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Supplement

TO

TESTACEA } BRITANNICA

with

Additional Plates

By

GEORGE MONTAGU F.L.S. & M.W.S.



**SUPPLEMENT**

**TO**

**TESTACEA**

**BRITANNICA.**

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**PRINTED BY S. WOOLMER, FORE-STREET, EXETER:**

**AND SOLD BY J. WHITE, FLEET-STREET, LONDON.**

**1808.**

SUPPLEMENT

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TESTACEA

BRITANNICA

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PRINTED BY S. WOOLMER, FORT-STREET, LONDON.

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1802.



## INTRODUCTION.

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**BY** the persuasions of our scientific friends to give delineations of many of the shells described in *Testacea Britannica*, which at the time were omitted from the magnitude of the undertaking at a distance from the arts, we have been induced at our leisure to select such of them whose figures may serve to elucidate, and have had them engraved, together with several new and interesting species, for the use of the public. The additional plates will therefore consist of about ninety distinct species, many of which are only to be met with in the cabinet of the author, or in that of one or two of his scientific friends; others, though common, are figured for the purpose of defining the actual distinction between similar shells which have been, and still in part continue to be confounded. And we have been inclined to prefer a large proportion of land and fresh-water species, because they are within the reach of many who live remote from the sea coast, and have in many instances been so completely jumbled together, that this division more immediately within the reach of all, requires the more immediate attention. We have not however neglected the marine division, where figures could display that distinction which might elucidate the subject: it must however be admitted that there are in this, as in every other branch of physiology, some species whose affinity is so extremely great, that were it not for some invariable minute distinctions undefinable by

the pencil of the artist, they would ever remain confounded. Of these, several which have been described under the strongest conviction of being really distinct, are only to be conveyed to the scientific world by comparative description, a mode which we are induced to hope has been satisfactorily executed in the former part of this work.

In the genus *Nautilus* nothing has been omitted that could throw light upon a class so obscure and yet so interesting: upon this part of the subject therefore, some new matter will be found, new species having been the result of prosecuting our researches, in which we have been materially assisted by the cabinet of *Testacea minuta rariora* belonging to our late worthy friend Mr. BOYS, so handsomely presented to us by his ingenious son Mr. HENRY BOYS. And we have taken this opportunity of offering our public acknowledgements for this token of regard, which in its nature may be considered as a public concern, for by this aid we have been able to correct some mistakes, more thoroughly define some of those shells given by WALKER, and to affix the synonyms of other authors. By the same means we have also ascertained some of the obscure names which had been given by DOCTOR SOLANDER in the *Portland Museum*, as the identical specimens received by Mr. BOYS from the DOCTOR were marked. Of the accuracy of these names we find a full confirmation by a lot of land and fresh-water shells, which were bought at the sale of that museum, now in the possession of Mr. LASKEY, with their original titles affixed; and who obligingly indulged us with them for comparison.

To

To the above gentlemen science is greatly indebted for their liberal communications, who together have brought to light many new species by their indefatigable researches on the coast of *Scotland*; and from whom we have received a copious catalogue of the *indigena* as well as specimens of shells, both contributing largely to the elucidation of the subject, as the following sheets will evince.

It will be observed some of our figures have been anticipated by the authors of the *Descriptive Catalogue of British Testacea* published in vol. viii. of the *Transactions* of the *Linnæan Society*, and which were engraved previously to our knowledge of the extent of that work: and many excellent figures, together with concise descriptions, with references to *Testacea Britannica*, have superceded the necessity of delineating others which were originally intended to accompany this supplement.

In this place we cannot omit that tribute of respect and approbation due to the elaborate writings of those gentlemen who have contributed so largely to the historical part of Testaceology, and to the elucidation of the *Linnæan* species considered as *British*.\* We cannot however avoid remarking that with the greatest deference, and with the highest consideration for the system of our great master LINNÆUS, we cannot accord in an opinion so adverse to the improve-

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\*An Historical Account of Testaceological Writers—*Lin. Trans.* vol. vii. p. 119. And, A Descriptive Catalogue of British Testacea, by WM. GEO. MATON, M. D. V. P. L. &c. and the Rev. THOS. RACKETT, M. A. F. L. S. &c.

ment of science as that his, or any other systematic arrangement is infallibly perfect, or arrived at its *ne plus ultra*. Such an opinion militates against all improvement. Daily experience teaches us, that as our knowledge expands, and new objects present themselves to our view; or, becoming more intimately acquainted with others, heretofore only partially and obscurely known, some alterations and additions are indispensibly necessary; and in this opinion most modern physiological writers seem to concur. At the same time we by no means approve of a complete revolution in a system which is at once simple, perspicuous, and comprehensive; but these are matters of private opinion, not of controversy.

The writings of LINNÆUS shew how frequently he was induced to vary his opinion, and those new emanations of light from so brilliant a mind, illumed by its radiance the scientific world. Can it then be supposed that had this great physiologist lived a few years longer, he would not have improved upon his twelfth edition of the *Systema Naturæ*? Since the publication of that valuable work how much new matter has been discovered that cannot be referred to any of the *Linnæan* genera, the writings of many celebrated modern naturalists will evince: we must not therefore inculcate the principle that any deviations from the *Linnæan* arrangement are useless innovations in science.

It will be seen that we have thought fit to remove the genus *Teredo* from the division of *Univalves*, and have placed it in that of the *Multivalves* next to *Pholas*, to which  
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it is very nearly allied; but we have suffered the trivial name of the only *British* species to remain, as well as that of the *generic*, and have only affixed more appropriate characters to the genus.

A new genus has also been formed out of some of the *Mac-træ* and *Myæ* which strictly belong to neither, but had been capriciously placed amongst them for want of having assigned to shells naturally of the same family, more congenial characters. This we have intitled *Ligula*, to which we refer for further information.

We have nothing to add to this Introduction but to say, that we shall avail ourselves of these supplementary sheets to make a few additional remarks, where farther investigation has thrown new light on the history of any particular species before described; and we have the pleasure to announce that not less than seventy new have been added to the catalogue of *British* shells.

It now only remains with us to ask the same indulgence we experienced in the former part of this work, which has not been a little flattering to our exertions in the development of natural history. And we trust our various scientific friends, to whom we return our grateful acknowledgements, will continue their remarks to us on the various branches of Zoology as heretofore.

Georg e Montagu.

*Knowle*, Oct. 1, 1808.



# MULTIVALVE SHELLS.

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## CHITON.

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THIS species appears to grow to a large size in Scotland, as we have been favoured by Mr. Laskey with separate valves, taken in the *Forth*, that were half an inch wide; many such had occurred, but no instance of a perfect specimen of corresponding size.

MARGINATUS,  
p. 1.

Chiton discors. - *Lin. Trans.* viii. p. 20.

SEPTEMVALVIS,  
p. 3.

We are inclined to believe this is an accidental variety of *marginatus*.

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## BALANUS.

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*Lepas borealis.* *Don. Br. Shells,* v. t. 160.

*Lepas rugosa.* *Lin. Trans.* viii. p. 25. t. 1. f. 5.

*Pult. Hutch. Dorset.* t. 2. f. 10.

RUGOSUS,  
p. 8.

*Lepas*

STRIATUS.  
p. p. 14—556

Lepas Stroemia. *Gmel. Syst.* p. 3214.

*Mull. Zool. Dan.* iii. t. 94.

Lepas intertexta. *Lin. Trans.* viii. p. 26.

*Pult. Hutch. Dorset.* t. 1. f. 9.

Although this species of *Balanus* differs so materially in structure from all others of the genus, yet upon strict examination of live shells it really proves to be a multivalve, and not a bivalve, as we suggested in the *Addenda to Testacea Britannica*.

The *operculum* is moveable on a cartilagenous hinge, and compleatly closes the opening of the lower valve, but being composed of two plates, very closely united longitudinally, possessing a small independent motion, which might very readily be overlooked, is sufficient to constitute it a multivalve shell.



SPONGEOSUS.  
Tab. 17. f. 4. 5. 6.

Shell ovate, with six angulated wrinkled compartments, terminating in much elevated points, and furnished with numerous spines; the three anterior divisions are broader, and not so long as the three posterior ones: these terminate in a flat concentrically wrinkled base, beneath which is affixed a cup, rounded at the bottom, whose margin corresponds with the circumference of the base, and to which it is connected by a ligament to the crenulated edge of the cup; this part is hollow within, but has no share in concealing the animal inhabitant, as there is no communication between it



it and the upper shell internally. In shape it so exactly represents the *Patella antiquata* inverted, that had it been found separate might readily have been taken for it, being possessed of similar transverse wrinkles, and the margin sloping to one side, and when deprived of the *epidermis*, is white.

The *operculum* consists of four valves, the posterior pair longest, and a little hooked forward: the anterior pair is rough with decussated *striæ*: colour livid-brown, purplish towards the points of the summit. Length half an inch; breadth rather less.

The *habitat* of this shell (which without allowing a little latitude in generic character, would not find a place either amongst the *Balanus* or *Lepas*, not being sessile nor pedunculated) is extremely curious; it is found enveloped, or bedded in a particular species of sponge, exposing nothing but the points of the *operculum*.

The sponge is somewhat allied to *Spongea tubulosa*, probably a variety, but coarser in its texture, and not so regularly tubular as that figured by ELLIS; nor do we find it amongst the *Zoophites* of that naturalist, although common on the western coast.

