum,	‘ corriculatum,	‘ polygonatum,
‘ crenulatum,	‘ fasciatum,	‘ cribrarium,	‘ neriteum,
‘ reticulatum,	‘ miga,	‘ grana,	2 fossil species.
‘ Tranquebaricum,	‘ lyratum,	‘ cocinella,	

Eburna. Shell oval or elongated, the right lip simple; aperture longitudinal, notched at the base. Columella umbilicated on the upper part, and canaliculated below the umbilicus.

E. glabrata,	E. spirata,	E. arcolata,	E. lutosa.
‘ Zeylanica,			

E. spirata, E. M. t. 401. f. 2.
‘ ambulacrum, Sowerby, C. Ill. f. 2.
‘ valentina, Swainson, Z. Ill. 1 S. pl. 144.
‘ pacifica, do. do. pl. 146.

E. tessellata, Swain. Z. Ill. 1 S. pl. 145.
‘ Zeylanica, E. M. t. 401. f. 3.
‘ plumbea, Sowerby, C. Ill. f. 3, 4.
‘ aestralis, ‘ 5.
‘ papillaris, ‘ 1.

Terebra. Shell elongated, turreted, very pointed at the summit; aperture longitudinal, many times shorter than the spire, notched at the posterior part of the base. Base of the columella turreted or oblique.

T. maculata,	T. oculata,	T. striatula,	T. scabrella,
‘ flammea,	‘ duplicata,	‘ chlorata,	‘ strigilata,
‘ crenulata,	‘ Babylonia,	‘ cerithina,	‘ lanceata,
‘ dimidiata,	‘ corrugata,	‘ raphanula,	‘ aciculina,
‘ muscaria,	‘ Senegalensis,	‘ cingulifera,	‘ granulosa,
‘ subulata,	‘ cœrulescens,	‘ myuros,	‘ vittata.

COLUMELLARIA.—Five Genera.

No canal at the base of the aperture, but a more or less distinct dorsal notch and plaits on the columella.

COLUMBELLA. Shell oval, spire short, the base of the aperture more or less notched, and without a canal. Columella plaited; aperture contracted by a swelling on the inside of the right lip.

C. strombiformis,
‘ rustica,
‘ mercatoria,
‘ flavida,
‘ semipunctata,
C. bizonalis,
‘ reticulata,
‘ Hebræa,
‘ pardalina,
‘ scripta,
C. ovulata,
‘ nitida,
‘ zonalis,
‘ fulgurans,
C. mendicaria,
‘ turturina,
‘ punctata,
‘ unifascialis.

MITRA. Shell turreted, subfusiform, the spire pointed at the summit, the base notched, and without a canal. Columella plaited; the plaits parallel, transverse, the lower ones smallest; columella lip thin, and formed on a pillar.

M. episcopalis,
‘ papalis,
‘ pontificalis,
‘ puncticulata,
‘ millepora,
‘ cardinalis,
‘ archiepiscopalis,
‘ versicolor,
‘ sanguinolenta,
‘ ferruginea,
‘ terebralis,
‘ adusta,
‘ granulosa,
‘ crocata,
‘ casta,
‘ nexilis,
‘ olivaria,
‘ scabriuscula,
‘ granatini,
‘ crenifera,
‘ serpentina,
M. tœniata,
‘ plicaria,
‘ corrugata,
‘ costellaris,
‘ lyrata,
‘ melongena,
‘ cinctella,
‘ vulpecula,
‘ Caffra,
‘ sanguisuga,
‘ stigmataria,
‘ flosa,
‘ fissurata,
‘ lactea,
‘ cornicularis,
‘ lutescens,
‘ striatula,
‘ subulata,
‘ cornea,
‘ tringa,
‘ melaniana,
M. scutulata,
‘ dactylus,
‘ fenistrata,
‘ crenulata,
‘ texturata,
‘ conulus,
‘ limbifera,
‘ aurantica,
‘ amphorella,
‘ coronata,
‘ paupercula,
‘ cucumerina,
‘ patriarchalis,
‘ muriculata,
‘ torulosa,
‘ ebenus,
‘ harpæformis,
‘ semifasciata,
‘ retusa,
‘ microzonias,
M. ficulina,
‘ nucleola,
‘ unifascialis,
‘ bacillum,
‘ conularis,
‘ arenosa,
‘ clavulus,
‘ literata,
‘ Peronii,
‘ obliquata,
‘ plumbea,
‘ larva,
‘ pisolina,
‘ dermestina,
‘ granulifera,
‘ oniscina,
‘ tabanula,
‘ pediculus,
‘ Michebinii,
14 fossil species.

VOLUTA. Shell oval, more or less ventricose, the apex obtuse or papillary, the base notched; no canal. Columella plaited; the lower plaits largest and most oblique; no columella lip.

V. nautica,
‘ diadema,
‘ armata,
‘ ducalis,
‘ tessellata,
‘ Æthiopica,
V. melo,
‘ Neptuni,
‘ cymbium,
‘ olla,
‘ proboscidalis,
‘ porcina,
V. scapha,
‘ Brasiliana,
‘ imperialis,
‘ pellis serpentis,
‘ vespertilio,
‘ mitis,
V. nivosa,
‘ serpentina,
‘ hebræa,
‘ musica,
‘ chlorosina,
‘ thiarella,

V. carneolata,
‘ Guinaica,
‘ lævigata,
‘ polyzonalis,
‘ fulva,
‘ sulcata,

V. nodulosa,
‘ magnifica,
‘ ancilla,
‘ Magellanica,
‘ Pacifica,

V. fulminata,
‘ Junonia,
‘ undulata,
‘ lapponica,
‘ vexillum,

V. volvacea,
‘ festiva,
‘ mitræformis,
‘ nucleus,
18 fossil species.

Marginella. Shell ovate oblong, smooth, spire short, right lip externally thickened; base of the aperture scarcely notched; plaits on the columella nearly equal.

M. glabella,
‘ radiata,
‘ nubeculata,
‘ cœrulescens,
‘ quinqueplicata,
‘ limbata,
‘ rosea,

M. bifasciata,
‘ faba,
‘ aurantia,
‘ bivaricosa,
‘ longivaricosa,
‘ muscaria,
‘ formicula,

M. eburnea,
‘ dentifera,
‘ dactylus,
‘ bullata,
‘ cornea,
‘ abellana,
‘ goodalli,

M. persicula,
‘ lineata,
‘ tessellata,
‘ interrupata,
‘ marginata,
1 fossil species.

Volvaria. Shell cylindrical, convolute; spire scarcely projecting; aperture narrow, the length of the shell. One or more folds on the lower part of the columella.

V. monilis,
‘ pallida,

V. triticea,
‘ oryza,

V. miliacea,

1 fossil species.

CONVOLUTA.—Six Genera.

Shell without a canal, but having the base of the aperture channelled or effuse; the whorls large, compressed, convolute, the last nearly covering the whole of the others.

Ovula. Shell turgid, attenuated at each end, the margins turned upwards; aperture longitudinal, narrow, effuse at the extremities; without teeth on the left lip.

