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A general natural history

A history of plants

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Book I. Of submarine plants.

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T H E

H I S T O R Y

O F

P L A N T S.

P A R T I.

B O O K I.

O F S U B M A R I N E P L A N T S.

THE fresh waters produce a great number of plants, many of which are in all respects like those of the land, and have perfect and obvious fructifications, tho' no part of them ever reach the surface; but it is otherwise with the Submarine ones. They are wholly unlike other plants in their form, texture, and manner of growth, and have either no visible fructifications at all, or such as are very difficultly understood, as to their structure, and method of fecundation.

Their manner of growth also is wholly different from that of other plants.

Plants in general have been defined to be organised bodies, nourished by means of roots which penetrate into the earth; but the Submarines have no such roots, they adhere to the bodies, which support them by broad bases, which do not penetrate into the substance they are affixed to, nor is that generally a matter capable of affording nourishment, if they did: a piece of stone, or even a glass bottle, or any other thing, sunk in the sea serving for this purpose. The part by which they are fixed, evidently answers no other purpose beside that of fixing them; and the plants themselves seem to be all over root, or to take in nourishment from the circumambient water, by pores placed all over their surfaces.

In plants in which the parts of fructification can give us no characters for distinguishing the orders and genera, we must have recourse to other differences: of these the most obvious are the most eligible.

The texture of the Submarine plants is of three very different kinds, and, according to this, we shall therefore arrange them under three classes.

Submarines; Class the First. Those which are of a stony hardness, and not flexible.

Submarines; Class the Second. Those which are of a very firm and tough texture.

Submarines; Class the Third. Those which are of a tender and herbaceous structure.

S U B M A R I N E S.

Class the First. Genus the First.

MYCEDIUM.

MYCEDIUM is a genus of Submarines of a hard and stony substance, not branched, regularly cavernose and lamellated; formed of gyri, or ridges very hard, and solid, surrounding the surface, or running over it in various windings and meanders, and leaving oblong, winding or undulated, cavities between them, which cavities are filled up with a matter of the same kind, formed into very thin plates or lamellæ of various structure.

No part of fructification has ever been discovered in any species of this genus.

These plants, from their resemblance to the Fungi in their structure and lamellæ, have been called by authors in general Fungi marini; to prevent confusion from similar sounds we have called them Mycedia, from the Greek μυκή, fungus.

1. *Mycedium convexum gyris sulcatis.*

The convex Mycedium with sulcated gyri.

Brainstone.

This is one of the largest of this genus. It is affixed to a rock, or other solid body, by a considerably broad base; from this it extends itself into an irregularly convex figure, sometimes globular, sometimes gibbose, and sometimes more flat. It grows very frequently to ten inches or a foot in diameter; sometimes to two feet or more. It is composed of a multitude of gyri or ridges, running in undulated figures, and divaricating into a multitude of others, which in many places grow to one another again. These ridges are of a very solid matter, and of a white colour; they are broader than a large packthread, and are sulcated or marked with a depression all the way along their middle. The interstices between these gyri are furnished with lamellæ, or thin plates of the same hard matter, disposed in a double row in each interstice. These leave a multitude of small unequal cavities between them. The great irregularity of the disposition of the gyri renders these interstices of various figures; they are usually oblong, but sometimes a few round ones are formed here and there: these form perfect resemblances of the Astroites or starry coral. The interstices between the gyri are large. This species is extremely common on the shores of America, and on those of the East Indies; we know it in England under the name of the Brainstone, a name given it from its resembling in some degree the appearance of the brain. Boerhaave calls it *Fungus maritimus coralloides undulatus*; and Ray, *Lapis fungites cerebriformis*.

2. *Mycedium convexum gyris integris.*

The convex Mycedium with undivided gyri.

This is a less common, but a much more beautiful species than the former. It grows from a large base affixed to a rock, to a very considerable size: a foot in diameter is not uncommon with it. It is sometimes highly convex on the surface, but it more usually rises less, and that in an irregular manner, some parts of its surface being much higher than others. It is all over undulated with gyri, which run in a beautiful irregularity over it, and join and divaricate again so frequently, that the configuration is strangely confused. These gyri are very slender, and the interstices, from their great number in the mass, are very small between them. The gyri are not sulcated as in the former species, but rise up in ridges, when perfect, though they are generally worn down to a flatness by the motion of the water. The lamellæ between these are very fine, and arranged in a double row, forming very small cavities between them. This grows on the shores of Barbadoes, and in many other parts of the West Indies. It is sometimes met with in the shops with us, confounded with the other under the common name of Brainstone. Bessler describes it under the name of *Massa coralloides maris fluctuationem representans*.

3. *Mycedium*

3. *Mycedium cavatum undulatum.*
The Hollowed undulated *Mycedium*.

This is a very elegant body. It's general structure is the same with that of the convex kinds, but it differs extremely from them in figure. It grows to the rocks by a small base, not thicker than a wheat-straw; from this it expands itself every way, till at an inch height it is often two inches in diameter, and from this it expands to three, four, or more inches. From the base to within half an inch of the top, it is usually smooth; from this part to the edge it is striated; and it's top is very beautifully undulated. It's circumference is a deeply sinuated line, and the two sides come every-where so near one another, as to leave but about half an inch for the lamellæ. The margin terminates every-where in a thin edge. The lamellæ fill up the intermediate space in a double series, joined as in the others by an opaque white line of a spongy texture in the middle; the lamellæ are very finely serrated, and, as they do not stand very close to one another, they make a beautiful appearance. The whole plant is white as snow, and of the hardness of marble. It grows on the shores of the Baltic in great abundance, and is found also on those of the East and West Indies. Besler describes it under the name of *Fungus faxeus minor*, and Sir Hans Sloane under that of *Fungus lapideus minor undulatus*.

4. *Mycedium obverse conicum.*
The inverted conic *Mycedium*.

This is a much more simple species than any of the former in its external appearance, but it is more beautiful than most in it's internal structure. It grows to an inch or two in height, and to the thickness of a man's thumb; sometimes much larger, but this is its usual standard. It is affixed to the rocks by a small and slender base; from this it gradually enlarges, and grows into the form of an inverted cone, the top being wider than any other part. The external surface is irregularly striated, the limb or verge beautifully undulated, and the whole cavity is filled up with thin, but long and broad lamellæ, rising from all parts of the internal surface, and meeting in or near the center; these do not stand very close, but leave deep, simple hollows between them. The whole is sometimes of a pure, fine white, sometimes of a brownish white colour, and is of a hard and stony texture. This is the usual appearance of this plant, but it is subject to great variations; sometimes it grows to a much greater length, with little more thickness; sometimes it is shorter and broader, and sometimes several plants of it grow one out of another, in the manner of the cups in the proliferous cup mosses; in this last state, it makes a very elegant figure.

It is found, in all its variety of appearances, about the coasts of the East Indies, and not unfrequently on those of America. Besler has described this under the name of *Fungus coralloides pezizæ forma*; others called it *Fungus faxeus vulgaris*.

5. *Mycedium patulum cancellatum.*
Open cancellated *Mycedium*.

This is a yet more elegant plant than the conic *Mycedium*; it rises like it from a small base, and gradually expands to a considerably wide mouth. It's usual height is an inch an half, it's breadth about an inch. It's external surface is striated pretty deeply, and is lightly marked with transverse lines. It's edge is undulated, and the expansion is sometimes roundish, sometimes oblong, and often perfectly irregular. It's whole cavity is filled up with long and fine lamellæ, which form cavities between them, which are again intercepted by regular transverse flakes, of the same substance with the lamellæ themselves, and equally thin. This is a very beautiful plant in this it's common state; but nature frequently luxuriates and forms oblong bodies, composed of several of these placed on one another. It's colour is white, and its texture stony. It is found about the shores of Italy, on those of some of the islands of the Archipelago, and in many other places. Some of the old botanical writers have left us imperfect descriptions of this, under the name of the *Alcyonium quintum Dioscoridis*.

6. *Mycedium*

6. *Mycedium planum lamellis longissimis.*
The flat Mycedium with very long lamellæ.

This is also an extremely beautiful species, and perfectly different from all the rest. It grows to the rocks by a broad base, which is often placed at one edge, not in the center, as in the other Mycedia; from this it expands into various long and broad plates, of different thicknesses, and very irregular figures. The under surface of these is often protuberant in some places, and hollowed in others, and is irregularly furrowed with longitudinal lines running from the base toward the edge; its upper surface has a number of irregular gyri, broad, solid, and white, sometimes plain, sometimes punctated on their surface; and between these there run very long and considerably thick lamellæ.

This often grows to a foot or more in length, and near as much in breadth. Imperatus has described it under the name of *Fungus petrosus*, and Boerhaave under that of *Fungus coralloides agarici forma*. It is frequent about the American islands.

After these general descriptions of the more singular species of the Mycedium, the others will easily be known by their names: They are, 1. A yellowish-white Brainstone Mycedium, with thin gyri. 2. A large kind, with blackish gyri, and white lamellæ. 3. The Brainstone Mycedium, with its cavities divided by transverse septa. 4. The Brainstone Mycedium, with extremely thin lamellæ. 5. The Brainstone Mycedium, with large cavities. 6. The Cup Mycedium, with lamellated pores. 7. The Cup Mycedium, with undulated laminae. 8. The funnel-shaped Cup Mycedium. 9. The high-ridged, flat Mycedium.

These are the different species hitherto known, beside those already described: descriptions of these would be tedious, and are unnecessary, as the general structure is the same in all, and their specific names are sufficient to express their differences. The variety of the Mycedia is indeed almost infinite; and people who do not examine their real characters, but judge of them by their form, might extend the number of supposed species to more than a thousand. Where we know nature sports in variation so much, we are to be upon our guard against taking varieties for species. All the Mycedia I have seen may be justly referred to one or other of these kinds.

All these Mycedia, and many of the Asterææ of the following genus, are taken up by the people of the West Indies for burning into lime. They make a very good sort, but less durable than that burnt from hard stone.