Amongst the reticulated fibres of this sponge the *Balanus* finds a secure lodgement in its infant state, and is soon enclosed by the growing fabric of the sponge animal, except a small opening, which is kept clear by the vortex occasioned

by the constant motion of the feelers or *tentacula* of the *Triton* inhabiting the shell.

For this discovery the Conchologist is indebted to the late Mr. BRYER, of Weymouth, who found several of these non-descript shells on *Portland* reach, some of which were recent, containing the animals.

This gentleman remarked, when he favoured us with specimens, that although he had often found the same sponge in the bay of *Weymouth*, he never before observed it to be inhabited by this shell, whence he concluded it to be a *pelagic* production; probably it is a very rare species, for it never occurred to us on the coast of *Devon*, where the sponge is by no means uncommon.

In a piece of the same species of sponge from the coast of *Devon* we found another *Balanus*, apparently belonging to the family of *B. spongeosus*, but being mutilated the upper valve could not be ascertained: the cup or base, an inverted cone, perforated at the lower or smaller end, is extremely thick, and the margin of the cup bevelled off to an edge, which is striated; the inside is furnished with annular ridges, and lined with a membrane; the outside is rough with tubercles, and broad projecting plates or *laminæ*.

## LEPAS.

*Lepas dilata.* Don. *Br. Shells.* v. t. 164.

*Lepas fascicularis.* Lin. *Trans.* viii. p. 30.

FASCICULARIS,  
p. 557.

Mr. DONOVAN, like ourselves, gave ELLIS credit for this shell, and has figured it as an *English* production, confessing however that he has neither found it himself, nor ever received it from any of his friends; but informs us the specimen in his possession is supposed to be the same that was sent by Mr. ELLIS to the DUTCHESS of PORTLAND, and was afterwards in the cabinet of DOCTOR FORDYCE, at whose death he obtained it under the title of *Lepas segellatum* of SOLANDER.

We are happy to have it now in our power to identify this rare species of *Lepas* as truly *British*, having been favoured with a recent specimen from our late conchological friend Mr. BRYER, who took it on the shore near *Weymouth*, since the publication of *Testacea Britannica*.

This shell is of a blueish horn-colour, very thin and diaphanous: the lower anterior valve is concentrically wrinkled from the exterior angle at the base, and faintly radiated with *striae* from the same point across the wrinkles: the base of this and the corresponding valve are curiously dilated, or reflexed: the upper valve is also a little wrinkled; the *apex* slightly hooked backwards: the dorsal valve, which is  
sub-carinated,

sub-carinated, does not quite reach the summit of the superior ones, but extends under the base at right angles, becoming broader, and rounded at the margin, where it unites with the pedicle, and is there wrought with concentric ridges; the whole shell is covered with a very thin *epidermis*. Length not quite an inch.

POLLICIPES  
Tab. 28. f. 5.

*Lepas pollicipes* Gmel *Lyst.* p. 2012.—*Chem. Conch.* viii. t. 100. f. 551-552. *Turton Lin.* iv. p. 171.

Shell with numerous valves, five of which may be considered as primary, the smaller or auxiliary ones surrounding the base, which are more than twenty, are many of them very minute; all the valves are smooth and glossy, the largest of the primary on each side is rather concave, conic at the upper part, with the summit obtuse and perfectly straight; the anterior valve on each side is ovate and very convex; the dorsal valve is sub-ovate, thick, convex, and rounded: the greater part of the lesser valves are triangular: the pedicle is nearly double the length of the shell, a little compressed, and of a most singular texture, being covered with an infinite number of small scales, placed in an imbricated form, completely concealing the skin which is coreaceous; these are in substance testaceous, resembling shagreen, of a cinereous-brown colour, and very glossy. Length about two inches and a half, including the foot stalk.

This curious species which by some has been intitled *Cornucopia*, has been taken more than once on the  
*British*

*British* coast; that from which this description is taken was found on drifted wood in the *Frith of Forth* by Mr. LASKEY.

We are assured by this gentleman, that he observed this species on the bottom of a vessel that had been upset and towed into *Dartmouth*, mixed with *anatifera* and *anserifera*, which together completely covered the lower part of the vessel. Inhabits the *Norwegian* seas, as well as the *Mediterranean*.

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## TEREDO.

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### *Animal an ASCIDIA.*

SHELL, with two principal hemispheric valves, truncated and open at the end, and two small lanceolate accessory valves remote.

Hinge furnished with a long incurvated tooth in each valve. Tube testaceous, sub-cylindric, flexuous, in which the animal resides, but is unattached.

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*Teredo navalis.* *Lin. Trans.* viii. p. 249.—*Pult Hutch. Dorset.* NAVALIS.  
t. 18. f. 21.—*Phil. Trans. for 1806, part 11.* p. 276. t. 12 & 13. p. 527.

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In our former account of this shell, it will be observed we had followed the example of greater naturalists, by placing it amongst the more simple univalve shells. Recent opportunity however, of more minutely investigating the subject, has clearly confirmed our former opinion, that if it cannot strictly be placed amongst the *Pholades*, it must be removed into the division of *Multivalves*.

The larger valves, which cover one end of the animal, are similar to some species of *Pholas*; and though destitute of any accessory valve at the hinge, it is furnished with the long curved tooth, usually observed in shells belonging to that genus. The accessory or auxiliary valves of this are placed at the opposite end, and in this particular only it claims a separate place. These four valves, which are attached, and inseparably a part of the animal, constitute it a multivalve shell, without considering the case, or testaceous tube, formed by the animal for its better security in its cell, as an actual appendage; for though it may be considered as a necessary part in the economy of this animal, yet it is wholly independent, and is no more than a passage formed by the slimy exudation concreted into papyraceous *laminae*, thickening by age.\*

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\* In the Phil. Trans. referred to, Mr. Home says there is an adhesion to the cylindrical shell at one spot, where the stems of the *opercula* (the lanceolate valves) are connected with the animal. Whether such is accidental, or occasional by means of any minute organs for that purpose, we cannot determine; but this by our experience does not appear constant. In another place we have noticed that *Mya Pholadia* forms itself a similar testaceous case in stone; but the animal has no attachment to it. See *Mya Pholadia*.

The animal is undoubtedly an *Ascidia*, and not a *Terebella*, as usually considered. It is perfectly smooth throughout, destitute of any *tentacula*, feelers, or any appendages whatever, not even the smallest appearance of *branchiæ*, but is hyaline, and purely simple in structure externally, with two tubes or siphons at the smaller end, placed between two lanceolate testaceous valves.

The tubes are similar to those of other testaceous *Ascidia*, fimbriated at their ends, and are nearly divided to their origin at the junction of the auxiliary valves. These tubes are small, and capable of contracting within the valves, which are intended for closing the entrance to the cell at pleasure: through these tubes the animal takes in water, and with it all nutriment, and like other *Ascidia*, ejects the fluid again.

It has no teeth or hard substance at the larger end, except the shells that protect and cover it; the opening, which is similar to that of the animal of a *Pholas*, is simple, strengthened only by an internal hyaline cartilaginous substance.

With respect to the testaceous tube, which coats the excavations formed by these animals, there is some difference observed in their structure.

In some specimens of perfectly found oak timber, we have seen these tubular cells so crowded together, that the animals appeared to have been constrained to perforate each others cell in those parts unprotected by the testaceous con-

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cretion ; in this case the invaded seems to retreat, and for better security throws an arched *septum* across the gallery at the part where the shelly tube had terminated, and thus securely encloses itself within a wall of its own preparing, which is proof against further intrusion.

Some of these tubular cases we have observed are destitute of the thickened laminated structure at the smaller, or exterior end, and only furnished with an oblong perforation for protruding the animal's siphons. Those also that are furnished with *laminæ* differ materially in number, without any regard to the size of the tubes, varying from four to twenty. One in particular we examined had no less than twenty-nine, six of which on each side were furnished with a mid-rib standing above the plain of the *laminæ* in a carinated ridge.

This specimen was not of an unusual size, but was an inch and a half in length at that part.

For what particular purpose this singular structure is designed, is difficult to determine, since we find some destitute of it ; but we may infer it has its use, as few, comparatively speaking, are without it.

Probably it is intended to ensnare the smaller marine *animalculi* on which the animal undoubtedly preys, and in this labyrinth are readily collected and drawn in by the tubular extremity of the *Ascidia*.

The



The lanceolate auxiliary valves, which are affixed to the exterior end of the animal; close upon the interior, or innermost pair of *laminæ*, and serve not only as a security against the intrusion of larger insects that might injure the delicate body of the animal, but also serve to regulate the surrounding fluid in the cell; for by this apparatus the whole circumambient water may be discharged through the exterior siphons at pleasure.

As the laminated part of the tube is even with the surface of the timber perforated, the siphons of the animal may be observed to be exerted when in its natural element, in search of food like other testaceous *Ascidia*; and like them the powers and propensities assigned for the purpose of destroying useless matter by some solvent menstruum, or other mysterious means, is equally evident, but with this difference; the *Teredo navalis* is only destined for the reduction of ligneous matter, whereas the *Pholades*, and some others, are capable of reducing stone as well as timber. Whatever may be the means by which this great operation of nature is effected, it is evidently performed by all, with that part which is enclosed within the principal valves, and that it is by the opposite or exterior end that they receive all their nutriment by means of their siphons, the only part of these animals not absolutely imprisoned. It is therefore evident that the destruction made by this, and all other testaceous animals of a similar nature, is not for the purpose of food, but for a secure lodgement; consequently it is most reasonable to conclude that the dissolution of the wood or stone in

which we find them lodged, is effected by a menstruum similar to the gastric juice so material to the digestive faculties of the stomach.