O. ovum,
‘ margarita,
‘ Adriaticum,
‘ pyriforme,
‘ carneum,
‘ marginatum,
‘ lacteum,
‘ breve,

O. verrucosum,
‘ angulosum,
‘ triticeum,
‘ frumentum,
‘ stritulum,
‘ emarginatum,
‘ gibbosum,
‘ obtusum,

O. seminulum,
‘ formicarium,
‘ secale,
‘ spelta,
‘ intermedium,
‘ birostre,
‘ longirostratum,
‘ volva,

O. aciculare,
‘ patulum,
‘ hordeaceum,
‘ rufum,
‘ avena,
‘ inflexum,
‘ æquale,
2 fossil species.

Cypræa. Shell oval or ovate oblong, convex; the lips curved inwards;

aperture longitudinal, narrow, toothed on both sides; the extremities effuse; spire very small, hardly perceptible.

A catalogue of all the recent species of the genus Cypræa, by G. B. Sowerby.

C. princeps,	C. mus,	C. punctata,	C piperita,
‘ mappa,	‘ tessellata,	‘ pulchella,	‘ algoensis,
‘ tigris,	‘ annulata,	‘ pyriformis,	‘ edentula,
‘ pantherina,	‘ margarita,	‘ Walkeri,	‘ similis,
‘ mauritiana,	‘ cicercula,	‘ Humpreysii,	‘ fusco-dentata,
‘ stercararia,	‘ globulus,	‘ tenes,	‘ capensis,
‘ aurora,	‘ staphylæa,	‘ tabescens,	‘ pustulata,
‘ leucodon,	‘ nucleus,	‘ cylindrica,	‘ Adansonii,
‘ sulcidentata,	‘ Madagascariensis,	‘ cribraria,	‘ ovulata,
‘ Arabicula,	‘ guttata,	‘ Goodalli,	‘ aperta,
‘ lynx,	‘ poraria,	‘ Cumingii,	‘ carnea,
‘ vitellus,	‘ albuginosa,	‘ caurica,	‘ maugeriæ,
‘ carneola,	‘ Listeri,	‘ cruentata,	‘ australis,
‘ cinerea,	‘ gangrenosa,	‘ errones,	‘ rufescens,
‘ Reevei,	‘ citrina,	‘ felina,	‘ Europæa,
‘ obscurus,	‘ helvola,	‘ irrorata,	‘ sanguinea,
‘ achatina,	‘ bicallosa,	‘ spadicea,	‘ quadripunctata,
‘ arenosa,	‘ spurea,	‘ onyx,	‘ globosa,
‘ nivosa,	‘ flaveola,	‘ pyrum,	‘ exigua,
‘ Broderipii,	‘ erosa,	‘ picta,	‘ subrostrata,
‘ exanthema,	‘ Lamarckii,	‘ zonata,	‘ fusca,
‘ cervus,	‘ ocellata,	‘ xanthodon,	‘ oryxa,
‘ testudinaria,	‘ turdus,	‘ nigro-punctata,	‘ nivea,
‘ talpa,	‘ caput serpentis,	‘ pallida,	‘ pulex,
‘ exusta,	‘ annulus,	‘ punctulata,	‘ pediculus,
‘ argus,	‘ obvelata,	‘ ziczac,	‘ pacifica,
‘ scurra,	‘ moneta,	‘ undata,	‘ suffusa,
‘ pulchra,	‘ asellus,	‘ clandestina,	‘ Californica,
‘ Isabella,	‘ maculata,	‘ lentiginosa,	‘ solandri,
‘ controversa,	‘ interrupta,	‘ contaminata,	‘ radians,
‘ lurida,	‘ hirundo,	‘ sanguiolenta,	‘ depauperata,
‘ microdon,	‘ stolida,	‘ fimbriata,	‘ Childrini,
‘ Scottii,	‘ neglecta,	‘ angustata,	12 fossil species.

C. camelopardalis, of Perry, } are young
‘ melanostomus, of Sowerby, } shells.

C. Arabica, var. Histrio.

Terebellum. Shell convolute, subcylindrical, pointed at the summit; aperture longitudinal, narrow at the upper part, notched at the base. Columella smooth, the lower part truncated.

T. subulatum, 2 fossil species.

Ancillaria. Shell oblong, subcylindrical, spire short, not channelled at the sutures; aperture longitudinal, scarcely notched at the base, effuse. A callous and oblique varix at the base of the columella.

A. cinnamomea,	A. marginata,	A. volutella, (n. s.)	5 fossil species.
‘ ventricosa,	‘ candida,		

Oliva. Shell subcylindrical, convolute, smooth, spire short, sutures channelled; aperture longitudinal, notched at the base. Columella obliquely striated.

O. porphyria,
‘ textelina,
‘ erythrostoma,
‘ pica,
‘ tremulina,
‘ angulata,
‘ maura,
‘ sepulturalis,
‘ fulminas,
‘ irisans,
‘ elegans,
‘ episcopalis,
‘ venulata,
‘ guttata,
‘ leucophæa,
‘ reticularis,

O. flammulata,
‘ granitella,
‘ araneosa,
‘ literata,
‘ scripta,
‘ tricolor,
‘ sanguinolenta,
‘ mustellina,
‘ lugubris,
‘ funebralis,
‘ glandiformis,
‘ Peruviana,
‘ Senegalensis,
‘ fusiformis,
‘ undata,
‘ inflata,

O. bicincta,
‘ harpularia,
‘ hepatica,
‘ ustulata,
‘ avellana,
‘ tessellata,
‘ carneola,
‘ ispidula,
‘ oriola,
‘ candida,
‘ volutella,
‘ tigrina,
‘ Brasiliana,
‘ utriculus,
‘ auricularia,
‘ acumina,

O. subulata,
‘ luteola,
‘ testacea,
‘ hiatula,
‘ obtusaria,
‘ Zeylanica,
‘ nebulosa,
‘ fabagina,
‘ conoidalis,
‘ undatella,
‘ eburnea,
‘ nana,
‘ zonalis,
‘ oryza,
5 fossil species.

Conus. Shell turbinated or inversely conical, convolute; aperture longitudinal, narrow, not toothed; base effuse.

C. marmorea,
‘ bandanus,
‘ nocturnus,
‘ Nicobaricus,
‘ araneosus,
‘ zonatus,
‘ imperialis,
‘ fuscatus,
‘ viridulus,
‘ regius,
‘ cedo nulli,
‘ aurantius,
‘ nebulosus,
‘ minimus,
‘ sulcatus,
‘ hebræus,
‘ vermiculatus,
‘ arenatus,
‘ pulicarius,
‘ fastigatus,
‘ obesus,
‘ varius,
‘ tulipa,
‘ geographus,
‘ punctatus,
‘ tæniatus,
‘ musicus,
‘ miliaris,
‘ mus,
‘ lividus,
‘ Barbadensis,

C. roseus,
‘ cardinalis,
‘ Magellanicus,
‘ distans,
‘ pontificalis,
‘ Caledonicus,
‘ sponsalis,
‘ puncturatus,
‘ Ceylanicus,
‘ lamellosus,
‘ pusillus,
‘ exiguus,
‘ asper,
‘ millepunctatus,
‘ literatus,
‘ eburneus,
‘ tessellatus,
‘ generalis,
‘ Maldivas,
‘ Malacanus,
‘ lineatus,
‘ monile,
‘ centurio,
‘ vitulinus,
‘ vulpinus,
‘ flavidus,
‘ virgo,
‘ daucus,
‘ pastinaca,
‘ capitaneus,
‘ classiarius,