SUBMARINES.

Class the First. Genus the Second.

ASTERÆA.

ASTERÆA is a genus of Submarines, consisting of a stony matter, formed into simple or unbranched masses, regularly cavernose and lamellated, made up of solid gyri, or ridges, running into round, or nearly round configurations, and forming cavities of the same shape, which have lamellæ propagated from their sides, and converging to a point in the center, and by that means produce in each cavity the figure of a radiated star.

No part of fructification has ever been discovered in any of the species of this genus; but the botanic writers have, from the figure of a star in the cavities, given it the name of *Fungus Astroites*, or, simply, *Astroites*: the same word *Astroites* being used somewhat more properly for this body in its fossil state, we have, to avoid confusion, called it in its native state *Asteræa*.

1. *Asteræa stellis majoribus ovatis.*
The large, oval starred Asteræa.

This is one of the least beautiful species of this genus; it is of a coarse structure, and dusky white colour; it rises from a broad base, and expands into a large thick mass, of an irregularly convex figure. Its general size is that of a man's head, but is often twice or thrice as large. Its surface is formed of gyri, arranged into irregularly oval figures, with

with no spaces between them, and the cavities of them furnished with short lamellæ meeting in the center; the matter of the gyri is coarse, and they are considerably thick, and somewhat rounded on their surfaces. They are often worn down by the motion of the sea, and are then found to be cavernous in their structure. The lamellæ are moderately thick, and are not placed very near one another.

This species is frequent about the shores of the East Indies, and in many other places. Beller has described it under the name of *Fungus lapideus porosus*; and Boerhaave calls it *Fungus coralloides astroites*.

2. *Asteræa stellis majoribus, rotundioribus.*

The Asteræa, with large, round stars.

This is a very beautiful species. It grows to a considerable size, a foot in diameter, or more than that; and is of a beautiful white colour, and great hardness. It adheres to the rocks by a broad base, and from thence it extends itself in a circular manner, rising into the form of a segment of a sphere. Its whole surface, in sight from above, is starry; it is formed of gyri, considerably thick, solid, and of the colour and appearance of white marble. These run into very regular circles, and form a beautiful appearance. Nature is not so perfectly regular in the structure of this body, but that some of the circles blend with, or injure one another, and by that means produce irregular figures; but the greater part are very perfectly round; and, as circles are figures which can only touch in small parts, there are spaces of various figures interspersed every-where between the circles, by which this species is, at sight, distinguished from the former. These spaces are filled up with lamellæ, produced from the external surfaces of the gyri; and the cavities within the gyri are regularly and beautifully stellated, lamellæ from all parts of the internal surface running to meet in the center. These lamellæ are moderately thick, and stand at a considerable distance from one another. There frequently are not more than ten, sometimes only five or six of them in each cavity, with the rudiments of some imperfect ones between.

This beautiful species is found about the shores of Jamaica.

The distinctions between these *Asterææ* have been so little attended to by authors, that we cannot fix any certain synonymon for this species: it is probably one of the *Fungi coralloidis astroitidis variæ* species of Boerhaave; but he has not been at the pains to distinguish them.

3. *Asteræa stellis minoribus rotundis.*

The small, round-starred Asteræa.

This is an extremely elegant species, and is less common, as well as more beautiful, than either of the former. From a roundish flat base it expands itself into a very convex, but irregularly-figured mass, sometimes roundish, oftener oblong. It is very white, and of a very firm texture: its usual size is that of a man's fist; but it sometimes grows considerably larger. Its surface is formed of gyri, smooth, solid, and considerably thick, which form themselves into roundish figures, sometimes perfect, but oftener injured by one another. The spaces between these are as beautifully lamellated as the cavities they form: the cavities themselves are very small, and are filled with numerous and very thin lamellæ, placed so close, that there are often between twenty and thirty in a cell. They are of a less bright white than the gyri, but they make a very beautiful figure, resembling most of all the species, a radiated star.

This is found about the shores of Antegoa, and in some other parts of America.

4. *Asteræa stellis magnis angulatis.*

The great angular-starred Asteræa.

This is one of the largest species of this genus: 'tis of an extremely solid and firm texture, and of a yellowish-white colour; though the yellowness easily wears off, on its being exposed to the air. It grows to the rocks by a firm base, which conforms itself to the shape of the part of the rock it grows to; and from this it extends itself to eighteen or more inches in breadth: its masses are usually rounded, and somewhat convex, but more flattened than those of any of the others. Its surface is composed of gyri, which are very thick, and somewhat rounded on their surface: these touch in all points, so that

there are no spaces between; and they form, by this means, irregularly pentangular or hexangular figures. These are large, and their cavities filled up with very numerous, thin, and beautiful lamellæ: there are often sixty, or more of these in a cavity.

This species is found in the Mediterranean, growing often deep under water, on the rocks near the shore.

5. *Asteræa gyris crassissimis planis.*

The thick and flat partitioned Asteræa.

This is by much the most singular of all the species of *Asteræa*; in all the others the stars make up the greatest part of the surface, whence we have named them from those, as the most obvious marks of distinction; in this, the gyri take up the far greater part, whence we name it from them. This grows from an extremely large and broad base, which seems indeed a kind of core to it; the matter of the surface often making only a shelly covering over it. It is usually met with of the bigness of a hen's egg, or thereabout, but it sometimes grows much larger. Its figure is rounded, and very convex. The gyri are extremely hard, and as white and solid as ivory near the surface; within they are full of holes. They do not rise into rounded surfaces, as in many of the other species, but are flat, and, in general, of the breadth of a large straw; in some places, where they coalesce, they are much more: they are dispersed over the surface in irregular and strange forms; but they every-where make cavities, which are small, and of a roundish, or irregularly-oval figure; these are radiated with lamellæ, in the same manner as those of the rest. They are thin, small, and not placed very near one another; and it is singular in this species, that the stars are deep sunk in from the surface, so that the gyri only, at a little distance, are seen; and these give the whole much of the appearance of that kind of mushroom which we call the Morel.

This is less frequent than the others, and is oftener found in the East Indies than any where else. Boerhaave, from its external resemblance to the boletus, or morel, calls it *Fungus marinus lapideus boletum Tournefortianum* referens: he adds, *Colore cinereo*. But the true colour of the species is pure white.

These are all the distinct species of the *Asteræa* yet known; the varieties of them are almost innumerable, but all may be referred to one or other of these.

S U B M A R I N E S.

Class the First. Genus the Third.

M A D R E P O R A.

MADREPORA is a genus of Submarines, of a stony hardness, but somewhat approaching to the ordinary figure of vegetables in its form. It is composed of a main stem, divided and subdivided into a number of branches, which are full of pores, or holes, running from the circumference to the center of the branch, and furnished with lamellæ, disposed in a stellar or radiated manner.

The surface in some of the species is smooth, and the pores larger, and at greater distances. In others it is striated, and the pores are smaller and closer. The striæ in these species are formed of a kind of lamellæ, growing from the surface of the tubules which form the pores. These always stand out beyond the rest of the surface, and their cavity is frequently intercepted by little transverse lamellæ within, which divide it into cells, in the manner of the cavities in the nautili and cornua Ammonis. Many of the *Madrepore* approach to the nature of coral in their texture: others of them are less hard.

1. *Madrepora glabra poris magnis.*

The smooth Madrepore with large pores.

This is the plant generally known under the name of White Coral. It is a very beautiful species of *Madrepore*. It grows to eighteen or twenty inches in height, and frequently extends its ramifications so wide every way, as to be in the whole nearly as much in diameter. It grows up with a single stem, of the thickness of a man's thumb,

or

or more: this is not strait, but tortuous, and full of prominent tubules, open at their tops, and forming pores; this main stem soon sends off a number of branches, which again ramify into several more, extending themselves every way, and sending out, at different spaces, other short branches, which seem, indeed, no more than long tubules, or conduits of pores. Beside these, the whole plant has it's surface spangled over with pores, at small distances, a quarter of an inch, or more, being left solid between them, sometimes considerably more. The pores in the larger branches are such, as will admit a tare; in the smaller branches they are less, but in all considerably large. They stand out a little way from the surface, and have a smooth edge: within they are radiated with lamellæ, like those of the *asteræa*. The colour of this species is a fine, bright white; and it's surface between the pores is bright and glossy. It looks perfectly smooth, till closely examined; but it is then found to be lightly striated, especially in the larger parts of the plant. The branches, when broken, shew a solid texture, except just where the pores run; they are whiter within than on the surface, and the constituent matter seems very like that of red coral.

It is found on the rocks, under water, about the shores of Italy, and in many other places. Tournefort calls it *Madrepora vulgaris*; C. Bauhine, *Corallium album oculatum officinarum*.

2. *Madrepora striata poris minoribus frequentioribus.*

The striated Madrepora with more frequent and small pores.

This is an extremely elegant plant. It rises with a single stem, of an inch, or more, in diameter, which soon divides itself into a great number of branches; and these send off others, till, from the whole, there is formed a beautifully ramose figure, of a foot or two in height, and nearly of as much in diameter. The branches are many of them as thick as a man's thumb; they are usually a little crooked, and all point upwards. The whole plant is usually of a beautiful white, sometimes greyish, and is very brittle, which is owing to its being very porous. The surface is all over covered with little prominences, of the bigness of half a barley-corn, or thereabout. These are broadest at the base, and smaller at the point, and are lamellated very finely and beautifully on the outside. These lamellæ are continued from the summit of one protuberance to the base of another, and, by that means, form the striated surface of the whole plant: these protuberances are the tubules of the pores: they are all open at top, and are beautifully lamellated within, their lamellæ, like those of the external surface, being extremely thin and fine. If a branch is broken, it is found to be of an extremely lax and cavernous texture, and every pore of the surface is seen to be carried down to the center, where there runs up another cavity, filled with lamellæ, as the rest are, up to the summit of the plant.