The discovery of a new species of *Teredo* on the coast of the island of *Battoo*, near *Sumatra*, by Mr. GRIFFITHS, described in the *Philosophical Transactions* of the *Royal Society* for 1806, with observations by EVERARD HOME, Esq. is extremely interesting, not only on account of the enormous size of its testaceous tube, but that its habits will serve to prove beyond doubt, that the shells attached to these animals, termed the boring shells, are not essential to the purpose of perforating timber, or other compact bodies, since the *Teredo Gigantea* inhabits the mud at the bottom of the ocean, where no such supposed apparatus for boring is required; and yet it is possessed of very similar shells to those of *Teredo navalis*.\*

We do not intend to enter upon an account of the internal structure of the animal; this has been executed with great attention and ability by Mr. HOME, professor of comparative anatomy, and more properly belongs to Helminthology than Conchology; for although the latter as a detached science may receive much aid by a strict examination of the external form of testaceous animals, little advantage can be expected to accrue to the Testaceologist by dissection of such

\* The largest tube of *Teredo Gigantea* described is 5 feet 4 inches in length, 9 inches in circumference at the larger end, and  $2\frac{1}{2}$  inches at the smaller.— For further particulars concerning this shell, and for the anatomical description of the animal of *Teredo navalis*, we refer to the original.

such gellatinous subjects, unless he has the hand and the experience of a SWAMMERDAM. But we wish to induce an opinion that the animal in question is nothing more than a testaceous *Ascidia*, formed with shells like those of a *Pholas*, for the protection of that part which is essential to the performance of a work nature has assigned to it, and which has so unnaturally been ascribed to so tender and fragile a substance as the shell. A little attention to the subject by comparison, as well as to the shell in question, would at once convince us of the impossibility of sound oak timber being destroyed by such means, either by cutting with its edge, or rasping it by its rugous surface: besides, as an additional proof that such is not the case, live shells are always observed to be covered with a fine olivaceous *epidermis*, which must eventually have been removed by the necessary friction applied to the boring or filing of timber. The transparent, cartilagenous substance which has been termed a proboscis, and the centrebit on which the animal turns in the act of boring, must be intended for a very different purpose; probably to supply the place of bone, similar to that we find in *Sepia media*, and may assist the organs necessary to the work in question.

If indeed the *Teredo navalis* was the only molluscous animal that had been discovered capable of perforating such hard substances, it might not have been surprising that such an opinion had so long obtained, upon the principle that the process was so gradual, that, by the laws of nature, friction eventually must tend to destruction; but surely in this case  
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the epidermis on the shell must first be destroyed to admit the harder bodies coming in contact. Besides, reasoning from analogy, we find a similar construction of parts in the *Teredo Gigantea*, whose habits require no such implements; and many other testaceous *Ascidia*, whose habits are similar to that of *Teredonavalis*, are capable of eroding the hardest lime-stone, and even those composed of sand mixed with calcareous earth. From these facts we are naturally led to look for another process by which these works are performed.

In this country, there are not less than twelve species of testaceous *Ascidia* which are perforators: all the *Pholades* perforate wood, and sometimes the softer stones, and indurated clay: *Donax irus*, *Mytillus rugosus*, *Venus perforans*, *Mya Pholadia*, *distorta*, and *suborbicularis* excavate extremely hard stone, and yet there is nothing in the shells of these last that can possibly be considered capable of performing such a task, many of which are regular, intire, and nearly smooth, especially the *Mya suborbicularis*, which is finely polished.

Perceiving then the effect of these animals on substances capable of grinding their shells to powder by attrition, without affecting the shells, are we not most reasonably to conclude that they are capable of secreting some solvent menstruum, with which alone they effect the purposes of their nature? And are not those two large glands, described by Mr. HOME, on the right side of the œsophagus, in the animal of *Teredo navalis*, intended for this purpose?

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It is well known that animals as well as vegetables prepare, by various occult processes, fluids powerfully corrosive: the viper secretes a deadly poison, which is forced through the cavity of its fang; the pismire, and some other insects, eject a powerful acid, capable of dissolving calcareous stone. Surely then it may most reasonably be admitted that, by some such chemical means prepared in the great laboratory of nature, these testaceous *Ascidia* perform the part assigned to them by the Creator of the universe.

All the testaceous animals hitherto discovered in the *British* seas to be perforators, have, upon examination, proved to be *Ascidia*, with the two tubes terminal, and more or less connected, through which alone they take their food; but it is probable the larger tube is the principal instrument for taking in the fluid element, and with it the innumerable *animalculi* with which sea water abounds; and the smaller may usually reject it after it has been strained through the *viscera* of the animal, as Mr. HOME observes with respect to the *Teredo*. We have, however, noticed that the water is taken in, and discharged at both tubes occasionally, by some testaceous *Ascidia*.

In all these animals, their tubes or syphons only have a communication with the water through a small opening to their chamber; and the chamber is enlarged as the growth of the animal requires, and not for the purpose of food; for although a portion of ligneous matter has been found in the stomach of the animal of *Teredo navalis*, we are not to conclude  
it

it has been taken in for nourishment; but the only certain method of discharging it from its chamber, is that of taking it in at the larger end as fast as it is softened, or the ligneous texture broken by its solvent powers, and discharged at the smaller external tube.

The circumstance mentioned by Mr. HOME of the greater tube being contracted by an inverted action, is not peculiar; several marine animals possess this property; even some species of marine *Limax*, as may be seen in that inhabiting *Turbo clathrus*, who retracts its long tubular proboscis in a similar way. We do not however recollect any testaceous *Ascidia* but what has both tubes more or less fimbriated at the margin, and we find our specimens of the *Teredo* animal to be so.

From all these circumstances it must be concluded that the shells improperly termed *boring shells* of the *Teredo*, are no more than what the *Pholades*, and all other similar animals necessarily possess to intitle them to the *Linnæan* appellation of *Vermes Testacea*.

The habits of the animals of all the species of shells that are enclosed in wood, or stone, are extremely similar to that of the *Teredo*, and in some of the *Pholas* the shell ivery nearly allied.

It is remarkable in the specimens examined by Mr. HOME, none should occur with the curious laminated termination to the case or tube in which the animal resides. This gentleman,

man, however, remarks the circumstance of some of the cases being arched, or covered at the larger end. We must not ascribe this as the result of the animal having arrived at full growth, as has been supposed, since very small, as well as large specimens are frequently observed to possess it. In pieces of timber which are over-stocked, they never can grow to half their natural size, because their cells have no room for extension; and the consequence is, that after the timber has been destroyed in all directions, some probably die; but the great work of nature having been performed, the timber falls to pieces, and the animals become a prey to fish, the necessary connecting link in the transmutation of matter.

It has been customary to term that part of the *Teredo* animal enclosed within the shells, the head, and consequently the passage from thence has been called the æsophagus; but whether it will strictly bear that appellation must be doubtful, since the discovery of an opening is the only analogy it has to such a part, and that, most assuredly does not perform the office of a mouth, as has been most clearly proved, and is admitted by Mr. HOME, at least after the animal has closed up the larger end of its testaceous tube. If we reason from analogy, the contrary would be the opinion, for all testaceous animals possessed of locomotion, evidently have their shell affixed to the posterior end.

The minute anatomical investigation of so aqueous an animal is attended with extreme difficulty, and we fear

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admits of too much scope for conjecture; but Mr. HOME's account of the internal structure, appears to prove the animal to be androgynous, and which is probably the case with all such as are deprived of locomotion. This gentleman has evidently given great attention to the subject, and his treatise is interesting, and highly deserving the attentive perusal of the curious.



## BIVALVE SHELLS.

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### MYA.

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*Mya glycymeris*, *Gmel. Syst.* p. 3222, *Turt.* iv. p. 178.

GLYCYMERIS.

*Lister Conch.* t. 404, f. 258. *Chem. Conch.* vi. t. 3. f. 25.

*Don. Br. Shells* iv. t. 143.—*Lin. Trans.* viii. p. 34.

Whether this shell should be admitted in this work is much to be doubted, since it is only on the authority of opinions, without fact, that Mr. DONOVAN originally introduced it as *British*: indeed he does express some doubt, but observes, "It is a kind acknowledged however as such, by collectors of *English* Natural History in general; and is said to have been undoubtedly fished up in the deep waters between the *Dogger-Bank* and the eastern coast of *England*"

Slight as this author acknowledges his authority for giving it a place in the catalogue of *British Testacea*, we have thought proper to give a short description of it.

Shell oblong, very thick, transversely wrinkled, and gaping at both ends: the colour is cinereous or ochraceous: hinge furnished with a very thick primary tooth, and a smaller one, besides a series of wrinkles. Length five inches, breadth nine or ten.

This shell has been considered as an intermediate link between the *Mya* and *Solen*, but its general habit is more nearly allied to the former. It is found in the *Mediterranean*, and sometimes on the coast of *France* and *Spain*.