C. vittatus,
‘ mustelinus,
‘ vexillum,
‘ Sumatrensis,
‘ hyæna,
‘ miles,
‘ ammiralis,
‘ genuanas,
‘ papylonaceus,
‘ Siamensis,
‘ Prometheus,
‘ glaucus,
‘ suratensis,
‘ monachus,
‘ ranunculus,
‘ anemone,
‘ achatinus,
‘ cinereus,
‘ stramineus,
‘ zebra,
‘ lacteus,
‘ cingulatus,
‘ vicareus,
‘ mercator,
‘ ochraceus,
‘ betulinus,
‘ figulinus,
‘ quercinus,
‘ Proteus,
‘ leoninus,
‘ augur,

C. pertusus,
‘ nivosus,
‘ fulgurans,
‘ acuminatus,
‘ amadis,
‘ Janus,
‘ flammeus,
‘ lithoglyphus,
‘ testudinarius,
‘ venulatus,
‘ quæstor,
‘ muscosus,
‘ Narcissus,
‘ Mozambicus,
‘ Guinaicus,
‘ Franciscanus,
‘ informus,
‘ rattus,
‘ Jamaicensis,
‘ Mediterineus,
‘ puncticulatus,
‘ Mauritianus,
‘ fumigatus,
‘ eques,
‘ luzonicus,
‘ catus,
‘ verucosus,
‘ acutangulus,
‘ mindanus,
‘ Japonicus,
‘ pusio,

C. columba,
‘ medurensis,
‘ nemocanus,
‘ cancellatus,
‘ fusiformis,
‘ cœrulescens,
‘ aurora,
‘ Taitensis,
‘ Adansonii,
‘ Tinianus,
‘ Portoricanus,
‘ crocatus,
‘ amabilis,
‘ Omæicus,
‘ nobilis,

C. aurisiacus,
‘ terminus,
‘ striatus,
‘ gubernator,
‘ granulatus,
‘ terebra,
‘ verulosus,
‘ raphanus,
‘ magus,
‘ spectrum,
‘ bullatus,
‘ cervus,
‘ stercus-muscarum,
‘ Timorensis,
‘ nimbosus,

C. dux,
‘ tendineus,
‘ præfectus,
‘ melancholicus,
‘ strigatus,
‘ glans,
‘ mitratus,
‘ nussatella,
‘ aulicus,
‘ auratus,
‘ colubrinus,
‘ clavus,
‘ auricomus,
‘ omaria,

C. rubiginosus,
‘ pennaceus,
‘ prælatus,
‘ panniculus,
‘ archiepiscopus,
‘ canonicus,
‘ episcopus,
‘ legatus,
‘ textile,
‘ pyramidalis,
‘ gloria maris,
‘ australis,
‘ orbignyi, (n. s.)
9 fossil species.

ORDER IV. CEPHALOPODA.

This order is separated into three divisions, viz. Polythalamous Cephalopoda, Monothalamous Cephalopoda, and Naked Cephalopoda.

DIVISION I. POLYTHALAMOUS CEPHALOPODA.

Shell multilocular, completely or partially enveloped, situated on the posterior part of the body of the animal, often adhering.

This division contains seven families,—Orthocerata, Lituolata, Cristata, Sphærulata, Radiolata, Nautilacea, and Ammoneata.

I. *Shell multilocular, the septa simple, not showing any divided sinuous sutures on the internal surface of the shell.*

ORTHOCERATA.—Five Genera.

Shell straight, or nearly so; not spiral.

Belemnites. Shell straight, an elongated cone, formed of two distinct and separable parts. The external sheath solid, full at the upper part, with a conical cavity; the internal, a conical nucleus, pointed, chambered transversely through its whole length, multilocular; the chambers perforated by a syphon in the centre.

1 fossil species.

Orthocera. Shell straight or slightly arched, subconical, striated on the

outside by numerous longitudinal ribs; chambers formed by transverse septa, perforated by a central or marginal tube.

O. raphanus, O. raphanistrum, O. acicula, O. legumen.
‘ fascia, ‘ obliqua,

Nodosaria. Shell elongated, straight or slightly curved, subconical, nodular; nodules globular, very smooth. Chambers formed by transvers septa, perforated in the centre or near the margin.

N. radicula, N. dentalina, N. siphunculus.

Hippurites. Shell cylindrical, conical, straight or rather curved, multilocular, septa transverse. An internal, lateral channel, formed by two longitudinal, parallel, obtuse and converging ledges; the last chamber furnished with an operculum.

A fossil.

Conilites. Shell conical, straight, slightly bent; sheath thin, distinct from the nucleus, which it contains. Nucleus subseparable, multilocular, transversely divided by septa.

A fossil.

LITUOLATA.—Three Genera.

Shell partly spiral, the last whorl continuing in a straight line.

Spirula. Shell cylindrical, thin, nearly transparent, multilocular, partly turned into a discoidal spiral form; the whorls distant from each other, the last produced in a straight line; septa transverse, equally distant, externally concave; syphon lateral, interrupted; aperture orbicular.

S. Peronii.

Spirolina. Shell multilocular, partly discoidal spiral, the whorls contiguous, the last terminating in a straight line; septa transverse, terminated by a tube.

A fossil species.

Lituolites. Shell multilocular, partly turned into a discoidal spiral form; the whorls contiguous, the last terminating in a straight line; chambers irregular; septa transverse and simple, without a syphon, the last perforated with from three to six holes.

A fossil species.

CRISTATA.—Three Genera.

Shell semidiscoidal, spire eccentric.

Renulites. Shell reniform, flat, sulcated, multilocular; chambers linear, contiguous, curved about a marginal axis, the most distant from the axis the longest.

A fossil species.

Cristellaria. Shell semidiscoidal, multilocular; whorls contiguous, simple, progressively enlarging; spire eccentric, sublateral; septa imperforate.

Microscopic shells, nine species of which are enumerated by Fichtel;—see Ency. Meth. pl. 467, fig. 1, a. b. c.

Orbiculina. Shell subdiscoidal, multilocular; whorls contiguous and compound; spire eccentric; chambers short, very numerous; septa imperforate.

O. numismalis, O. angulata, O. uncinata,
' nummata, Ency. Meth. pl. 468, fig. 1, a. b. c. d.

SPHÆRULATA.—Three Genera.

Shell globular, spheroidal or oval; whorls of the spire covering, or the chambers united under the envelope.

Miliola. Shell transverse, ovate globular or elongated, multilocular; the chambers transverse, surrounding the axis, alternately covering one another; aperture very small, situated at the base of the last whorl, either orbicular or oblong.

A minute shell, one recent species of which is found on fuci, at the island of Corsica.

Gyrogonites. This genus has been formed from the seed of a species of chara, in a fossil state.

A fossil.

Melonites. Shell subspherical, spire central; whorls contiguous, convolute, tuniciform; chambers narrow and numerous; septa imperforate.

Two species.

RADIOLATA.—Three Genera.

Shell discoidal, spire central, chambers elongated, radiated, extending from the centre to the circumference.

ROTATILES. Shell orbicular, spiral, convex or conoidal above, flattened or radiated and tuberculated beneath, multilocular; aperture marginal, triangular.

A fossil.

LENTICULITES. Shell sublenticular, spiral, multilocular; the external margin of the whorls folded in two, extending above and below, even with the centre of the shell; septa entire, curved, the two sides prolonged in the form of rays; aperture narrow, projecting over the penultimate whorl.

A fossil.

PLACENTULA. Shell orbicular, convex above and beneath, multilocular; aperture oblong, narrow, formed like a ray on the lower, or on both discs.