This is frequent about the shores of the East Indies, and is sometimes met with about those of the Caribbee Islands; it grows to the rocks, at a little depth under water.

3. *Madrepora poris depressis.*

The Madrepora with depressed pores.

This is a very beautiful species of *Madrepora*, and very different in it's structure from most of the others; it does not grow to the height that many of them do, but it expands sufficiently in breadth, and it's branches are not round, but flattish. It rises with a single stem, of a very irregular figure, protuberant, but flattish; this, at the height of an inch or two, divides into several branches, which usually extend themselves horizontally, and are flat, often about an inch in breadth, and not more than a third of an inch in thickness: these also frequently send off other branches of the same figure; but some of these, as well as some of the large ones, approach more to roundness than the others. The whole plant often extends to a foot or more horizontally, though not above five inches in height. It's colour is a pure white. It's surface is covered with little roundish depressions, capable of admitting the head of a moderate pin; they stand very close to one another, and the interstitial matter between them is granulated: among these pores there rise also, on different parts of the branches, a vast number of little protuberances, about an eighth of an inch in length, and nearly as much in diameter, and of a perfectly irregular figure: these are not the tubules of pores as the pro-

protuberances on the surface of the former species are, but are solid, and themselves covered with depressed pores on their surfaces, like the rest of the branches. The bottom of these depressions seems solid, but, when nicely examined with a microscope, it is found to be full of small holes, which communicate with cavities within. A branch of this species broken appears of a very beautiful white, but full of pores and cavities; there runs along the center of every branch, indeed, a cavity, furnished with it's lamellæ, affixed to an axis in the middle; and from this are propagated other cavities sideways, formed in the same manner, and communicating with the pores or depressions on the surface.

The descriptions botanic writers have given of these bodies are so very imperfect, that it is not easy to say whether any of them have described this, or whether it is a new species. I received it from the East Indies, where it is common on rocks under twenty or thirty feet water.

4. *Madrepora ramosissima poris minimis.*

The most branched Madrepora with very small pores.

All the Madreporæ are beautiful, but the elegantly-branched figure of this gives it a superior beauty to them all. It rises from a broad base, fixed to a rock, with a single stem, of the thickness of a man's thumb; this continues naked for four inches, or thereabout, after which, and sometimes sooner, it begins to divide into a number of branches. It grows in the whole to about a foot in height, and eight or ten inches in extent. It's branches are beautifully ramified, till at length they terminate in portions scarce thicker than a packthread; and they send out a number of these small shoots also sideways, whence the whole has much the appearance of a shrub, with branches and leaves upon it. The stalks are all round, and are beset with multitudes of extremely small pores, which scarce have their edges at all raised above the rest of the surface: these pores stand very close, but the interstitial matter between them is also porous. The pores of the larger kind are scarce big enough to admit the head of a small pin, the others are hardly distinguishable by the naked eye. The plant is brittle, and it's branches, when broken, appear cavernous or spongy. Clusius was the first author who described this plant; his description is but imperfect; his name for it, Abrotanoides, planta faxea. Boerhaave calls it also Madrepora abrotanoides, as have most of the other botanical writers, from a supposed resemblance of its finest ramifications to the leaves of the abrotanum fœmina. It's general colour is a beautiful white, but it is sometimes found greyish or yellowish. It's ramifications also usually terminate in sharp points, but they are often found obtuse and rounded, by the motion of the water. Authors have made three several species of it: 1. Yellowish Madrepora abrotanoides. 2. A grey one with sharp-pointed tops; and, 3. A grey one with obtuse tops. It is found deep under water near the East Indies, in considerable abundance. It grows to the rocks or to loose stones.

These are the most beautiful and the most singular species of the Madrepora; and they explain the four several appearances of the plants of this genus. Many authors have extended the number of species very far, by reckoning the varieties of one or other of these, or the others, as such: the real, distinct species, however, beside the four already described, are, 1. The great tree Madrepora of authors: this grows to two feet high, and is two inches or more in diameter at the base. 2. The great stony Madrepora. 3. The coral-like Madrepora with a smooth surface. 4. The little Madrepora with very small pores. 5. The Madrepora with larger tubercles. 6. The bladder Madrepora. 7. The brown, small, starred Madrepora. 8. The cypress Madrepora: this much resembles the last of those described here, but it's ramifications are shorter. 9. The buckthorn Madrepora. 10. The broad-branched Madrepora. 11. The Madrepora with foliated extremities. 12. The fibrose Madrepora: this is distinguished from all the others by it's being covered with stony excrescences, as fine as hairs.

After the generical characters and descriptions of the former species, these will easily be known by the characters conveyed in their names.

SUBMARINES.

SUBMARINES.

Class the First. Genus the Fourth.
ESCHARA.

ESCHARA is a genus of Submarines, composed of a gritty matter, but not very hard, of a reticulated texture, and sometimes disposed into the form of leaves; always consisting of a thin expanded matter, perforated with numerous holes, roundish, oblong, or irregular in figure, and these so close to one another, and so equally continued through the substance, as to give the whole the appearance of a net.

1. *Eschara latissima undulata.* *The undulated broad Eschara.*

This species adheres to rocks or stones by a broad base; from this it rises in form of a thin and flat undulated crust, narrowest at the base, and expanding itself toward the extremity. Sometimes a single body of this kind, sometimes several such arise from the same base. They are six or eight inches over in their broadest part, and are irregularly curved, and jagged at the edges, and sinuated round the top; they sometimes rise perpendicular, sometimes grow out horizontally; they seldom exceed the thickness of a crown-piece any where, except near the base, and toward the extremities they are much thinner. They are every where pierced with irregular holes, and those placed so close to one another, especially toward the extremities, that the interstitial matter only forms irregular lines of no great breadth between them; nearer the base it is more solid, and the holes are fewer. Its genuine colour is a pale, greyish brown, but it is often found quite white. It grows usually under twenty or thirty feet water, sometimes in shallower places; seen in its growing state, it makes a very beautiful figure, but it is very rare to have it taken up entire. It is so brittle, that the least violence breaks it to pieces.

It is common about the shores of the Mediterranean. Imperatus calls it Retepora; others, *Eschara marina*, and *Porus reticulatus*; Cæsalpine, by the strange name *Rosa marina*.

2. *Eschara marginibus cauliculatis.* *The stalky edged Eschara.*

This is to the full as elegant and beautiful a plant as the former. It rises from a broad, smooth base. Two or three, sometimes more plants of it, arise together; sometimes only a single one. Each plant is somewhat like a large oblong leaf in form, but very different in texture. It is formed of a gritty matter, two inches or more broad near the base, and a third of an inch thick; from this part it lengthens and expands itself in an irregular manner, growing to six or eight inches long, and nearly as much in width; it is deeply jagged at the edges, and at the top. Its whole substance is pierced with a great number of pores or holes of an irregular figure, but what is singular in it is, that all round its edges and ends there grow a short kind of stalks of a flatted figure, and of the thickness of a small packthread; these unite with one another at their ends, and by the extremities of their several ramifications, and by this means form a perfect resemblance of a net; the stalks themselves looking like the cords or thread, and the cavities between them resembling meshes or holes. This elegant and open reticulated edge gives a great beauty to the plant; the whole of it is of a fine white colour. It is frequent about the shores of the East Indies, but it is so brittle, that we very rarely meet with a tolerable specimen of it.

J. Bauhine has described it under the name of *Eschara marina frondipora*; and C. Bauhine and Imperatus, under that of *Frondipora* and *Eschara marina*.

3. *Eschara ramosa dichotoma.*
Branched dichotomous Eschara.

This is an extremely singular species of *Eschara*, softer and less brittle than either of the others, but of the true reticulated texture, which distinguishes the genus.

It grows to stones, shells, or other substances lying at the bottom of the sea, by a broad base; from this it arises flat and thin, and of about half an inch, or less, in diameter. It does not continue single a quarter of an inch, but often immediately from the base divides into a number of branches, six, eight, or more; these divide again at an inch height, and their ramifications divide yet again. The division is always into two, or in the Dichotomous order. The several branches are narrow at their base, and grow gradually broader all the way to the extremity. They form a large cluster upon the whole, of a roundish figure, three or four inches in height, and as much in diameter. The branches are scarce a sixth of an inch broad near the base, and half an inch or more at the top. They are no where thicker than a coarse paper.

The whole plant is of a pale, brownish white colour, and of a somewhat gritty, friable texture, but much less stony between the teeth, and less brittle than either of the former. It is all over of a very elegantly reticulated texture; the holes are capable of admitting the head of a very small pin, and they stand so close, that the divisions between them are scarce so thick as the finest hair. The holes are of an oval figure.

The plant, in its manner of growth, extremely resembles some of the dichotomous fucus's, and has been thence called by Ray and other authors, *Fucus telam lineam fericeamve textura sua amulans*. John Bauhine calls it *Alga marina platyceros porosa*; and Imperatus, *Porus cervinus*. It is frequently thrown up on our own coasts.

It is a wonder that authors should not consider, before they ranked this with the fucus's, that it is not tough like them, but fragile, and may be rubbed to pieces between the fingers.

4. *Eschara convoluta.*
The convoluted Eschara.

This is a very singular species. It grows to stones, shells, or other solid substances, at the bottom of the sea, by a flat and broad base. From this there arise five or six stalks of a flattish figure, hollow, and of the thickness of a small thread; these immediately divaricate into a number of others, and become so very numerous, that they form a cluster of an inch diameter, which is more than their utmost height. The branches are strangely twisted and entangled among one another, and they coalesce at their extremities and in many other parts, so as in the whole to form a kind of network, the solid substance of which is much more in quantity, than the cavities or meshes. The whole plant is of a beautiful white colour, and often, by its various inflexions and coalescences of the branches, forms in the whole a sort of globular figure. It is brittle, and easily ground to powder between the teeth. It is frequently cast up on the shores of the Mediterranean, but is so little regarded, that we seldom meet with it in the collections of the curious. J. Bauhine and Ray seem to have described it under the name of *Reticulatum tophaceum marinum*. Bauhine says, the cluster of it resembles a net wound up into a bundle, which is a very just observation.