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**DECUSSATA.** Shell ovate, white, with irregular concentric ridges, decussated by regular longitudinal *striae*, forming tubercles at the anterior end; the margin undate: *umbo* obtuse, recurved, and placed nearest to one end. Inside smooth, white, with a tongue shaped *cicatricula*, running from the longest side into the middle: in one valve a broad erect tooth; in the other a projecting *lamina*, with a small indenture for the reception of the tooth of the opposite valve. Length nearly half an inch; breadth rather more.

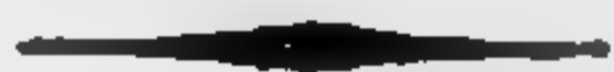
The irregular growth of this shell, and its general appearance, somewhat resembles a variety of *Donax irus*, but it is perfectly distinct, and is a new and rare species from the *Frith of Forth*.

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**PHOLADIA.** In the former part of this work it has been remarked that the chamber in which this shell is lodged, is frequently lined with shell like that of the *Teredines*. This in some instances is not less than half a line in thickness, and is composed of many *laminae*; sometimes these cases protrude a quarter of an inch or more beyond the surface of the stone, in form of

a tube, whose bore is ovate, with an internal rib on each side, adapted to the grooves formed by the junction of the animals siphons, which are connected their whole length, and are as long as the shell, consequently extend far beyond the tube in search of food. This structure is somewhat similar to that of *Teredo Gigantea*, represented in the *Philosophical Transactions* for 1806, Tab. 10, Fig. 3—5. but that the ribs do not join and form two distinct tubes by a *septum*.

We have specimens of this *Mya*, in common lime stone, in fluor, and in granite. How the siliceous part of this last is destroyed, we do not pretend to determine. Can the animal discharge the siliceous grains whole through its tubes when the calcareous, micaceous, or other more soluble connecting parts are softened; or does it prepare a menstruum similar to fluor acid, and thus effect the destruction of the whole?



Shell ovate, slightly wrinkled transversely, and of a purple PURPUREA. colour about the *umbo*, shaded to a white towards the margin: *umbo* placed considerably to one side, and turning towards the shorter end. Inside paler, and the margin plain: hinge with a single erect tooth in each valve, slightly bifid. Length not above one line, and somewhat more in breadth.

Taken amongst coralline in deep water: *Devon* coast, very rare.

Shell

FERRUGINOSA. Shell sub-ovate, moderately convex, and white, with obsolete wrinkles: *umbo* obtuse, placed nearest to one end; front margin nearly straight. Inside glossy white; hinge furnished with two projecting teeth, one of which is erect, the other turns inwards, and slopes downwards; these teeth are separated by a large triangular notch that runs to the *umbo*. Length rather more than a quarter of an inch; breadth nearly double its length.

This new species of *Mya* is usually covered with a thick tenaceous ferruginous coat of argillaceous earth, which must be removed to discover the real colour of the shell. It was first noticed by Mr. LASKEY, and afterwards by Mr. H. BOYS, on *Belton* sand, near *Dunbar*, in *Scotland*, who obligingly favoured us with specimens and remarks, by which we are informed it is a rare species.

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### LIGULA.

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*Animal an ASCIDIA.*

SHELL, bivalve: equivalve.

Hinge with a broad tooth in each valve projecting inwards, furnished with a pit or cavity for the reception of the connecting cartilage; in some species a minute erect tooth.

It

It has been before remarked that, it was the intention of DOCTOR SOLANDER, had he lived, to have formed a new genus of this family of shells, which have been divided amongst the *Mya* and *Macta genera*, without being, in fact, connected with either, according to the system of arrangement by the structure of the hinge.

PETIVER has aptly denominated one of the species *spoon-hinge*, from the circumstance of the tooth being concave, somewhat resembling the bowl of a spoon. Upon a former occasion we did not think it necessary to make a new genus, for the few *British* shells then considered as properly belonging to this family, but as a more minute investigation of the structure of hinges, together with additional discoveries, have convinced us of the impropriety of classing several species with other *genera*, which ought to be brought together as distinct from all, we have thought proper to class them by themselves, and to place this new genus next to *Mya*. Having so done we beg that the following shells, according to our former arrangement, may be brought into this genus. *Mya prætenuis, pubescens, distorta*; *Mactra compressa tenuis*, and *Boysii*; to which we have to add the annexed new and interesting species.

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Shell oblong, flat, thin, glossy, white, considerably attenuated at one end, and obsoletely striated concentrically; the *umbo* very small, placed nearest to, and turning towards the

PRISMATICA.  
Tab. 26, f. 3.

the smaller end. Inside smooth and glossy; hinge furnished with a horizontal tooth, having a sub-triangular depression for the reception of the connecting cartilage, and a minute erect tooth in both valves, besides a small lamina or lateral tooth in one valve on each side, remote; of which the other is destitute. Length three-eighths of an inch; breadth double its length.

This nondescript species of *Maetra* was first noticed in the year 1803, by Mr. LASKEY, on *Belton* sands, near *Dunbar*, in *Scotland*; and since by the same gentleman, together with Mr. H. BOYS, on the sands between *Porto Bello* and *Musselburgh*, where they are sometimes, after a turbulent sea, tolerably plentiful.

These gentlemen, to whom we are under obligations for specimens, had given it the trivial name prefixed, from the circumstance of its reflecting in some particular lights, strong prismatic colours, and which will in part be a distinguishing character: this resplendent hue, however, is not peculiar to this shell, as *Tellina fabula*, which is somewhat similar in shape, possesses that iridescent gloss in a considerable degree.

A single valve of this species having occurred on the coast of *Devon*, is sufficient to identify it as a production also of *South Britain*.

Shell sub-ovate, white, and sub-pellucid, wrought with distant, obsolete, elevated, longitudinal *striæ*: *umbo* prominent, but not inclined. Inside plain, and the margin smooth: the hinge furnished with a slight projection inwards, margined so as to form a concavity. Diameter one tenth of an inch. SUBSTRIATA.

Taken by deep dredging amongst coralline: *Devon* coast, extremely rare.

This species, though not strictly a *spoon-hinge*, is more nearly allied to the genus *Ligula* than to any other.

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## SOLEN.

*Solen Marginatus* Pult. *Hutch. Dorset.* t. 4. f. 8.

*Solen Vagina* Lin. *Trans.* viii. p. 42.

VAGINA.

p. 48.

p. 565.

This shell has been usually considered as rare in a living or recent state, but we have lately had the good fortune to discover it in its native bed. In a sand bank, near the salt stone, in the estuary of *Kingsbridge*, it is by no means uncommon, at the depth of two feet or more beneath the surface. The habitations of these shells are known by a small hole, but they do not eject the water in pressing the contiguous sand, like some others of the genus. The specimens in this place are unusually large, not unfrequently above five inches in breadth, and one in length: but they are most commonly foul, and destitute of the fine polished *epidermis*.

D

The

The animal like all those belonging to this family of shells, as far as we have been able to investigate, is a true *Asidia*, with connected syphons; these are of a pale yellow colour, longitudinally striated, and annulated with brown, the openings fimbriated: the *sustentaculum* is large and clavated. With this implement it quickly makes a new passage under the moist sand if left a short time on the surface; it is protruded at that end nearest the hinge, which part is always downward in such shells as are borers, or that bury themselves under ground.

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FRAGILIS. By some unaccountable misunderstanding we find our  
 p. 51. friend the Rev. Mr. RACKETT has referred to us under the  
 p. 565. article *Solen antiquatus*, in his *Descriptive Catalogue of British Testacea*, given in the *Linnean Transactions*, vol. viii. page 46, for authority in uniting *Solen fragilis* and *antiquatus* as one and the same species. We beg leave to observe this has wholly originated from some mistake, as we are most clearly and decidedly of opinion that these two shells are perfectly distinct. The *fragilis* is considerably broader in proportion to its length, more compressed, and sub-arcuated in the front margin than the *antiquatus*, and may always be distinguished by its pellucid appearance, the other being opaque even when the *epidermis* is removed; besides which they differ in the structure of the teeth.

The figure given in HUTCHINS'S DORSET, Tab. 4. fig. 5. is the *fragilis*, which may be compared with *antiquatus*, figured in the *British Zoology*, Tab. 46. fig. 25.

TELLINA.



## TELLINA.

*Tellina inæquivalvis*. *Lin. Trans.* viii. p. 50.

INÆQUIVALVIS.  
p. 75.

From recent comparison we are inclined to believe our *Solen Pinna* formerly described, is only the young of this species: the hinge exactly corresponds both in respect to the teeth, and in the remarkable connecting cartilage, that extends the whole breadth of the shell from the *umbo*, which is situated near to one end. If our conjecture is well founded, it is a proof of this species being found on the western coast.

If the characters of this shell are attended to, we shall find the hinge connects it more nearly to the *Solenes* than to the *Tellens*.

*Tellina polygona*. *Gmel. Syst.* p. 3245.

POLYGONA.

*Tellina Guinaica*. *Chem. Conch.* X. t. 170. f. 4650—53. Tab. 28. f. 4.