A minute nautilus of Fichtel, Ency. Meth. pl. 466, fig. 9. a. b. c. d.

NAUTILACEA.—Six Genera.

Shell discoidal, spire central, the chambers short, not extending from the centre to the circumference.

DISCORBITES. Shell discoidal, spiral, multilocular, sides simple; the whole of the whorls apparent, naked, and contiguous to one another; septa transverse, frequent, not perforated.

A fossil.

SIDEROLITES. Shell multilocular, discoidal; whorls contiguous, not apparent outside; disc convex on both sides, and studded with tubercles, with unequal and radiated lobes on the periphery; septa transverse and imperforate; aperture distinct and sublateral.

A fossil.

POLYSTOMELLA. Shell discoidal, multilocular; whorls contiguous, not visible externally; the exterior radiated by transverse furrows or ribs; aperture composed of many holes, variously disposed.

A minute nautilus of Fichtel.

Vorticialis. Shell discoidal, spiral, multilocular; whorls contiguous, not apparent outwardly; septa transverse, imperforate, not extending from the centre to the periphery; aperture marginal.

A minute nautilus of Fichtel, Ency. Meth. pl. 470, fig. 1, a. b. c.

Nummulites. Shell lenticular, thin towards the margins; spire internal, discoidal, multilocular, covered by many thin plates; exterior margin of the whorls folded in two, extending from each side of the shell to the centre, and uniting; chambers very numerous, small, alternate; septa transverse, imperforate.

A fossil.

Nautilus. Shell discoidal, spiral, multilocular, sides simple; whorls contiguous, the last covering the others. Chambers numerous; septa transverse, concave from the side of the aperture; disc perforated by a tube, and the margins very simple.

N. pompilius, N. umbilicatus.

II. *Shell multilocular, the septa indented at the borders.*

AMMONEATA.—Five Genera.

Septa sinuous, lobed, and indented at the circumference, united at the inner surface of the shell, and articulating with it by means of indented sutures.

Ammonites. Shell discoidal, spiral; the whorls contiguous, and the whole of them apparent; the internal partitions articulated by sinuous sutures; septa transverse, lobed, and indented at the circumference, their discs without a syphon, but pierced by a sort of marginal tube.

A fossil.

Orbulites. Shell subdiscoidal, spiral; the whorls contiguous, the last covering the others, and the internal partitions articulated by sinuous sutures; septa transverse, lobed at the circumference, and perforated by a marginal tube.

A fossil.

Ammoniceratites. Shell coniform, arched, semicircular; partitions articulated by sinuous, ramose, indented sutures; septa transverse, sinuous,

lobed and indented at the circumference; tube or syphon marginal, not piercing the septa.

A fossil.

Turrilites. Shell spiral, turreted, multilocular; the whorls contiguous, and whole apparent; the partitions articulated by sinuous sutures; septa transverse, lobed and indented at the circumference; aperture rounded.

A fossil.

Baculites. Shell straight, cylindrical, sometimes rather compressed, slightly conical; the partitions articulated by sinuous sutures; septa transverse, a little distant; the disc imperforated, lobed and indented at the circumference.

A fossil.

DIVISION II. MONOTHALAMOUS CEPHALOPODA.

Shell unilocular, wholly external, and enveloping the animal.

Argonauta. Shell univalve, unilocular, involute, very thin; spire bicarinated, tubercular, turning into the aperture.

A. argo, A. tuberculata, A. nitida.

DIVISION III. NAKED CEPHALOPODA.—Four Genera.

No shell either internal or external. A solid, free, cretaceous or horny substance is found in the inside of most of these animals.

Octopus. No internal solid substance.

A molluscous animal. Sepia Octopus, *Linn.*

Loligopsis. No internal solid substance.

A molluscous animal.

Loligo. An elongated, thin, transparent and horny lamina, inclosed in the interior of the body, near the back.

A molluscous animal. Sepia Loligo, *Linn.*

Sepia. A free, cretaceous, spongy and opaque bone, inclosed in the interior of the body, towards the back.

S. officinalis, S. tuberculata.

ORDER V. HETEROPODA.—Three Genera.

Carinaria. Shell univalve, conical, flattened at the sides, unilocular, very thin, hyaline; the summit spirally turned, and the back sometimes furnished with an indented keel; aperture oblong, entire.

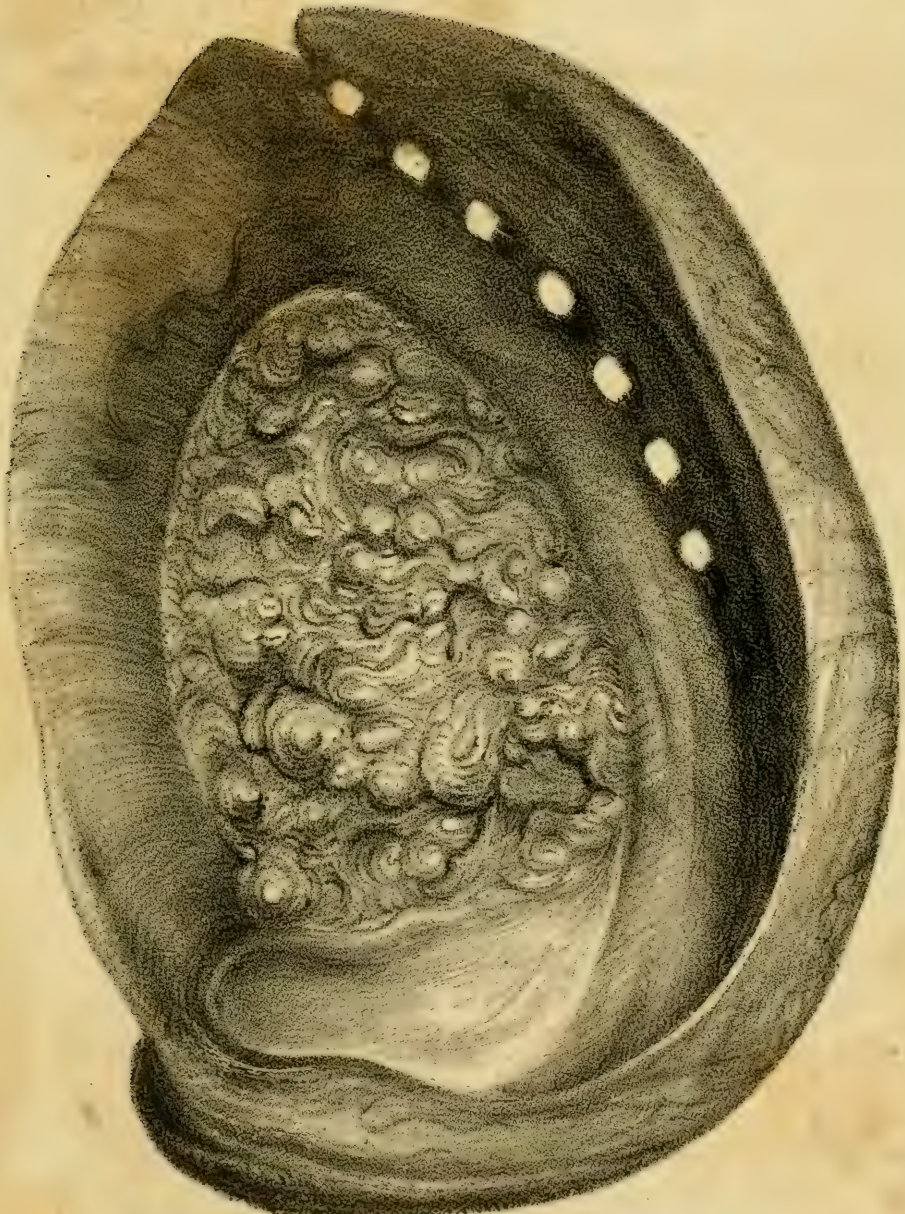
C. citrea, C. fragilis, C. cymbium.