SUBMARINES.

Class the First. Genus the Fifth.

TUBULARIA.

TUBULARIA is a genus of Submarines, consisting of cylindric tubes, rising from a thin crust of the same matter with themselves, which is of the hardness and structure of coral. Of this singular genus we at present know only one species.

Tubularia

TUBULARIA.

The first appearance of this elegant body is a thin crust of a purple coralline matter, extending itself over any solid substance, and conforming itself to its shape. This is of the thickness of a common writing paper, or a little more, and of a smooth surface. From this there soon arise a number of hollow cylindric bodies, of the same colour, and formed of the same matter with the crust. These are of the thickness of a large packthread, and run up naked to about a third of an inch in length; they are very thin in the crust, and contain a simple cavity within; at the height of about a third of an inch, there is formed another crust like that from which the tubes arose; this forms an even surface about the tubes, whose tops stand a little way above it, and are there closed with a transverse septum of the same matter with the rest. From this crust the tubes are continued a third of an inch more, where there is another such crust, and so on to the top. The tubes generally grow in great clusters, two or three hundred together, and are connected firmly at these short distances by the crusts: the whole often rises to three or four inches in height, and is of two inches or more in diameter. Its upper surface is composed of a crust like the rest, with the mouths of the tubes just appearing above it, and seeming prepared for a continuation of growth as from the base; it is frequent to see from six to ten or twelve of these crusts in a mass, distinguishing it as it were into so many series of tubes, though in reality the same tube is carried up all the way from the base to the top, only separated in its cavity by these transverse septa. It is common about the shores of the East Indies, and adheres usually to the large corals, sometimes to shells or stones. It is throughout of the colour of red coral, and makes a very beautiful appearance. Imperatus calls it *Tubularia purpurea*; and C. Bauhine, *Corallis affine alcyonicum rubrum*.

SUBMARINES.

Class the First. Genus the Sixth.

ACETABULUM.

ACETABULUM is a genus of Submarines, consisting of a single stalk, sustaining at its summit a round body, at first hollowed like a funnel, but afterwards flat. There is only one known species of this genus. Tournefort, C. Bauhine, and some others, have indeed mentioned two, a larger and a smaller, but they are evidently no more than the same species in a different state.

ACETABULUM.

This elegant little plant rises with a single stalk, of the thickness of a coarse thread, and of an inch and half, or two inches in height; this is simple, unjointed, and hollow: at its top it expands at first into a conic cavity, which by degrees enlarges till the whole plant resembles a little funnel, with a very long stem. After this the top by degrees grows more and more flat, till at length it is perfectly so; and is then nearly of the breadth of a six-pence, and as thick as a coarse paper. It is perfectly round, and has a rim of a thicker matter than the rest, running round it like a packthread; the stalk is inserted in the center of this body, and from that center to the circumference, both on the upper and under side, there run a great number of lines. The whole plant is of a greyish colour. It grows to shells, stones, and a variety of other things under water. The botanical writers in general have described it. J. Bauhine calls it, *Androsace five umbilicus marinus*, and *Fungus petræus marinus*; Parkinson, *Cotyledon marina*. Any name is better for it than *Androsace*, because that was the name of a very different plant among the Greeks.

SUBMARINES.

Class the First. Genus the Seventh.

ORMUS.

ORMUS is a genus of Submarines, composed of a considerably hard matter, formed into short and broad joints, which are fastened in several series one to another, without any pedicles, and in such manner, that they resemble a string of beads in a necklace. The manner of these several joints growing, as it were, out of one another, has some sort of resemblance to that of the leaves of the Opuntia, whence many have called the plants of this genus Opuntioides. There are only two species of it known.

1. *Ormus segmentis brevibus latis.*

The broad and short jointed Ormus.

This elegant and singular plant grows to rocks, stones, shells, or other substances at the bottom of the sea, by a small flat base; from this rises a single joint, which is usually about a quarter of an inch long, and near as much in breadth at the top, but narrower at the bottom. It is flat in its whole length, but considerably thick; from this single joint there arise two or three others of the same form, but broader a little; these immediately furnish each several others, and these last send out others. Each of which, as the first, produces several more joints, all seeming to grow out of one another: they are fastened to each other, without any pedicle. Four, five, six, or more of these, grow in each series, so that, from the single joint at the bottom, the plant grows to about two inches in height, and as much or more in breadth. The succeeding joints are shorter and broader than the two or three first; they are joined to the head of the last by a broad base, and from this extend into a semicircular form; they are in general somewhat broader than they are long, and are undulated at the extremity where they are circular. They are considerably thick and of a gritty substance. The whole plant is naturally of a white colour, but it is sometimes tinged to a reddish, sometimes to a greenish or yellowish hue. It grows to shells and stones at the bottom of the sea, and is common about the shores of America in several places. Boerhaave calls it *Opuntioides marina parva forma trichomaris*; and Sir Hans Sloane, *Corallina opuntioides ramulis densioribus & foliis magis sinuatis & corrugatis*.

2. *Ormus segmentis rotundioribus.*

The rounder segmented Ormus.

This grows to four or five inches in height; its segments or joints grow one out of another, in the same manner as those of the former, but they are larger, and of a more rounded figure. They are of the same colour and consistence, but they are less thick in proportion to their size. The whole plant is frequently of a greenish colour. It is found about the shores of the Caribbee Islands, and in the East Indies. Imperatus has described it under the name of *Sertularia*; and J. Bauhine under that of *Opuntia marina*.

SUBMARINES.

Class the First. Genus the Eighth.

CORALLUM.

CORALLUM is a genus of Submarines, composed of a hard, stony matter, formed into ramifications, and resembling the trunk and branches of a tree; solid throughout, and not porous, spongy, or stellated on the surface. Often covered with a bark of a softer matter, which easily falls off; sometimes naked.

1. *Corallium*

1. *Corallum rubrum.*

Red Coral.

This deservedly stands at the head of the Coral class, as more beautiful and more useful than them all. It grows from a broad base, extending itself over any thing solid, and conforming to it's shape; this often spreads to two, three inches, or more, in diameter; often it is not half an inch; it is commonly of about the thickness of a shilling, and of the same colour and consistence with the rest of the plant. From this rises usually a single stem, sometimes two or three grow from the different parts of the same base, and often these join in their growth up, and, at an inch or two distance from the base, form only one common stem. The thickness near the base is from that of a man's finger to near an inch in diameter, and it's height from five or six inches to a foot or more. The main trunk sends off from every part considerably large branches, which again divide themselves into others, and form, upon the whole, a very beautiful appearance: they sometimes grow out irregularly, and on all sides; sometimes only opposite, or nearly so, to one another, and then the whole shrub has a flat form. The stem and the main branches are full of little knots and depressions. We meet with Coral in its ramified state smooth on the surface, and of a fine red; but we are not to suppose this to be it's state in the sea. It's surface is deeply striated naturally, and it is wholly covered with a crust of a fungous substance, full of an acrid milky juice, and not of the fine florid red of the Coral, but of a yellowish, greenish, or orange colour. This crust is covered all over with little granules, and in the center of every one of these there is a hole, which seems contrived for receiving the nutritious matter from the water. Beside these granules, there are also other papillæ in the crust, which are open at the top; the opening sometimes is simple, sometimes divided into six parts; these are divided within into little cells. The internal surface of the crust is striated deeply, as well as the external one of the stony part; and these striæ are so adapted one to another, that they form so many tubules, running from top to bottom of the plant, and along every branch of it, in great numbers. There are cells in the stony internal matter, as well as in the external crust, and these, as well as the others, are filled with a whitish acrid liquor, and the tops of the branches have tubercles of the cortical matter, divided into several cells within, and full of the same milky and acrid juice. This species is found on the coasts of the Mediterranean, and in several other places, where it is dragged up with particular engines in great abundance. It is described by all the botanical writers under the name of *Corallium rubrum*; and some of them tell us they have seen octopetalous radiated flowers, standing in cups, arising from the tubercles of the bark. Red Coral is used in medicine as a mild astringent, and as an alkali and absorbent, with good success. The other species would probably answer the same purposes, but they are not used.

2. *Corallum album.*

White Coral.

This much resembles the red Coral in its manner of growing, except that it is more branched. It arises from a broad base, conforming itself to the shape of the substance it grows upon, extending to two or three inches in diameter, and of the thickness of a coarse paper. From this base there arises a thick and irregularly-figured stem, sometimes roundish, often flattened and protuberant in various places. This sometimes continues single, sometimes divides, at half an inch, or less, height, into two or three trunks: if there are more than one of these trunks, the plant is the smaller, but the more bushy; if only one, which is the most beautiful state, it rises to six, eight, or ten inches high, divaricated into a multitude of branches, and each of these sending off other smaller and shorter ones: the branches are round, and often meet and inoscule with one another. The surface is perfectly smooth, not striated, as that of the red Coral; and the whole plant of a beautiful white colour. When taken into the hand it is found to be vastly lighter than red Coral, and when broken is found of a much less compact and solid texture. It is found about the shores of the Mediterranean, growing to rocks, stones, or any thing solid, and is often brought up in fine pieces. Ray tells us he saw several fine shrubs of it offered to sale at Genoa. The botanical writers have all called it *Corallium album*; but most of them have also described other things

under this name: the madreporæ of several kinds, in particular, are pretty currently called white Coral, and sold for it in the shops.

3. *Corallum nigrum.*

Black Coral.

The general practice of receiving the madreporæ into the shops under the name of white Coral, and of receiving also the ceratophyta under the name of black Coral, has taught many people to believe that there was not, in reality, any such thing as either white Coral or black Coral in the world; but people who have examined into things more deeply find it otherwise: black Coral is indeed too scarce, and too much out of use in medicine, to be expected in the shops at this time; but specimens of it are frequent in the cabinets in Italy and Germany, and tolerably handsome plants of it are at times drawn up among the red.