Shell sub-ovate, sub-orbicular, of a dirty white colour, wrought with very fine concentric *striae*, which are crossed with excessively fine lines, not visible to the naked eye: the *umbo* is small, not central, nor turning to either side; the shorter end is sub-truncated, and sub-angulated: the larger end is rounded. Inside not very smooth, the margin uneven: teeth in one valve two, large and distant; in the other, one very large, triangular, bifid tooth, with an approximate small

one, that might easily be passed unnoticed. Length half an inch; breadth rather more. The *umbo* in the only specimen we have examined is ferruginous, but this might have been stained.

CHEMNITZ observes this is strictly neither a *Mya*, nor a *Tellina*, but it was thought most allied to the latter.

The specimen from which the above description is taken was dredged up by Mr. LASKEY, off *Cramond* island, in the *Frith of Forth*.

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LASKEYI. Shell ovate-oblong, smooth, and of a purplish-white colour, ab. 28. f. 3. darker towards the *umbo*, but when recent, covered with an olivaceous-yellow *epidermis*: the *umbo* not quite central, but obtuse: the sides dissimilar, one being rounded, the other obtusely pointed, in the form of *Donax trunculus*, and which it very much resembles in contour, but has not the thickened margin like that shell. The inside is white round the margin, and destitute of *crenulæ*; the centre is clouded more or less with purple: in one valve there are two approximate, sub-bifid teeth, and the margin channeled from the teeth almost to the end of the longest side; and on the other side of the teeth the margin is replicated, or folded back to the connecting cartilage, to which it is affixed: the other valve has only a single tooth, which locks in between the two of the opposite, and which are reciprocally received into a cavity on each side the tooth in this valve, and the margin is destitute of any channel. Length half an inch; breadth three quarters.

This

This new species was discovered by Mr. LASKEY, as a *Scottish* production, having taken several by dredging in the *Frith of Forth*. To this gentleman the public in general, and ourselves in particular, are much indebted for many non-descripts in the field of Testaceology, and for the light he has enabled us to throw on other doubtful *British* species of shells.

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## CARDIUM.

*Macra radiata* Don. *Br. Shells*, v. t. 161 — *Lin. Trans.* viii. p. 69. EDENTULA.

Shell sub-ovate, thin, rounded at one end, and sub-angulated at the other; a few broad, distant, slight elevations concentrically mark the shell; besides which it is wrought with numerous fine obsolete longitudinal *striae*: the *umbo* is pointed, and turns a little to one side: colour cinereous, paler beneath the *epidermis*, with a tinge of flesh-colour. Inside smooth, white, the *striae* equally visible as on the outside in the thin part of the shell; margin plain. It is destitute of any primary tooth, but immediately under the beak is a small depression, with the rudiment of a minute oblique denticle, and a little remote on each side is a small lamina. Length two inches and a half: breadth three inches.

This appears to be an extremely rare species on our coast, having only been discovered by Mr. LASKEY on the shore near Portsmouth, after a storm, and who favoured us with a specimen

specimen for description, and at the same time assured us that it is the same species DOCTOR SOLANDER had denominated *Cardium edentula*; for which reason, and from its resemblance to *Cardium lævigatum*, we have thought proper to continue it by that name:

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**FASCIATUM.** Shell sub-orbicular, sub-pellucid, with about twenty-seven smooth, glossy, flattened ribs, slightly tuberculated at the shorter side, and sometimes round the margin: the colour rufous-white, with three or four rufous-brown *fasciæ*, most strongly marked at the longer side, and usually better defined in the inside of the shell, where the ribs are also obvious. Length rarely exceeding three-eighths of an inch; breadth rather superior.

This shell has long been known on the *Cornish*, *Devon*, and other coasts, and had been considered as probably a distinct species, yet we hesitated giving it as such before; but as time and long experience have not brought to light any species of larger size, of which this might be considered the young, and as we find Mr. LASKEY and Mr. HENRY BOYS (who found it on the *Scotish* shores), and other conchological friends agree in opinion that it is distinct from any species hitherto described, we venture, upon these grounds, to add it to our catalogue.

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**ACULEATUM.** *Cardium spinosum*. *Br. Miscel.* 1. t. 32.—*I. in. Trans.* viii. p. 62.  
p. 77. *Cardium aculeatum*, *Lin. Trans.* viii. p. 62.

We

We trust the ingenious author of the work first referred to, will, as well as others, excuse us when we have occasion to differ in opinion with them. It is a duty the public has a right to expect from every writer, more especially in the cultivation of science that professes to discourse upon particular subjects, he should offer his own opinion. As this author observes, we have taken many shells similar to *Cardium spinosum* on the coast of *Devon*; but we must acknowledge we cannot perceive the smallest difference between those and the *Cardium aculeatum*. It must be admitted that there is considerable difficulty in identifying several species of this genus before they arrive at full maturity, it is therefore essential to their discrimination that such shells should be examined in all their various stages of growth, and it is by this means we are enabled to offer our opinion. In the more infant state of the *aculeatum* it is so extremely like *Cardium ciliare*, that, if they are not the same, we are unable to point out the smallest distinction, and confess that popular opinion induced us to originally describe them as distinct in *Testacea Britannica*; whereas having recently procured a great many of those shells, with all the intermediate stages from the size of a pea, to that of near four inches in diameter, the largest of which is we believe considered as the *aculeatum* of LINNÆUS, there appears every reason to believe the *ciliare* is actually the young of that species, and the *spinosum* an intermediate growth of the same; at least there does not appear to us any difference between the shell referred to in the *British Miscellany*, which came from *Torbay*, and those in our cabinet; nor does the description convey any distinction. It should  
be

be recollected that in those spinous or tuberculated specimens, such appendages are always more delicate and sharp in their infant state; thus in the shells which have been considered the *ciliare*, the ribs rise into sharp membranaceous ridges, and the *aculiæ* are flat, and almost equally thin; in this state of growth it is nearly orbicular, but when advanced to the size of an inch and a quarter, it puts on the sub-truncated form, and becomes a little produced on that side of the front, the spines lose their sharp edges, and the larger ones begin to assume the furrowed appearance. In the more advanced state, the spines increase in length, and become more rounded, but the larger ones are always more compressed laterally, and more or less channeled.

There is the same gradation to be traced in *Cardium echinatum*, and *edule*, the latter of which is much more orbicular, and tuberculated in its younger stages, and like the *ciliare* is frequently white. These variations have caused much perplexity, and an unnecessary extension of the species; but with all the varieties before us, we must conclude the *spinosum* to be a young *aculeatum*, and should be exceedingly obliged to any conchologist who will, by specimens, point out to us a distinction between the *ciliare* and the young *aculeatum* of the same size.

In *Cardium echinatum* there also appears a variety which has been considered a distinct species, and was (we are informed) named by DOCTOR SOLANDER *spatula*, from the shape of its spines. The *echinatum* it will be observed has the

the spines on one side always more or less concave, and spreading at their points. That shell which has been denominated *spatula* (a specimen of which is now before us, that was taken in *Scotland*), differs in nothing from several of the *echinatum* of the same size in our cabinet, but in the spines being rather longer, and more distant than they usually are in that shell; but we do not think sufficient to constitute a separation.

When our opinion was offered to the public in the *Addenda to Testacea Britannica* respecting *Cardium tuberculatum*, we had never found that shell alive; but since that period a shell has been taken on the coast of *Devon* equally thick and ponderous, and exactly similar in shape, but with spines like those of *echinatum*, but more numerous. With all these little variations so closely uniting each other, it is utterly impossible to characterize the several supposed species: every conchological collector must therefore divide, or connect them according to his own opinion. As far as our observations go we have great reason for believing that *Cardium aculeatum*, *spinosum*, and *ciliare*, constitute one species; and we are inclined to consider that, (from the specimens now before us) the *tuberculatum* and the *Scottish* shell called *spatula* must be brought together as varieties of *echinatum*; but as we have only examined one of the *spatula* from the cabinet of Mr. LASKEY, future opportunity must fully determine whether or not that is actually distinct. The size of that shell is about an inch and a half in diameter.

## MACTRA.

TRUNCATA.

*Maetra subtruncata. Don. Br. shells. iv. t. 126.*

Shell triangular, extremely strong, thick, and nearly smooth, but usually marked with a few antiquated furrows: *umbo* central, large, and very prominent; the sides equal, much flattened, and truncated; the front margin rounded: hinge remarkably strong, which with the teeth are similar to, but stronger than those of *Maetra solida*: the *cicatricula* is broader than in that species, and does not run so far into the shell: the colour is yellowish-white. Length an inch and a half; breadth a quarter of an inch more.

This shell which has been confounded with the *solida* and *subtruncata*, is extremely common on the shores of the *Frith of Forth*, in *Scotland*, where the *solida* is not frequent, and of insignificant growth. It differs from that species in being much more ponderous, in the sides being flattened like the *subtruncata*, and in being more triangular, the length nearly equaling the breadth; whereas the *solida* of the same breadth as this, is half an inch less in length. In the external appearance it is generally much smoother, the wrinkles not so strong, nor so numerous; the valves are also much deeper; in this respect it is more nearly allied to *subtruncata*, but besides that shell being generally more or less inequilateral, the fine and regular transverse *striae* with which it is wrought, at once distinguishes it from this. These three species invariably



variably preserve their distinguishing characters through all stages of growth, from the smallest to the most perfect, but all of them possess a remarkable similarity of structure in their lateral teeth, the inside of which is regularly crenated.