Pterotrachea. This genus has no shell.

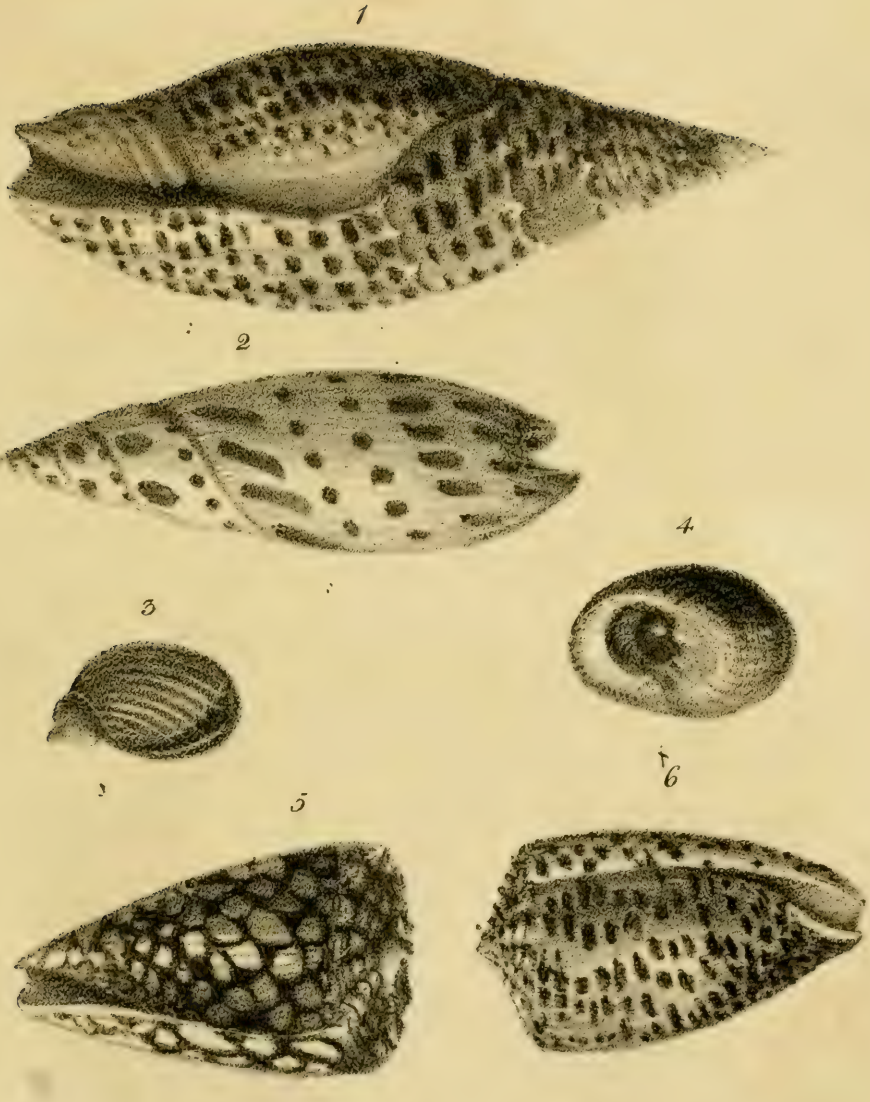
A molluscous animal,—four species.

Phylliroe. This genus has no shell.

A molluscous animal,—one species.



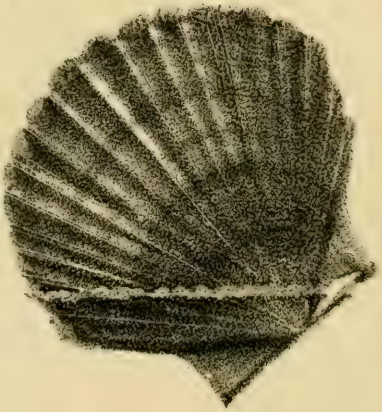
Pendleton's Lithogy. Boston.