The genuine black Coral grows to rocks, and other solid bodies, by a broad and thick base; from this it rises up usually in a single stem, of the thickness of a man's finger; this runs up single for three inches, or thereabout, and then sends off a branch, and usually three or four more, at different distances, higher up: these do not often send out other branches, but run single their whole length, which is often two inches, or more. The whole surface of this Coral is naturally striated, but this is usually polished off, before it is offered to sale. It is as heavy and as hard as the red Coral, and is of a fine shining black colour. When broken it appears of as compact a texture as the red. It is sometimes dragged up on the coasts of the Mediterranean; we sometimes also meet with fragments of it among the sea plants sent over for sale. Ray tells us he often met with it among the Italian naturalists; and the king of Prussia, we are told, at this time has a fine shrub of it: Boerhaave also gives us an account of a specimen he had of it, which is still at Leyden.

4. *Corallum album geniculatum.*

Geniculated white Coral.

This rises from a broad and irregular base, considerably thick, and of a white colour. The stem is usually single at the base, and divides afterwards into several branches: the main stalk is usually of the thickness of a man's thumb, or more, and the height of the whole plant not less than a foot and a half. Its branches are composed of oblong segments, or joints, half an inch or more in length, so that they represent the stock of the common horse-tail. The whole plant is of a yellowish-white colour, striated on the surface, and of a tolerably solid texture, between that of the madreporæ and that of the common white Coral.

This is found on the shores of the East Indies. Boerhaave calls it *Corallium album geniculatum*; and Clusius, *Hippuris saxea*.

The Corals are so much alike in their growth, that the other species, after the descriptions of these, will easily be known by their names. They are, 1. The little, white Coral, brittle and ramose. 2. The thin, branched, brachiated, white Coral. 3. The brownish-grey Coral of Spain, 4. The thin, brittle, tufted, white Coral. 5. The slender, very-much branched, little Coral. 6. The white, digitated, flat-branched Coral. 7. The great yellowish Coral. 8. The great, white, ramose Coral, with red tops. 9. The brittle, very ramose, yellowish Coral. 10. The little, mossy, brittle, white Coral, growing in thick tufts. 11. The little, geniculated, white Coral, with white, multifid tops. 12. The white, capillaceous, geniculated Coral, with branched tops. 13. The capillaceous, pale-red, geniculated Coral, with branched tops. 14. The red, geniculated Coral, with capillaceous branches and ramose tops. The four last are very small, but very beautiful Corals. Authors have described many more species under the name of Corals, as the stellate and oculated Corals, so called from the figures of stars and eyes on their surfaces; but these are properly madreporæ, and have been already described under that genus.

SUBMARINES.

Class the First. Genus the Ninth.

CORALLINA.

CORALLINA is a genus of Submarines, consisting of stalks and branches, often beautifully ramified, and composed of joints of an oblong figure, inserted into one another. The greater part of these are gritty, and of a Coral-like matter, but nature varies from this in some of the species, which are of a softer substance.

1. *Corallina segmentis longioribus.**Coralline with long segments.*

This is a bushy plant, much divided in it's branches, and usually growing in great clusters together. It rises to two or three inches in height, and often extends to as much in diameter in the whole cluster. The main stalk is of the thickness of a small pack-thread, and is composed of a multitude of joints or segments, which are twice as long as they are thick, and are all regularly figured, being thicker at one end, and smaller at the other: the smaller end grows downwards, and is inserted into the larger end of the joint below; so that the whole plant consists as it were, of a series of cups, with narrow mouths, and narrower bottoms, inserted into one another. There grow many branches from the main stock, and these are sometimes ramified again, but they are always short. The whole plant is sometimes of a white, sometimes of a greyish, and sometimes of a greenish, reddish, or yellowish colour. It consists of a gritty matter, and is easily rubbed to powder: it's taste is very nauseous. It grows to stones, shells, and all other solid substances, under water, and usually in thick tufts, or clusters. Cæsalpinus says it is soft, while in the water, and grows stony on being exposed to the air; but he errs in this. It is common about our own coasts. Authors have called it *Corallina Anglica*, and *Corallina officinarum*. It has been long celebrated for its virtue against worms, and is given, from ten grains to two scruples for a dose, with very good success.

2. *Corallina pennata denticulata.**The pennated and denticulated Coralline.*

This is a very beautiful and regular little plant. It grows to the height of two or three inches, and it's utmost breadth is about three quarters of an inch. It rises with a single stem or stalk, which continues undivided to the top, and from which there issue a number of branches, disposed in a very regular order: they are single, and the longest are somewhat more than a third of an inch long; these are in the middle of the plant, and from this they are gradually shorter to the bottom, and to the top they are placed in the same plane opposite to one another, or nearly so, so that the whole plant has much the appearance of some of the pennated leaves. The main stalk and the branches are all of the same structure, composed of short joints, and those disposed in such a manner, that the branches appear denticulated. The whole plant is very rigid, and of a pale-brown colour. It grows from a small, flat base, and usually single. It is frequent about our own coasts, growing on small stones, and often on oyster-shells. Authors have supposed it to resemble the fir-tree in it's regular growth, and have thence called it *Abies marina Belgica*. Tournefort calls it *Corallina marina abietis forma*; and C. Bauhine, *Muscus marinus filicis folio*.

3. *Corallina ramulis falcatis.**The falcated Coralline.*

This is an extremely elegant little plant: it rises to four or five inches height, but it's stalk is so weak that it is scarce able to support itself erect at that height. It usually grows single, and is branched from top to bottom. The main stalk sends out a branch or two every half inch, or at nearer distances; and these ramify into a multitude of others, which are all much of the same length, and all of them bend at their ends in such

such manner as to resemble a reaper's sickle. The main stalk is rigid and firm, though very slender; the branches are composed of short joints, so disposed, as to give the whole a denticulated figure, and in the alæ of the denticulations there are frequently found a kind of oval bodies, hollow, and striated transversely; the same sort of capsules are also found on many of the other species, but their use is not yet discovered. The whole plant is of a pale-brown colour. It grows to oyster-shells, and other marine bodies, sometimes to the other sea-plants, and is common about our own coasts. Plukenet calls it *Corallina muscosa pennata ramulis et capillamentis falcatis*; and Johnson, *Musculus marinus pennatus*.

4. *Corallina simplex cirrata.*

Simple cirrated Coralline.

This is a very singular species: it consists of a single stalk, of three, four, or more inches in length, neither divided, nor sending out any branches, but continuing simple from the base to the summit. It is composed of a multitude of short, cylindric joints, and at the head of every joint it has five little cirri, looking like the rudiments of hairs. The stalk itself is not larger than a thick horse-hair, and is somewhat rigid, and of a brown colour. There generally grow a great multitude together, so that they support one another, but, otherwise, their length is almost too much for their diameter. The stalk has a cavity running all the way up it, and in the whole resembles nothing so much as the horn of a lobster, whence it has been called, by the generality of writers, *Corallina astaci corniculorum æmula*. It is frequent on our own coasts, and sometimes found on oyster-shells, as many other of the Corallines are.

After the description of these four species, the names alone will be sufficient to distinguish the others. They are, 1. The small-branched Coralline, with round capsules at the indentings. 2. The small, snow-white, branched Coralline. 3. The capillaceous, multifid Coralline, called the Fine-haired sea-moss. 4. The tall, white, capillaceous, leaved Coralline. 5. The round-jointed, soft, branched Coralline. 6. The purple, compressed Coralline. 7. The branched, cirrated Coralline. 8. The broad, denticulated Coralline. 9. The branched Coralline, with the denticles in two rows, turned the same way. 10. The thick-stalked coarse Coralline. 11. The erect, very-much branched, silvery Coralline. 12. The procumbent, denticulated, branched Coralline. 13. The little, creeping, denticulated Coralline. 14. The dwarf, erect, ramose, denticulated Coralline. 15. The simple-denticulated Coralline. 16. The hollow-jointed Coralline. 17. The capillary, hollow-jointed Coralline. 18. The threaded, short-jointed, hollow Coralline. 19. The purple, narrow-leaved Coralline. 20. The black, multifid Coralline. 21. The green, multifid Coralline: both these become white with lying on the shores, but they even then are evidently different from any other species. 22. The dodder Coralline. 23. The abrotanum, leaved Coralline. 24. The elegant, silvery, fine-divided Coralline.

Linnæus has figured many of these Corallines under the name of receptacles of insects, and supposes them not of vegetable origin. The French have lately, also, extended this doctrine to the corals, and many other of the sea-plants, all of which they make not to be vegetables, but cases made by insects. We do not find this, however, sufficiently proved at present, to authorise the throwing this set of bodies out of the vegetable world. In a work where a general history of plants is to be comprised in a small volume, we have no room for controversy; but this is certain, that many of the species, called by these authors the cases made by insects, may be proved to be vegetables, as much as daisies or lillies are so. We allow that some inaccurate authors may have described cases of insects under the name of plants, and that sea insects may inhabit sea-plants, as the hexapodes of beetles, &c. do trees, or other insects (the mineurs de feuilles of Reaumur, &c.) do plants: but we are not, therefore, for supposing all sea-plants to be cases of insects, nor all of them even to afford niduses for animals, because some of them do so.

SUBMARINES.

SUBMARINE S.

Class the First. Genus the Tenth.

ALCYONIUM.

ALCYONIUM is a genus of Submarines, consisting of a rigid, fibrose matter, disposed in various forms, but always laid together in a lax manner, so as to be in most species compressible. Sometimes covered with a crust of it's own matter, more closely arranged, and forming a hard coat for the rest, but more often naked; and in some of the species, the least resembling a plant of any thing of the Submarine class, in it's external appearance. There is no term in botany that has been more abused, or employed in so many improper senses, as this Alcyonium. Authors have described many things which are not distinct vegetables under it; some of them really niduses of insects, some of them only congeries of the fibrous matter of other plants. We are not for this reason however to conclude, that there are no Alcyonia truly vegetable, of distinct and determinate kinds.