This is the shell Mr. DONOVAN has figured for *Maetra subtruncata*, the reference therefore under that head in the *Addenda to Testacea Britannica* we beg may be cancelled, as we have transferred it to this. That author is certainly mistaken in referring his shell to *Trigonella subtruncata* of DA COSTA, which is without doubt our *Maetra subtruncata*, Tab. 27, fig. 1. According to the same author this shell has been found in *Hampshire* and *Devonshire*, but as we have never been able to discover it in the west of *England*, conclude it is a rare species in those parts. Two of our scientific friends, Mr. H. BOYS and Mr. LASKEY, clearly pointed out the distinction of the three *Maetræ* in question, when they favoured us with specimens of each from the northern coast, and denominated this by the name prefixed.

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Shell thin, sub-triangular, truncated, and of a cinereous CINEREA. colour: the *umbo* large and very prominent; the beak slightly turned to one side, beneath which there is a depression, or sub-arcuation in its contour; the opposite side is much compressed laterally. The inside is pale, with a tinge of blush: the hinge resembles that of *Maetra stultorum*, but the valves are considerably deeper, and the *umbo* projects much more beyond the margin.

For the knowledge of this nondescript species we are indebted to Mrs. BRYER, relict of our late valuable friend, who has so largely contributed towards the former part of this work. This lady has continued that liberality which so conspicuously marked the scientific researches of our much lamented friend, by presenting us with his cabinet, which consists of most of the species of shells belonging to the coast about *Weymouth*, amongst which we had the pleasure to observe this marked as indigenous.

It is quite impossible for the conchologist to compare this with *M. stultorum* without instantly perceiving the distinction; in fact the same difference subsists between them, as between *Maetra truncata* and *solida* with respect to the depth of the shell, prominency of the *umbo*, and flattened or truncated sides. The valves of *M. cinerea* are more concave than *M. stultorum*, more angulated, and rather broader in proportion to their length. It is possible these two shells may have been hitherto confounded, but it must be confessed this has never before come under our examination, although we have obtained *M. stultorum* from various and distant parts of the kingdom.

The few specimens of *M. cinerea* in our possession are nearly destitute of markings, there being only one or two obsolete pale rays, and the margin only covered with an *epidermis*, which is brown, inclining to ferruginous at one end.

*Maetra subtruncata*, *Pult. Hutch. Dorset*, t 5. f. 10.  
*Lin. Trans.* viii. t. 1. f. 11.

SUBTRUNCATA.  
 Tab. 27. f. 1

We have lately received from a conchological friend a very thin variety of this species for a distinct shell, it may therefore be proper to remark that these sometimes occur on the shores where the other stronger sort is plentiful, as well as all the gradations in substance.

Another variety is also observed which very much resembles *Maetra truncata* in contour, being nearly equiangular, and not produced at one end as usual; but this is known from *truncata* by the fine transverse *striae*.



Shell sub-triangular, white, and nearly smooth: *umbo* MINUTISSIMA.  
 prominent. Inside smooth; margin plain; hinge strong: primary teeth in one valve two, separated by a cavity for the reception of a single large tooth in the opposite valve.

This species is one of the most minute of the bivalve division, and might easily be mistaken for *Maetra triangularis* was it not for the margin of that shell being crenated. It is however not quite so angulated, nor so long in proportion to its breadth, nor has it ever occurred so large as that shell. Several of these were taken in a new species of coralline together with *Pecten fragilis*.

We

We have placed this species in the genus *Maetra* because the shell to which it is so nearly allied has already been placed there. Both these shells are however so extremely similar in shape, and appear so nearly connected by the teeth to *Venus tripla* of Linnæus, as may be seen by consulting CHEMNITZ, vol. vi. tab. 31, fig. 330, that perhaps they might with as much propriety be removed to that genus.

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### DONAX.

**RUBRA.** Shell cuneiform, smooth, and of a reddish colour, truncated at one end: *umbo* obtuse. Inside of the same colour, and the margin plain: hinge with two teeth in each valve, placed angular, and approximating at the beak. Very minute, not a line in breadth.

Taken amongst coralline, in deep water: very rare.

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### VENUS.

**LAMINOSA.** *Venus cancellata*, Gmel. Syst. p. 3270? Turt. Lin. iv. p. 220.  
*Chem. Conch.* vi. t. 29, f. 304—307?  
*Don. Br. Shells*, iv. f. 115?

Nothing has puzzled us more than the discordant opinions concerning several of the *Veneries*, amongst which *Venus cancellata* appears to be in great obscurity. GMELIN has referred

referred

referred to three figures in CHEMNITZ, one of which appears to be of a different genus, and very dissimilar to the others; and in order to add to the confusion, has given two shells under the title of *V. cancellata*, for the latter of which, No. 96, he quotes LISTER.

Mr. DONOVAN, as we before remarked, has given a shell under this title, and it will be seen that we hazarded an opinion, that such might possibly be the young of *V. verrucosa*; if however the shell here described should prove to be the *cancellata* of that author, we should be extremely happy to correct the error; but as far as we are able to collect from the materials before us, considerable doubts must still exist in our mind whether it really is the *cancellata* of either of the authors we have here referred to. Possibly it may be the *Pectunculus membranaceus* of DA COSTA.

Shell ovate, with numerous concentric laminal ridges, very little reflected; these ridges are not quite regular nor equidistant, but so thin as to be almost membranaceous; between the ridges about the umbonal region, where a natural decortication has taken place, it is finely striated in the longitudinal direction, which shews that younger specimens are more generally furnished with such *striae*; but in the only large specimen we have had an opportunity of examining, scarcely any such markings were observed, but where the old shell had been superficially separated: the *umbo* is pointed and much reclined to one side, beneath which is a broad cordiform depression; but neither this, nor the cartilage slope differs in colour from the rest of the shell, which is wholly

wholly of a dirty white. Inside white : hinge furnished with four teeth in each valve, but the outer one above the cordiform depression in one valve is obsolete, or formed only by a cavity for the reception of the corresponding tooth in the opposite valve: the margin is finely crenulated. Length more than an inch ; breadth above an inch and a quarter.

The above description is taken from a shell in the cabinet of Mr. LASKEY, who favoured us with it for the purpose, and at the same time assured us he took it by dredging, off the isle of *May*, in the *Frith of Forth*, in the year 1804.

Should this prove to be the species described by the author of the *British Shells*, we learn no more of its *habitat* than what he quotes from DA COSTA, who described his shell from a specimen in the collection of *Doct̄or Fothergill*, which was from the western coast.

In our cabinet is a single valve of about half the size of that before described, which was found in *Devonshire* ; in this the longitudinal *striae* is evident by the assistance of a lens in the *fulci* between the transverse ridges.

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REFLEXA. Shell sub-orbicular, furnished with numerous thin laminal ridges, which are reflected, and on the cartilage side are very sharp, more elevated, and undulated, and turn forwards or in a contrary direction to those on the other parts : these ridges are not quite regular and equi-distant, for sometimes a small intermediate one is observed, or two larger *laminæ*  
more

more approximate than the rest; between the ridges fine obsolete longitudinal *striae* are observable by the aid of a lens, but not conspicuous to the naked eye: the colour is pale yellowish-brown, with two or three broken ferruginous rays, running from the *umbo* to the opposite margin; these in some specimens faintly resemble arrow-heads, pointing towards the beak, six or seven of which constitute a ray: the *umbo* is pointed, and turns much to one side, beneath which is a cordiform depression, of a ferruginous colour: the cartilage slope is broad, and marked with three or four irregular transverse lines of the same. The inside is white: the hinge furnished with three strong teeth in each valve, the middle one of which is sub-bifid: the margin is finely crenulated. Diameter about an inch; the breadth rather exceeds the length.

This is another species of *Venus* to which it is extremely difficult to affix any synonyms. It has somewhat the habit of *Venus striatula*, but more orbicular in its contour, is not possessed of those fine *striae-like* markings, and the ridges are vastly more elevated, thinner, and more distant.

We first noticed this species in a package of *Scotish* shells, sent for examination from the same quarter with the last, with an assurance that it was taken alive, off the isle of *May* in *Scotland*. A specimen, exactly similar in every respect, has since occurred on the coast of *South Devon*.

**ORBICULATA.** Shell white, orbicular, depressed, and cancellated: the *umbo* Tab. 29. f. 7. remarkably small, beneath which is a minute cordiform depression. Inside white; margin plain: teeth, two primary approximate, and one remote standing transverse; the margin where the lateral tooth is placed projects into an angle. Diameter five eighths of an inch.

This shell has probably been confounded with *Venus tigerina*, but it differs somewhat in contour, is not so flat, more orbicular, and more coarsely decussated, and the lateral tooth is much more remote than in *tigerina*.

Found on the shore near *Dunbar*, by Mr. LASKEY.

**DYSERA.** *Venus dysera*, *Gmel. Syst.* p. 3268. *Turt. Lin.* iv. p. 219.  
*Chem. Conch.* vi. t. 28. f. 287—290.  
*Lister Conch.* 1. 277—278.

Shell sub-ovate, sub-cordate, with distant concentric, elevated, and reflected ridges; the interstices coarsely striated in a longitudinal direction: *umbo* small, and much reclined, beneath which is a cordiform depression: the colour is white, but on the cartilage slope of one valve are several transverse rufous-brown lines. Inside white: the hinge furnished with three teeth in each valve, but in that which is destitute of the markings on the cartilage slope, the outer tooth next to the beak is very minute: the margin is crenulated. Diameter not quite three quarters of an inch.