1
2
3
4
5
6

1

2

3


4

5

1

2

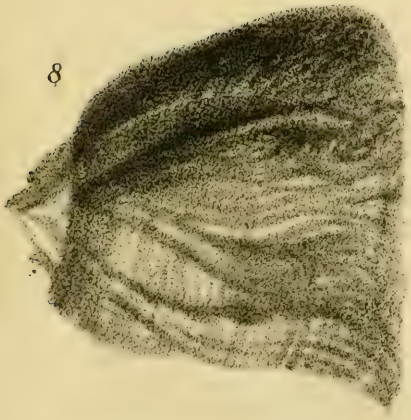
3

6

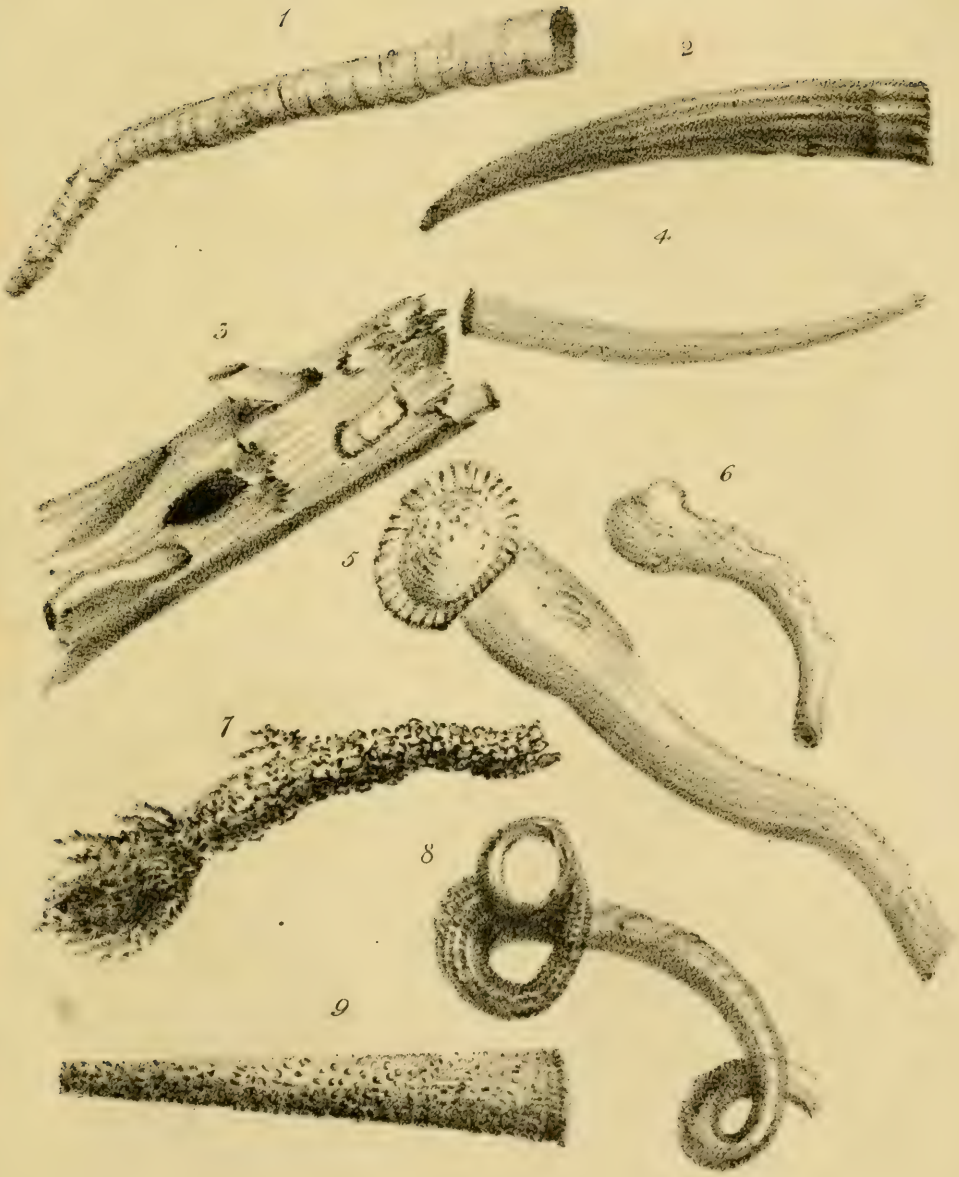
3

4

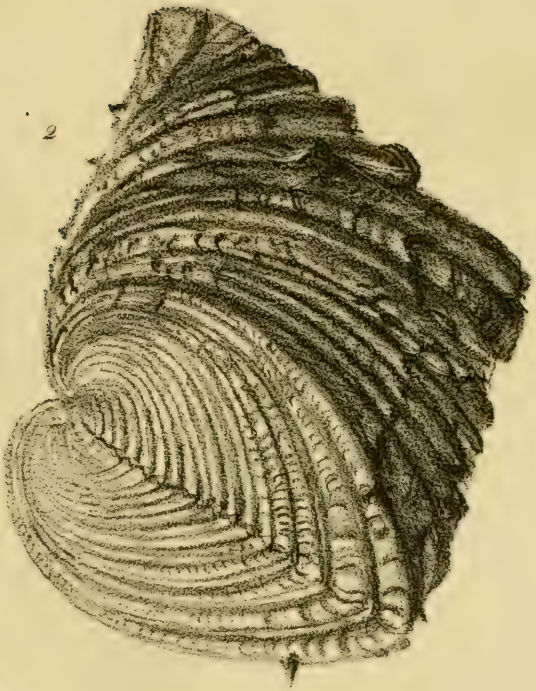
7

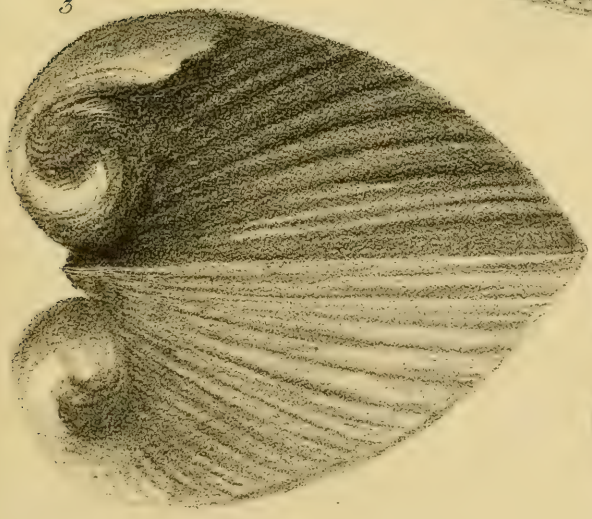

8

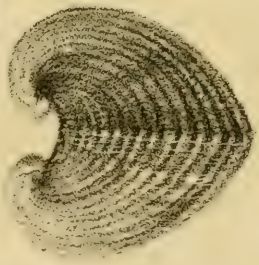
9


1
2
4
3
6
5
7
8
9

1

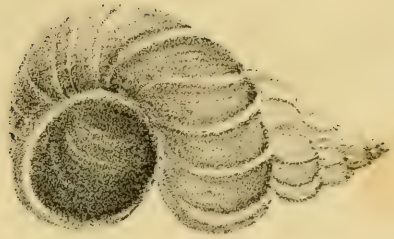