1. *Alcyonium divaricatum.*
Divaricated Alcyonium.

This grows to the rocks or other solid bodies under water, by a broad and thick base, composed of a multitude of fibres variously interwoven and entangled. From this base there arise two or three branches, each spreading out into several ramifications; the whole branches are often eight or ten inches long. It is rounded at the bottom, and an inch and half or more in diameter; but, as it branches out, it becomes flat; many of the ramifications are two inches broad, and not half an inch thick, and the whole has something of the rude figure of an elk's-horn. It is of a brown colour, and of a somewhat rigid, yet compressible matter, and is all formed, like the base, of a number of thready filaments, strangely interwoven and entangled, and often coalescing together; the ramifications from the main branch often coalesce where they meet. The constituent matter seems something of a middle nature, between that of the Echaræ, and that of the Sponges.

This species is not uncommon on the coasts of America. Clusius calls it *Alcyonium monstrosum*; and C. Bauhine, *Alcyonium cervi cornua referens*.

2. *Alcyonium coralliforme.*
Coral-like Alcyonium.

This is an extremely elegant and beautiful plant, and is the most singular in its appearance of any thing of this kind; at a distance it perfectly resembles a shrub of coral, but that it is of a yellowish colour; but, when examined, it is found to be composed merely of fibrous and ramose capillaments, wonderfully arranged into that general form, and is so extremely light, that the largest pieces of it have scarce any sensible weight in the hand. It rises from a thick and coarse base, formed of a multitude of fibres, strangely entangled together and extending themselves, in a cake of several inches diameter, over stones or rocks; from this it rises with a main trunk of an inch or two in diameter, and this divides into several ramifications, each of which afterwards sends off its several branches. These are all round in figure, though composed only of fibres standing at a considerable distance from one another, and so remarkably arranged and terminated, that they all end in the circular circumference allotted to the branches. The whole plant is of a yellow colour, and the branches are somewhat compressible, though the fibres they are composed of are considerably rigid. It is frequent on the coasts of the East Indies, where it is thrown up by the waves. It naturally grows under twenty or thirty feet water. Many of our collectors of natural bodies have it in their museums, where they call it the wire sponge, or sponge coral.

3. *Alcyonium rotundum cavum.*
Round hollow Alcyonium.

This is a very singular species, tho' less beautiful than the two former. It grows to the rocks by a circular rim, surrounded with a multitude of fibres. The rim is about an eighth of an inch broad; the circle it makes is often three quarters of an inch in diameter, and the internal space has no part of the plant annexed to it. From this circular base the plant extends itself to the bigness of a man's fist, but the hollow still continues. The whole consists only of a crust of a sixth of an inch, or thereabout, in thickness, which is composed of rigid fibres, arising from the circular base, and running through the whole plant, variously entangled with one another, and frequently meeting and coalescing together; these fibres are so numerous, and so well connected by their inosculation, that they form a continuous substance close toward the surface, but more lax within, and of a middle degree of density between the two species already described. The cavity contained within this globular case is large, and is always full of sea-water. The plant is sometimes of a greenish, but more usually of a brownish yellow colour; but it grows white, on being beat about on the shore. Imperatus describes this under the name of *Aurantium marinum*; others call it *Bursa marina*, and *Pannum marinum*. It is frequent about the coasts of the Mediterranean.

4. *Alcyonium ovatum cortice duriori.*
The oval Alcyonium with a hard coat.

This species somewhat resembles the former in shape, but it differs greatly in its structure. It rises from a circular base, and usually there grows from this a cylindric neck, short and thick, which from its top expands into an oval figure. The whole plant, as in the former species, is composed of rigid fibres, variously entangled one with another, but they are laid less close together. The surface is covered with a kind of bark, formed of the same fibres, more closely interwoven, and frequently inosculating and cohering one with another. This crust is but thin, but all there is of the fibrous substance, that composes the plant, is propagated from it toward the center. The colour of the whole is a brownish grey, its size very uncertain. I have seen mosses of it twice as big as a man's head, but the bigness of an orange is its more usual size. It is often thrown up on the coasts of Italy. It sometimes grows to stones, sometimes to other sea plants. Imperatus has described it under the name of *Alcyonium tuberosum*; and C. Bauhine under that of *Alcyonium forma alicujus ficus*.

The other species of the *Alcyonium*, properly so called, will be understood sufficiently by their names, after these descriptions of the more singular ones. They are, 1. The harder, spongy, and porous tuberos *Alcyonium*. 2. The funnel-shaped *Alcyonium*. 3. The soft branched *Alcyonium*. 4. The great, hard, arboresecent *Alcyonium*. 5. The yellowish, ramose, and softer *Alcyonium*. 6. The ramose scabrous *Alcyonium*.

S U B M A R I N E S.

Class the Second. Genus the First.

Those of a firm texture, tough and elastic.

C A M P Y L I U M.

CA M P Y L I U M is a genus of Submarines, consisting of a tough, flexible matter, usually formed into a kind of shrubby appearance, and covered with a hard or gritty crust, in which the fructification seems to be placed in little granules with open tops. The *Campylia* agree with the corals, in the having this kind of crust for this purpose; they differ from them in their wanting the stony hardness, which characterises the others. The botanical writers in general have agreed to arrange these plants into a genus by themselves, but they have called them by generical names, not properly expressive of them. Tournefort calls them, *Lithophyta*, or stony plants, a name

name that any body will perceive belongs not properly to them, but to the corals. Linnæus calls them Lithoxyla, expressing them to be partly of a woody, partly of a stony nature; and Boerhaave, according to the hardness of their crusts, arranges them into two genera, under the names of Ceratophyta and Titanoceratophyta. As what has been meant to be expressed by these generical names, has been principally the flexile texture of the plants, which some have expressed by resembling it to that of horn, others to that of wood, neither of which substances the plants themselves truly resemble; it seems more proper to call them by a name which expresses only their being flexile, without conveying an idea of a resemblance which does not exist. Linnæus seems not to have been aware, that his generical character of the Lithoxyla took in the corals, which he afterwards makes another genus.

1. *Campylium coralliforme.*
Coral-like Campylium.

This is the plant which we usually meet with, under the name of black coral. It grows from a flat base, of the thickness of a shilling, which extends itself for two or three inches over the rocks, and assumes the form of the part of them it grows on. From this base there usually rises a single stem, sometimes more, of the thickness of a man's little finger. This runs up single three or four inches, and then begins to divaricate and send off branches. The height of the whole plant is from eight inches to a foot or more, its branches seldom send out any other smaller ones; so that the whole represents very well a shrub of red coral, except that it is less thick in proportion to its height. Its colour is a dark brown, approaching to black; its surface is not perfectly smooth: it is extremely flexile, indeed it will not be broken without considerable difficulty. It is frequently found in this naked state, but, where perfect, it has a whitish crust, friable, and composed of a gritty matter extended over its surface; this is of the thickness of a shilling or more, and is beautifully marked with cavities and openings. Most of the botanical writers have described this species. Tournefort calls it, *Lithophyton nigrum arboreum*; and others, *Corallium nigrum*, and *Antipathes*. It is common about the shores of the Bermudas, and in many other places.

2. *Campylium ramosissimum fruticiforme.*
The shrub-like extremely branched Campylium

This is an extremely elegant plant. It grows to three or four feet high, and extends its branches to more than that measure in diameter. It rises from a broad and thick base, affixed to some rock or large stone, and conforming itself to its shape. From this there grows a stem or trunk of an inch and half or more in diameter; this rises single to the height of four or five inches, and then it begins to send out branches from space to space on every side; the largest of these are sometimes as thick as a man's thumb at the base, and a foot and half or more in length: these branches send off others, and those still send out more, so that the whole plant looks extremely bushy; the extremities of all the branches are long and slender filaments. While the plant is in the water, these extend themselves every way, and make a very beautiful appearance; but, when taken out, they droop with their own weight. The plant is of a tough, flexile matter, like the others of this class, and is, when perfect, covered with a crust, formed of a gritty matter, like that of the others, but of a very beautiful red colour, so that it adds greatly to the beauty of the plant. It grows about the Cape of Good Hope, near the island of Ceylon, and in some parts of the American seas. Most of the botanical writers have described it. Clusius calls it, *Frutex marinus elegantissimus*; and C. Bauhine, *Corallina cortice reticulato purpurascens*.

3. *Campylium ramosum reticulare.*
Branched reticulated Campylium.

This is another elegant species, very singular in its manner of growing. It rises from a large, flat, and very thick base. Its trunk is an inch or two in diameter. It is single to about five or six inches in height, but there divaricates into two branches, which soon after divide again, and send out a vast number of smaller ramifications.

cations. The plant grows to three or four feet high, and is very singular in this, that the branches do not go off every way from it, but all stand in the same plane, so as to make it quite flat and thin, though extended to a great breadth. The smaller ramifications are extremely numerous, and stand very close; they meet continually, and, wherever they do so, they inosculate with one another, so as to form in the whole a kind of net-work, with holes or meshes of different size. The plant is composed of a tough, firm, and flexile matter, and is covered with a beautiful purplish crust of a gritty substance, with a multitude of papillæ and holes in it. The extremities of the ramifications are extremely fine and slender. This species is frequent about the shores of the island of Ceylon, and in many parts of the East. The hard crust easily breaks off from this as well as the other species of this genus, so that we frequently meet with them either in part or entirely naked. Most of the botanical writers have described it. Clusius calls it, *Planta marina retiformis*; and Tournefort, *Lithophytum reticulatum aliud purpurascens*.