Severa



Several shells of this description were taken by Mr. LASKEY, in the *Frith of Forth*, and though they were all considerably worn, yet they were sufficiently perfect to leave no doubt of their being the *Dysera*, for by comparison with foreign specimens, they were found to differ in nothing from some of the varieties; even in the markings close to the cartilage, and the purple margin about the hinge.

It must be admitted that foreign specimens considerably vary according to the opinion of various authors; but those in question are not unlike CHEMNITZ, fig. 289.

Shell strong, thick, sub-orbicular, compressed, and slightly COMPRESSA. fulcated, or irregularly wrinkled: the colour is white, but Tab. 26. f. 1. 1. 1. is usually covered by a thick yellowish-brown *epidermis*: *umbo* prominent, turning to one side, beneath which is a small, lanceolate, cordiform depression. Inside smooth, white, with a large cartilage depression near each end, and the margin is singularly flat, and broad, from which the cavity suddenly commences, but is not very deep: hinge very strong, with two large teeth in each valve, and a transverse tooth-like ridge in one, which forms part of the cordiform depression.

Communicated to us by Mr. LASKEY, who found it on the shell bank, near *Dunbar*, and other parts of that coast, not uncommon of a small size, rarely exceeding half an inch in diameter; but as a proof of their superior growth, we were

favoured with the examination of a single specimen that was an inch in length, a trifle broader, and of a darker colour; the only one which could be procured of that size even by dredging.

The very great similitude between this and *Venus fulcata* may possibly have caused their being confounded. That this is a *Scotish* production is beyond all doubt, but how far the *fulcata* may have been confounded with it, and thereby supposed to have been *British*, we have not the means of determining, further than by the authority before stated; and as we did not receive the information as grounded on personal evidence, it is to be wished that, that shell may, on a future day, be taken on our shores by some conchologist, in order that any existing doubts may be done away.

The material distinction between these two species is, that this is broader than it is long, and has a plain margin; whereas the other measures most in a longitudinal direction, and the margin is crenulated.

SCOTICA.

*Venus Scotica.* *Lin. Trans.* viii. p. 81. t. 2. f. 3.

Shell thick, sub-cordated, sub-compressed, with many regular parallel transverse ridges: *umbo* reclined: cordiform depression lanceolate. Inside white, glossy: teeth strong, oblique: margin plain. Length half an inch; breadth five eighths of an inch.

This

This species, first described by DOCTOR MATON and Mr. RACKETT, in the work referred to, was discovered by Mr. M<sup>c</sup>LEAY, on the coast of *Caithness*. A specimen which we received from *Scotland*, is covered with a pale yellowish-brown *epidermis* in the *fulci*, but worn off from the elevated parts, shewing the shell to be white. In this specimen not less than twenty-two *fulci* can be counted.

Very small specimens, not exceeding a quarter of an inch diameter, and of a pure white, we have seen from the *Frith of Forth*.



Shell thick, transversely ovate, sub-compressed, and furnished with many regular, equidistant, strong, concentric ridges, which, with the intermediate *fulci*, are quite smooth, but covered with a dark rufous-brown *epidermis*, beneath which the shell is white: the *umbo* is nearly central, and somewhat reclined: the cartilage slope linear: cordiform depression lanceolate. Inside white, but not glossy, except round the margin, which is also finely crenated: the hinge is furnished with two strong primary teeth in each valve. Length an inch; breadth an inch and a quarter.

DANMONIA.  
Tab. 29. f. 4.

A live specimen of this new and interesting species was taken by the trawl, in deep water, off the coast of Devon, and brought to us with the animal in it.

In many respects it is so nearly allied to *Venus Scotica*, that at first sight one might be naturally led to consider it the same,

fame, but upon critical examination by comparison, the distinction is evident, as well in its contour as in the structure of the hinge, and still more obvious by the *crenulæ* on the margin; a circumstance alone sufficient for specific distinction were all others wanting: a character invariable, and by far more fixed and determinate than any to be found in our fresh water *Myæ* and *Mytilli*, which are mostly destitute of any permanent specific distinction, and of course are multiplied and reduced at the caprice of the conchologist; a circumstance we are all liable to when obviously fixed characters are wanting, and where gradation so strongly tends to unite them. In the present subject, however habit might accord in other respects with *V. Scotica*, the construction of the margin must be considered as inviolable; no common shell, whose character is to possess a plain margin, is ever found with a crenulated one, nor *vice versa*. This obvious mark of distinction is equally as essential in discriminating between *Venus sulcata* and *compressa*.

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LACTEA. *Venus Lactea*, *Don. Br. Shells*. v. t. 149—*Lin. Trans.* viii. p. 79.

Shell lentiform, somewhat compressed, with thick, elevated, obtuse, concentric *striae*, and slightly truncated anteriorly.

These are the specific characters given by the author of the *British Shells*, who offers this as a new *British* species.

It is likened to *Venus borealis*, (our *Tellina radula*) but the  
author

author remarks that the *striae* of that shell rise into thin, membranaceous, acute ridges, whereas this has large elevated ridges, obtusely rounded. It is also remarked that *V. lactea* is a much thicker and heavier shell than any other resembling it. Diameter about an inch and a half.

Our present species (says the author) we are informed, is found on the western coast.

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Venus Cassina, *Lin. Syst.* p. 1130.—*Gmel. Syst.* p. 3269. CASSINA.  
*Chem. Conch.* vi. t. 29. f. 301-302.  
*Lin. Trans.* viii. p. 79. t. 2. f. 1.

Shell thick, white with brown lines, furnished with numerous transverse, recurved, acute *laminæ*; the posterior margin crenulated, and grooved behind the beak: the *umbo* is reddish; depression behind the beak brown. Diameter one inch and a half.

This species, we are informed by the authors of the *Descriptive Catalogue of British Testacea*, has been found by Mr. M<sup>c</sup>LEAY, on the coast of *Caithness*.

Whether the figure of a worn shell, given by Mr. PENNANT for *Venus Erycina*, *Br. Zool.* iv. t. 54, f. 48. A. is the *Cassina*, must we fear, be left to conjecture, since that shell assumes such various appearances, under different circumstances; but it is by no means improbable.

GUINEENSIS.

GUINEENSIS. *Venus Guineensis*, *Gmel. Syst.* p. 3207.—*Born. Mus.* t. 4. f. 8.  
*Chem. Conch.* vi. t. 30. f. 311-312.

Shell sub-cordate, wrought with numerous close, regular, sharp ridges. The contour of the shell greatly resembles *Venus striatula*: the colour is cinereous-white, with two or three rays of purplish-brown running from the *umbo*, that near the hinge is broad: the cordiform and cartilage depressions are both purple. Inside very white, inclining to purple on the margin behind the hinge: the hinge is very complicated; in one valve there are three teeth, one of which stands transverse; the other has also three teeth, besides a prominence on the side of the cavity that receives the transverse tooth of the other valve: the margin is plain. Length an inch and a quarter; breadth one inch and a half.

This rare species, though so much like *Venus striatula* in shape, differs from it in many particulars; the teeth are essentially different, and the want of the crenulated margin, and *striae-like* markings, at once distinguishes it, independent of the ridges being much thinner and more elevated. The plain margin also points out an obvious distinction between it and *Venus reflexa*.

The shell from which the above description is taken, together with a smaller specimen, was dredged up off *St. Abb's Head*, in the *Frith of Forth*, by Mr. LASKEY.

SUBSTRIATA, Shell transversely ovate, sub-pellucid, white, concentrically wrinkled, and obsoletely wrought with undulated, longitudinal

longitudinal *striae*: *umbo* placed near to one end; beak small, turning towards the shorter side. Inside moderately concave and smooth; margin plain: hinge furnished with three teeth, that next to the cartilage is long and oblique, forming a cavity between it and the margin for the reception of the cartilage; the two other teeth are short, the middle one is the longest. Length half an inch; breadth somewhat more.

Rare: three single valves only were taken in the dredge off the *Isle of May, Frith of Forth*, by the same gentleman as took the last.



Shell sub-rhomboidal, rounded at one end, truncated at the other, and irregularly wrinkled concentrically, especially towards the margin, where the ridges are prominent, but obtuse; these are decussated by extremely fine approximate longitudinal *striae*: *umbo* small and nearly central, but the beak reclines to one side: the colour is white with a tinge of rufous at the truncated end. The inside is white with a dash of purple at that part which is rufous on the outside; the margin is plain: cicatrix broad, spreading half across the shell: the hinge is singularly formed; in each valve are two strong, plain teeth, one of which stands very oblique; behind these the margin projects inwards, and then doubling back forms a smooth replication, and a cavity between it and the exterior edge of the shell behind the *umbo*, for the connecting cartilage. Length half an inch; breadth three quarters.

SUBRHOMBOIDEA.  
Tab. 28. f. 2.

For this new and rare species we are also indebted to the indefatigable zeal of Mr. LASKEY, who took it by the dredge off *St. Abb's head*, in the *Frith of Forth*.

The general appearance of this shell is so like some varieties of *Donax irus*, that it might readily have passed undistinguished by more than a common observer, but it could not escape the critical eye of the scrutinizing conchologist by whom these sheets are so copiously enriched. The only living specimen that gentleman was so fortunate to procure was that from which the description and figure were taken.