2


3


4

1

2

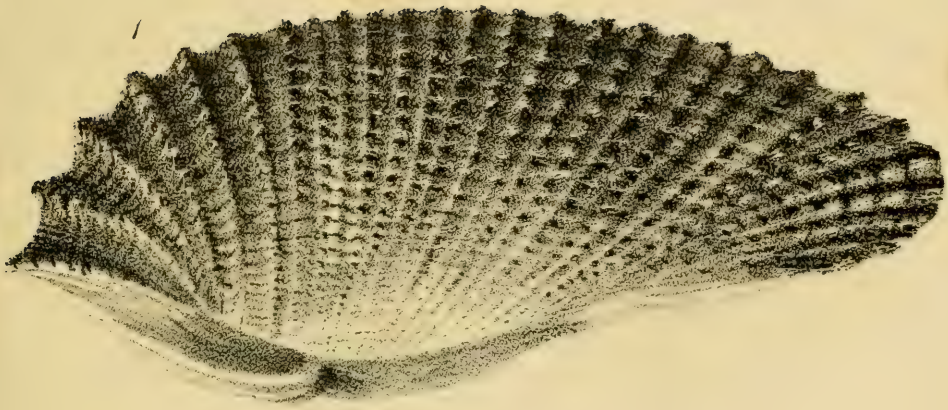


3

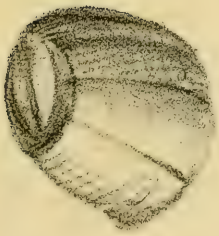
4

5

1



2

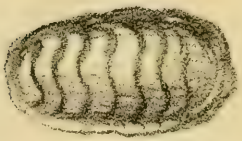


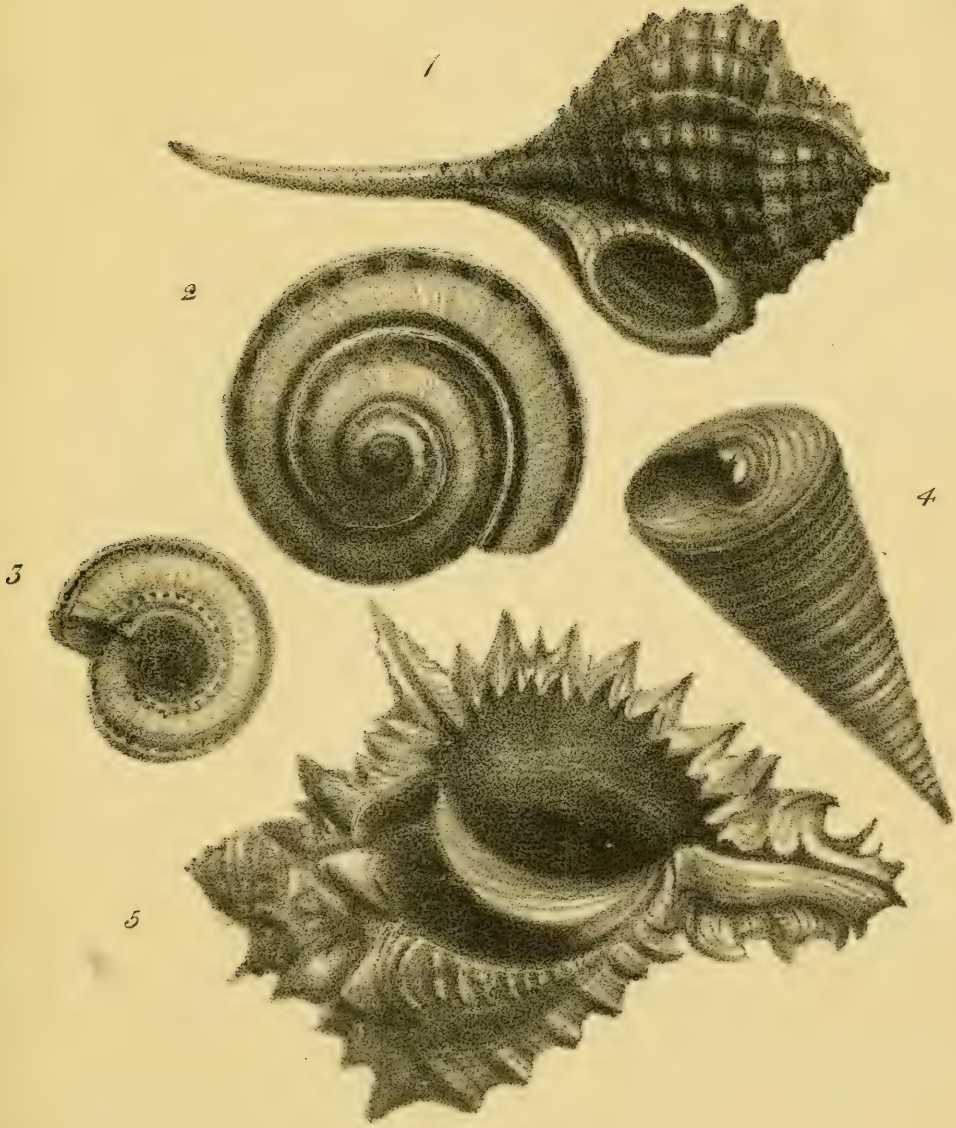
3

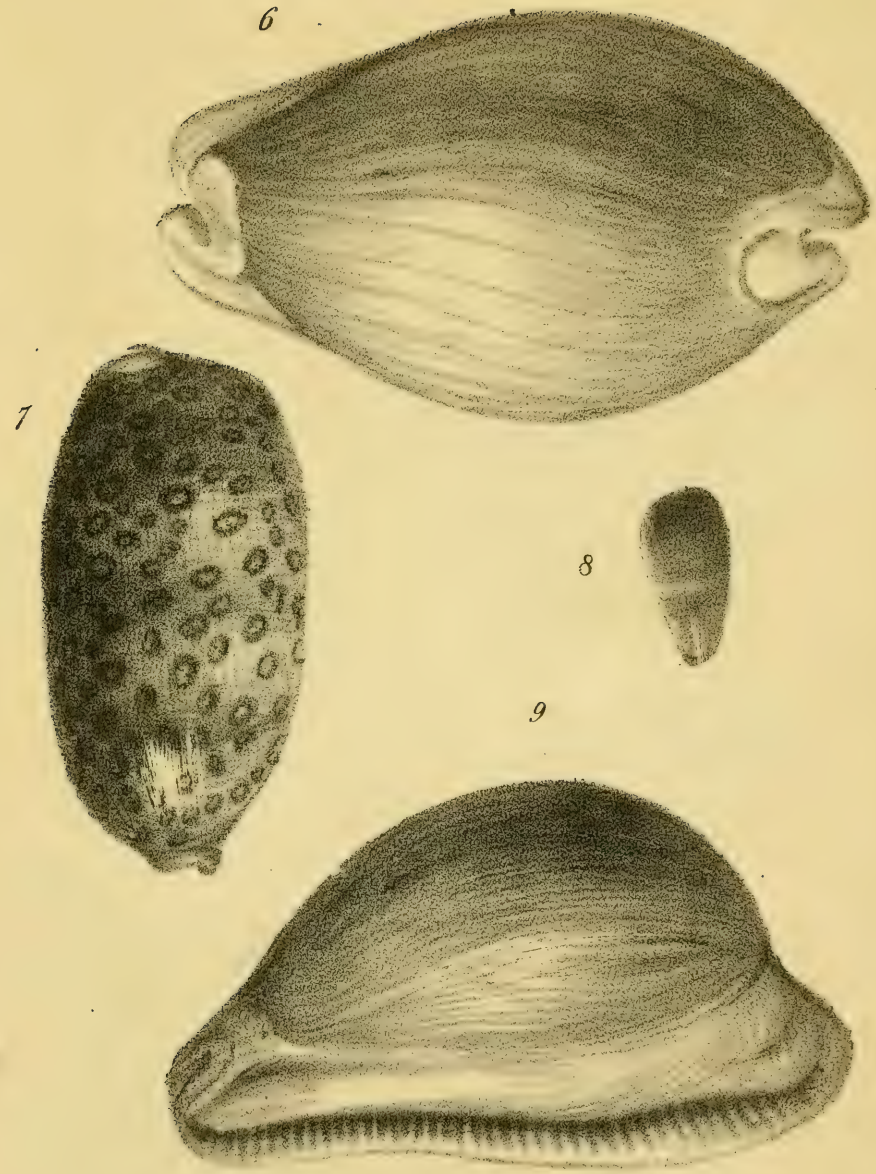
4

5

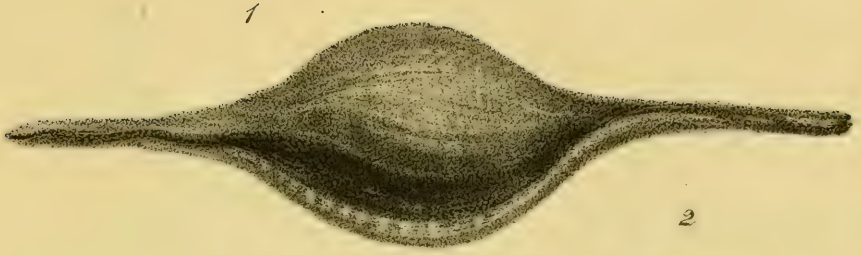
6