After the descriptions of these, which are the most singular species of the *Campylia*, the others will be easily distinguished merely by their names: They are, 1. The branched *Campylium*, with a white crust. 2. The less branched *Campylium*, with a purple crust. 3. The smaller *Campylium*, with a yellow, punctated crust. 4. The nodose *Campylium*, with a white crust. 5. The grey rugose *Campylium*, with a warty crust. 6. The branched *Campylium*, with a thin, smooth, yellow crust. 7. The great ramose *Campylium*, with a grey crust. 8. The great *Campylium*, with a blackish nodose crust. 9. The polypody-like *Campylium*, with a white crust. 10. The flat branched *Campylium*, with a greyish crust. 11. The black hairy *Campylium*. 12. The whitish hairy *Campylium*. 13. The convoluted, black, setaceous *Campylium*. 14. The thick-branched, variegated, white and yellow crusted *Campylium*. 15. The erect, ramose, tamarisk-like *Campylium*. 16. The nodose and corniculate *Campylium*. 17. The prickly fennel-like *Campylium*. 18. The flat-branched reticulated *Campylium*. 19. The abrotanum leaved white crusted *Campylium*. 20. The cypress-like *Campylium*. 21. The slender branched *Campylium*, with a red and yellow crust.

SUBMARINES.

Class the Second. Genus the Second.

SPONGIA.

SPONGIA is a genus of Submarines, consisting of a soft, tough, and elastic matter, formed usually into rude mosses of a cavernous structure, and having very little of the appearance of plants.

Upon a nice examination, these plants appear to be composed of capillary fibres, which are hollow, and are implicated in an amazing manner, and surrounded by thin membranes, which arrange them into a cellular form. The structure and constituent matter of the sponge renders it the fittest of all bodies to imbibe a great quantity of any fluid, and on a strong pressure to part with almost the whole quantity again.

1. *Spongia cellulis majusculis.*

Sponge with moderately large holes.

This is the sponge in common use with us on many occasions. It is a mere shapeless mass, growing under water: it is affixed to the rocks by a broad and firm base, and thence expands itself every way into a large and thick irregular lump, consisting of a tough matter, arranged into large pores. Its colour is a pale brown. It is frequent on the coasts of the Mediterranean, and in many other places; and, wherever it lies so that it can be easily come at, is taken up, and proves a very profitable branch of commerce. Tournefort calls this species *Spongia ad usum præstantissima foraminibus exiguis*; but there are other species, the foramina of which are smaller.

2. *Spongia*

2. *Spongia cellulis maximis.*
Spunge with large cavities.

This is distinguishable from the former species, as well by the largeness of it's cells, as by it's general appearance. The former is usually found in masses as thick as they are long; this, on the contrary, is almost always met with in flat or hollowed pieces: it usually adheres to the rocks by a broad base, from whence it expands every way in a circular, or less regular form, to the extent of a foot or two in diameter, and with three or four inches of thickness: It frequently is met with smaller than this, sometimes much larger. It sometimes expands itself quite flat, sometimes it is umbilicated, rising every way from the root, so as to form a kind of basin; and sometimes the base rises to an inch or more in height, and the body of the spunge thence expands itself into a hollow form, largest at top, and smaller at bottom: in whichever of these states it is found, it's holes are always much larger than those of the other, and it's substance coarser. Authors have made three species of it in it's three principal varieties of form: when quite flat, it is the *Spongia compressa magna* of Bauhine, &c. when in it's hollow form, without a pedicle, it is the *Spongia ingens anomala pelvim referens* of Boerhaave; and, when hollow with a pedicle, it is the *Spongia infundibuliformis* of Clusius, and of almost all the authors since his time.

It is frequent in all these appearances about the Cape of Good-Hope, and in some of the seas nearer home: it is often brought to us instead of the first kind, but it is not nearly so good.

3. *Spongia cellulis minimis ramosa.*
Branched Spunge with very small cellules.

This is of a very different appearance from either of the former; it is long, and divided into branches. It usually grows to some stone by a firm and not very broad base, from which it rises with two or three branches, of the thickness of a finger; these each of them divide into several others, and those are sometimes branched again: the several ramifications are roundish, but somewhat flattened; they are of the same substance with the other Spunges, but more densely put together, and the cavities much smaller. The colour is a pale brown. The length of the whole plant is often ten or twelve inches. It grows on rocks about the shores of Italy, and in many other places. Tournefort, and others, have described it under the name of *Spongia ramosa*; Lobel calls it *Conservæ marinæ* genus.

This species sometimes grows single, not branched, and extends to a great length. In this state Plumier has described it under the name of *Spongia Americana longissima funiculo similis*; and in like manner the first species, in it's several variety of shapes, has been described as several species, under the names of *Spongia tubo similis*, *Spongia favo similis*, *Spongia globosa*, and the like.

The species of Spunge have, indeed, been increased beyond all bounds by the error of taking varieties for distinct kinds: the only real distinct species beside those already described are, 1. The shrubby, branched Spunge, with moderately large holes. 2. The branched, river Spunge. 3. The hairy Spunge; and, 4. The woolly Spunge.

SUBMARINES.

Class the Second. Genus the Third.

FUCUS.

FUCUS is a genus of Submarines, consisting of a tough matter, formed into a kind of leaves, which are flat, and are variously divaricated, sometimes dichotomously, sometimes perfectly irregularly; and which have some appearance of fructification, in punctuated tubercles, covering oblong vesicles, taken by Linnæus to be male flowers; and smooth, roundish vesicles, hollow, and interwoven with filaments, which appear to him to be female flowers. Mr de Reaumur has the honour of being the discoverer of this fructification, which Linnæus has from him, and does him due honour for, but there require further observations to confirm it.

1. *Fucus latifolia serrata.*
Broad-leaved, serrated Fucus.

This is the most common of all the species with us: it grows to the height of six or eight inches, sometimes more, and its leaves are near half an inch in breadth. It rises immediately in form of the leaf, without any pedicle, and of the breadth of a finger; as this leaf rises in height, it divaricates into two parts, and each of these into two more, and so on, till a great number of ramifications are produced, and all of them dichotomously, or by pairs. The whole plant is serrated at the edges, and is of a dusky-brownish colour, very tough and smooth on the surface. Its extremities frequently swell out into a sort of pods, rough on the outside, and of an oblong figure; and, beside these, it has a number of air-bladders, of a round figure, growing on the surface of the leaves, which burst with a noise on being trod upon.

It grows with us on all the coasts in vast abundance, covering most of the stones that chance to lie on the shore. The botanical writers have described it under the name of *Quercus marina vulgaris*, *Alga vulgaris*, and *Fucus*. It differs considerably in its form, according to the depth of water, and other circumstances, and has, in these several states, been described under the names of several different species. Dillenius has enumerated ten or a dozen of these varieties, described by others under the name of different species, in his edition of Ray's Synopsis.

2. *Fucus tenuifolia dentata.*
Narrow-leaved, dentated Fucus.

This is a much more beautiful plant than the former. It rises from a flat base, affixed to rocks or stones, with two or three, sometimes more, long and narrow leaves. It grows to twelve or fifteen inches in length, and is of a deep brown colour. Its first shoot is strait, and of the breadth of a straw; this soon divides, into several ramifications, and these subdivide again and again into several others; none of them are broader than the first, and they are all very sharply indented about the edges, the points made by the indenting terminating in a kind of weak thorns.

This species is frequent about our own shores. Ray describes it under the name of *Fucus tenuifolia foliis dentatis*. It sometimes swells into the same kind of vesicles at the end of the ramifications with the former, but more rarely.

3. *Fucus lato et tenui folio.*
The broad and thin-leaved Fucus.

This is a very elegant, but a very irregular species in its manner of growing. It rises from a flat base, with a narrow and thin leaf; this grows wider, as it extends in length, and soon begins to divaricate into several parts, but that not in a dichotomous manner. It grows to four or five inches in height; the segments toward the end are narrow, and sometimes, though rarely, they are formed into a kind of pods, like those of the common *Fucus*. The whole plant is of a tenderer texture than most of the *Fuci*, and is sometimes of a purplish, sometimes of a greenish, and sometimes of a whitish colour. It varies so much in its manner of growing, that it has been often mistaken in its several states for different species. It is common about our own shores. Ray calls it *Fucus membranaceus ceranoides varie dissectus*, others, *Fucus latifolius*.

The other species of *Fucus* are very numerous in nature, and much more so in the writings of authors, a great many of them, in their several varieties, having been described as distinct species. There is so much similarity in the general form and texture of these plants, however, that the other real species will easily be distinguished by their names. The more singular and more certainly distinct are, 1. The purple, narrow *Fucus*, called by the Irish *dulse*, and eaten as a remedy against worms. 2. The grey, narrow-leaved *Fucus*. 3. The fine-divided and variegated *Fucus* of the Cape of Good Hope. 4. The peacock-feathered *Fucus*. 5. The curled, variegated *Fucus*. 6. The long, narrow, and thick-leaved *Fucus*. 7. The narrow-leaved, round vesicled *Fucus*, called the sea-lentil. 8. The narrow-leaved *Fucus*, with long vesicles. 9. The heath-leaved *Fucus*. 10. The red-rattle-leaved *Fucus*. 11. The *fœniculaceous Fucus*. 12. The abrotanum-leaved *Fucus*. 13. The spongy and nodose *Fucus*. 14. The narrow-

narrow-leaved spiral or twisted Fucus. 15. The broader-leaved, larger, spiral Fucus. 16. The dwarf, broad-leaved, serrated Fucus. 17. The long, narrow, and thick-leaved Fucus. 18. The small, membranaceous, greenish Fucus, with extremely divaricated extremities. 19. The purple, membranaceous costated Fucus. 20. The tender, grass-leaved, dichotomous Fucus. 21. The coronopus-leaved Fucus. 22. The broad, Scotch, esculent Fucus. 23. The purple Fucus, with ligulated edges. 24. The broad-leaved, pinnated Fucus. 25. The elegantly-divided Fucus, with broader segments. 26. The scarlet, pennated, and variously-divided Fucus. 27. The purple, plumose Fucus. 28. The dodder-like Fucus. 29. The simple, long, and broad-leaved Fucus, called the sea-beet. 30. The thick, long, and broad-leaved Fucus. 31. The Fucus with a leaf like the *lepathum sanguineum*. 32. The hart's tongue-leaved Fucus. 33. The simple, long, broad, and very thin-leaved Fucus; and, 34. The variously-divided, long-leaved Fucus.