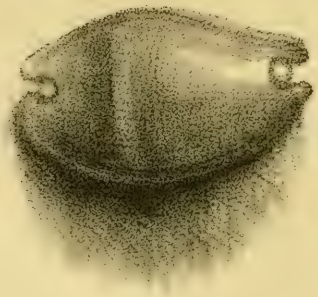

1
2
3
4
5


6
7
8
9

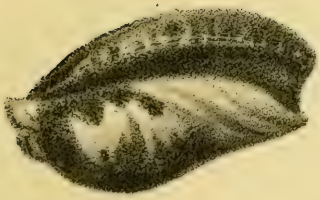
1



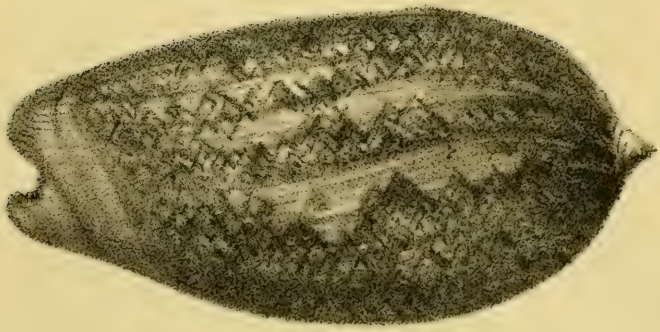
2

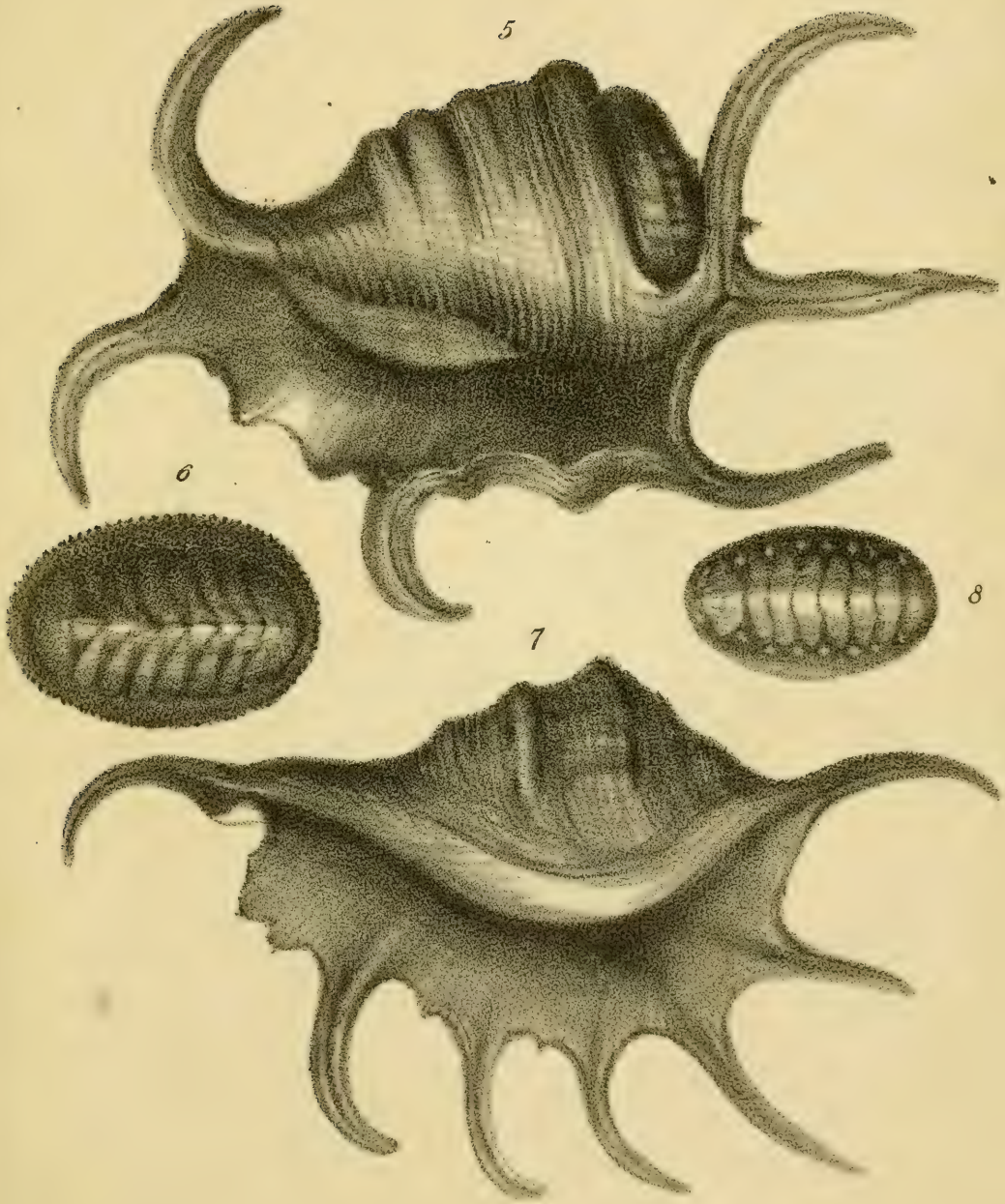


3



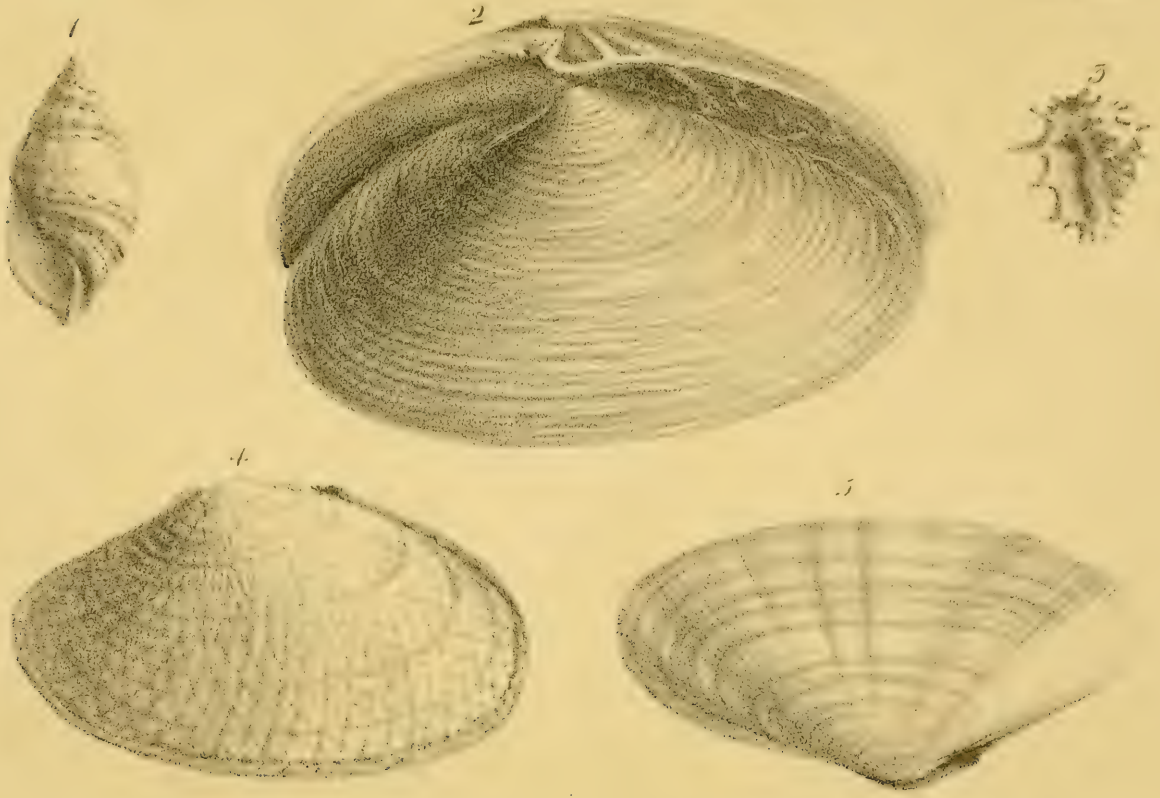
4




5
6
7
8

Pl. XV.

Pl. XVI.



SMITHSONIAN INSTITUTION LIBRARIES
3 9088 00056 9228