SUBMARINES.

Class the Third. Genus the Second.

STRONGYLUM.

STRONGYLUM is a genus of Submarines, consisting of the same tough and firm matter with the Fucus, but formed into branches and ramifications of a rounded, not of a flat figure. There has not been any part of fructification ever yet observed in any of these plants. They have been used to be confounded with the Fucus, and called Fuci cauliculis teretibus; but this has occasioned great mistakes in some writers, and the repetition of many unnecessary words in others.

1. *Strongylium simplex cavum.*

The simple, hollow Strongylium.

This is a very singular plant: it consists only of a long and slender cylindric body, resembling a packthread. It rises from a small, flat base, and is thinner near the base than in the middle, and grows thinner again as it approaches the other extremity. Its greatest thickness seldom exceeds an eighth of an inch in diameter, but its length is often two or three yards. It is hollow within, and full of sea-water, and there are many membranaceous divisions placed across the cavity, and forming it into a number of cells. Its colour is a dark-brown, its substance that of the tenderer of the Fuci. It is found on our own shores, growing to little stones. C. Bauhine calls it *Alga nigro capillaceo folio*; and Boerhaave, *Filum marinum Germanicum*. Ray calls it *Fucus chordam* *referens, teres, praelongus*; but it is very evident that it has nothing of the structure of the Fucus, nor any thing of the appearance they carry of fructification.

2. *Strongylium ramosum, dichotomum, crassum.*

Thick-branched, dichotomous Strongylium.

This is a very singular little plant. It grows to three or four inches high, and extends its ramifications to as much or more in diameter. It rises from a broad, flat base, affixed to some shell or pebble; from this there grow three or four stalks, round, of a blackish colour, and as thick as a small packthread; each of these soon divides into two parts, and each of those divisions divide, and subdivide again, but always in the dichotomous manner, till of the whole there is formed a thick cluster; the branches grow smaller all the way, and their segments, toward the extremities, are short, and terminate in points: this gives them an odd, forked look. The whole plant is very firm and tough, and is not easily pulled up from its base. It is very frequent about our own shores. J. Bauhine calls it *Fucus marinus forcatellæ lumbricalis species*; and Ray, *Fucus parvus segmentis praelongis, teretibus, acutis*.

3. *Strongylium tenue dichotomum.*

Thin, dichotomous Strongylium.

This is a very elegant little plant. It grows from a small, flat base, fixed to a shell, pebble, or other solid body; from this it usually rises with a single stalk, which is of the

the thickness of a large horse-hair; this is divided into two parts soon after it rises from the base, and each of these are divided again, and their divisions still further divaricated, always in the dichotomous order. The whole plant is of a pale yellow colour, and of a tough texture. It grows to about three inches in height, and, what is singular, its branches are all the way of the same thickness to the top. It is frequent about our own shores: I have met with it abundantly on the Bognor Rocks in Suffex. Plukenet calls it *Fucus trichoides nostras aurei coloris ramulorum apicibus furcatis*.

The other species of *Strongylium* are, 1. The small *Strongylium*, with long, bifid, or trifid extremities. 2. The thick, hairy *Strongylium*. 3. The simple, erect, and short *Strongylium*: This grows to about an inch in height, and is thickest at the base, and smallest at the top. 4. The wind-pipe *Strongylium*; and 5. A large and beautiful *Strongylium*, with very long, bifid extremities. This last grows to two feet, or more, in length, and is of East-Indian origin.

SUBMARINES.

Order the Third. Genus the Third.

ALGA.

ALGA is a genus of Submarines, composed of a tender and herbaceous matter, formed into long, slender, and undivided leaves, resembling those of grass.

1. *Alga longissimo angusto folio.* *The long and narrow-leaved Alga.*

This is a very singular plant, and has greatly the appearance of some kind of grass. Its base is a hard, woody, thick, and oblong body, resembling a large root. This creeps along the bottom till it often extends to several yards in length, and is covered, in many places, with a number of filaments, which are the remains of decayed leaves. At different distances there arise from this root clusters of leaves, ten, twenty, or more together; they grow from a kind of bulb, or tuberosity, formed of the rotting bases of other leaves, and extend themselves to four feet, or more, in length, though seldom of more than half an inch in breadth. They are very smooth on the surface, and become gradually smaller from the base to the other extremity, where they terminate in a point. They are sometimes of a dusky-green, which seems their natural colour, sometimes reddish or purplish, and sometimes white. The plant is extremely common on all our shores, and on those of most other parts of Europe. Gerard calls it simply *Alga*; the generality of other authors, *Alga angustifolio vitrariorum*, from the Venetian glass-makers using it to pack up their glasses in. Some have burnt it to ashes for making an alkali-salt for glass-making, but in this it is found to be greatly inferior to many other plants, and is now disused.

2. *Alga brevior folio.*

Shorter-leaved Alga.

This is a much smaller plant than the former. Its base is a tuberos matter, of the length and thickness of a man's finger, fastened to the ground or bottom by many fibres; from this there rise, at the several joints, clusters of leaves of the same grassy form with those of the former, but much broader in proportion to their length: they seldom exceed six inches in length, and are frequently near half an inch broad. They are of a tender and herbaceous texture, and often of a purplish or brownish colour, though their natural one is a dusky green. This species is frequent about the island of Sheppey, and in many other places on our coasts. Ray calls it *Alga graminea minor*.

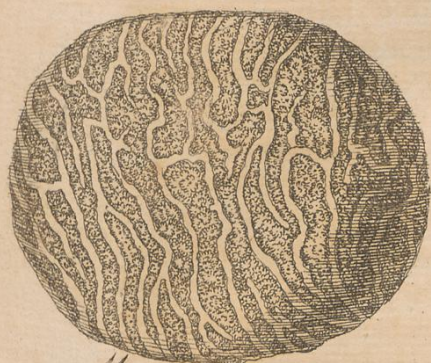
3. *Alga angustissimo folio.*

The narrowest-leaved Alga.

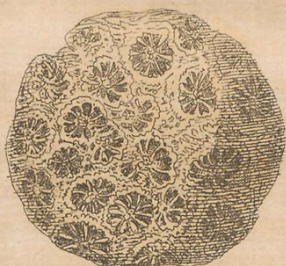
This in its manner of growth, resembles the others, but is evidently a distinct species, as its leaves are longer than those of the first kind, and hardly a quarter of an inch

Submarines

Pla. 3 Pag. 24



Mycedium 2.



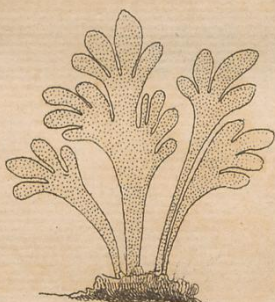
Asteræa 2.



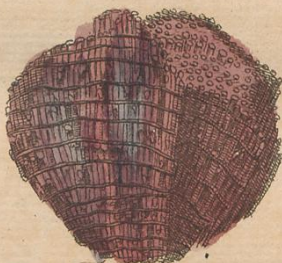
Asteræa 5.



Madrepora 2.



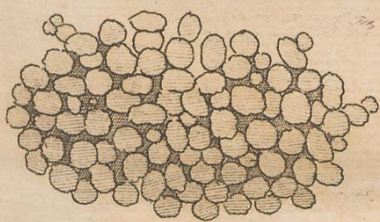
Eschara 3.



Tubularia.



Actabulum.



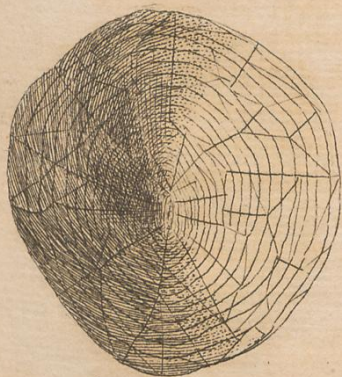
Ormus 1.



Corallum 1.



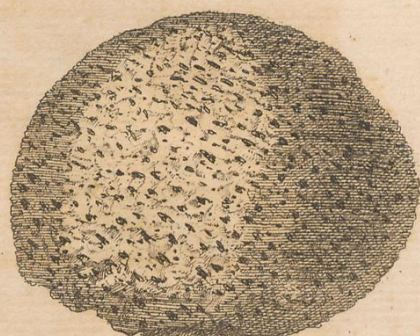
Corallina 1.



Alcyonium 3.



Campyllum 2.



Spongia 1.



Fucus 1.



Strongylium 3.



Alga 1.

B. Cole sculp.

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PLANT S

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BOOK II



inch in diameter in any part. They float about in the water, and make a very beautiful appearance. Their colour is naturally a pale bluish green, but occasionally it becomes reddish or whitish. Their texture is somewhat more tough than that of the others, and the root slenderer in proportion to its length. This is not a native of England, but it is frequent in the American seas. Sir Hans Sloane has described it under the name of *Alga marina graminea angustissimo folio*.

We meet with accounts in authors of other species of *Alga*, but they seem to be founded upon error. The distinctions of these three are but very slight, but they are certain, regular and permanent, and therefore cannot but be owned as proofs of different species. What we meet with beside these, under the name of different *Algæ*, are either one or other of these in a smaller state, or some other accidental variation, mistaken for different species; or they are plants of other genera, called by this name. Tournefort takes in the smooth *conservæ* of Dillenius into this genus of the *Algæ*, but improperly; and we meet with other instances of a like kind in others.

Ray, in his Synopsis of British plants, gives an account of seed-vessels with perfect seed in them, growing to the sides of young leaves of the *Alga*'s. I have not met with what he describes, and therefore cannot speak with any certainty about it.

PART I.

BOOK II.



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FUNGI.