The specific distinctions from that of *Donax irus* (which ought probably to be placed amongst the *Veneries*) are the closeness of the *striae*, want of the thin membranaceous ridges, and the teeth of each valve being equal in number, and even at their tips, as well as the replication of the margin. The two last characters are particularly essential in discrimination, as *D. irus* is so subject to variation in growth, but invariably (if perfect) possesses two bifid teeth in each valve, independent of a plain tooth in one of the valves.

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### CHAMA.

**COR.** This very rare shell as a *British* production we are happy p. 134. to remark has been recently taken alive by Mr. LASKEY, in p. 579. the *Frith of Forth*, by dredging off *St. Abb's head*.

ARCA.



## ARCA.

*Arca fusca*, *Don. Br. Shells* v. t. 158. f. 3. 4.

FUSCA.

*Balanus Bellonii*. *List. Conch.* t. 367. f. 207.

Shell finely reticulated, of a purplish-brown colour, destitute of any markings.

In habit similar to *Arca Noë*, from which however it differs in the following particulars. It is longer in proportion to its breadth, and the longitudinal *striae*, except between the two angles at the longer end, are infinitely finer; the *Noë* being more properly ribbed. In the *fusca* the upper angle at the longest end is usually considerably shorter than the lower angle, which is the reverse of the other species: but what at once marks the distinction of the two shells is the undulated, or zigzag chestnut-coloured bands that cross *Arca Noë* diagonally, and which appears to be an invariable character; whereas in *A. fusca* these markings are wholly wanting.

At the time *Testacea Britannica* was published we had never found more than two very small shells of either of these species, and at that time allowing for the loss of their markings, not being live shells, had considered them to be *Arca Noë*; as such were figured in that work, but which from more recent observation, we suspect were in reality the young of *A. fusca*.

The figure also given by Mr. DONOVAN for a *British* specimen of *A. Noë* in the same plate as referred to before, is so extremely similar to that we have figured for such, that was it not for the magnified figure representing such coarse longitudinal *striae*, we should not have hesitated at pronouncing it to be the *fusca*, being wholly destitute of the remarkable diagonal bands, and the usual projecting angle which continues in a line with the hinge at the longer end, in *Noë*. If however such is really a minute specimen of that shell, which from infancy has not attained its usual characters, we may fairly conclude the young specimen from which our figure was taken may also be of that species. We must however remark that we have lately seen a live *Arca Noë* taken by Mr. LASKEY, in *Cornwall*, three quarters of an inch wide, and another little inferior from *Dunbar*, in *Scotland*, both of which though small had the diagonal brown markings, and were strongly ribbed: the former was covered with a brown scaly *epidermis*, becoming deeply fringed at the angles of the smaller end.

The author of the *British Shells* remarks that the figure he has given for *Arca fusca*, is from a specimen found with the other in *Cornwall*. We have also found this species on the south coast of *Devon*, upon the sands, and amongst the rocks at Milton not very uncommon, in all the intermediate stages of growth from the size of a barley-corn, to that of three quarters of an inch in length, and an inch and a half in breadth; and upon comparing them with foreign specimens of what DOCTOR SOLANDER had denominated *fusca*,  
there

there does not appear a doubt of their being identically the same species. This like many of the genus is, when perfect, covered with a pilous *epidermis*; and the animal adheres firmly to the interstices of the rocks by its *byssus*. LISTER notes it as an occidental shell.

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We sincerely wish it was in our power to satisfactorily PILOSA. determine the real distinction between this shell and *Arca* p. 136. *glycymeris*, since so many opinions seem to prevail. That LINNÆUS considered there was some trifling distinction is evident by his descriptions of them.

By consulting some of our conchological friends, we find they are as much in the dark as ourselves. From one of them we received what was considered as the two species, but they evidently were the same, differing only in the number of teeth; both are equally sub-orbicular and equilateral, and without doubt are those which are so commonly found in *Guernsey*, and on the western shores of *England*. From another quarter we received a very different species for *glycymeris*, together with a specimen of *pilosa*, the former of which appears to be without doubt the *Arca deusta* of DOCTOR SOLANDER, and of *Museum Portlandicum*, No. 53. It is well figured by KNORR, Tab. 14. f. 3: and stands in the cabinet of Mr. WOOD under the title of *A. deusta*, of SOLANDER.

Many writers on *British* conchology have given the shell which is now generally considered as *pilosa* for *glycymeris*; but

but we are informed by the authors of the *Descriptive Catalogue of British Testacea*, that Mr. SOWERBY first ascertained the *glycymeris* to be *British*; that he found it on the coast of *Cornwall*; and that it is not uncommon on the shores of *Guernsey*. That the *pilosa* is common in that island we can speak from personal knowledge; and we have seen the same in very considerable abundance near *Falmouth*, in *Cornwall*; but if the shell found by that gentleman is the same as that referred to in KNORR, by the authors of the *Descriptive Catalogue*, we most readily admit it to be distinct from *pilosa*, though we cannot find that it is known even as a *Guernsey* shell. We do not however mean to dispute that *Arca deusta* has been found in *England*, but that it is not the common *Guernsey* shell; nor does it convince us that it is the LINNÆAN *glycymeris*. The *Guernsey Arca*, figured by LISTER, Tab. 247, and particularly marked as such, is perfectly distinct from that referred to in KNORR, and yet it is also quoted as *glycymeris*. It is true LISTER calls it the *Chama glycymeris* of BALLONII, but it is evidently our *pilosa*. In fact we believe LINNÆUS did really make the two species out of one from those varieties he observed in the *pilosa*.

Several hundred valves of what is now generally considered as *Arca pilosa* have been noticed by us on the shores of *Devon* and *Cornwall*, from the largest to the most minute, amongst which very considerable variety have appeared, as well in colour as in the striature, and in the number of teeth; as also in contour, some being more orbicular and compressed. The younger shells are evidently decussated, and flattened; whereas the older not only lose their beautiful

markings,

markings, but also the transverse *striæ*; and the longitudinal *striæ* become more obsolete; and sometimes these shells are found to be a little inequilateral: the older shells only are *pilous*. Under all these circumstances we cannot help considering that the LINNÆAN *pilosa* and *glycymeris* are mere trifling varieties of the same species.

CHEMNITZ and GMELIN have also referred to LISTER'S figure, Tab. 247, for the *glycymeris*; and the figures of *Arca undata*, and *marmorata* of CHEMNITZ, Vol. 7, Tab. 57, fig. 560 and 563 might as well have been referred to as varieties. If we may judge from specimens in our cabinet which were taken on the shores of England, they are actually of the same species, for if they had been figured to represent the shells in question they could not better define them; and ours are evidently the common *Arca* found on our western shores in particular, and in *Guernsey*, and are most certainly the young of *pilosa*.

*Arca Rostrata*, Gmel. Syst. p. 3308—Turt. Lin. iv. p. 251.  
Chem. Conch. vii. t. 55. f. 550, 551.

ROSTRATA.  
Tab 27. f. 7.

Shell sub-ovate, the smaller end produced into a lip, which is reflected, or arcuated; the opposite end rounded: *umbo* small, nearly central, and a trifle reclined, the beaks approximate: the whole shell is of a pale sub-pellucid horn-colour, glossy, and wrought with very fine, regular, transverse *striæ*, as if cut with an engraving tool, and which under

a lens are found to be acute ridges, slightly reflected; on the upper part from the *umbo* to the rostrated end the *striæ* are discordant, making an abrupt angulated turn across several slight longitudinal ribs, with which that part alone is furnished. The inside is of exquisite polish, and the margin plain: the teeth are numerous on each side the beak, divided at that part by a depression void of denticulations; these teeth are angulated, each series formed with their angular sides towards the centre. Length half an inch; breadth three quarters.

Although this rare and elegant species of *Ark* has been described as an inhabitant of the *Norwegian* and *Baltic* seas, it had never been supposed to inhabit the coast of *Great Britain*; but from the undoubted authority of Mr. LASKEY we are enabled to add it to the catalogue of indigenous shells. Several single valves and one live specimen were taken in the dredge by that gentleman in *Scotland*, off *St. Abb's head*. It is usually described to be covered with a greenish skin, probably something foreign to the shell, as the *British* specimen in question was perfect, and in high preservation, but destitute of any such covering as the representation of the figure given will evince.

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TENUIS. Shell sub-cordate, smooth, white, covered with an olivaceous *epidermis*: *umbo* very small; beaks slightly inflected, and placed near to one end. Inside smooth, white, and somewhat nacreous; margin thin and intire: hinge pectinated with

with about fifteen elevated teeth placed within the margin, six on one side, and nine on the other, divided by a small concave plate that projects inwards. Greatest diameter a quarter of an inch ; the length not quite so much.

This new, rare, and delicate species of *Ark* is described from a perfect specimen in the cabinet of Mr. LASKEY. It was found by that gentleman on the shore near *Dunbar*.

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## PECTEN.

*Pecten obsoletus*, *Br. Zool.* t. 61, f. 66.

*Pecten lævis*, *Test. Brit.* p. 150.

*Ostrea obsoleta*, *Lin. Trans.* viii. p. 100.

*Ostrea lævis*, *Lin. Trans.* viii. p. 100, t. 3, f. 5.

OBSOLETUS.

p. 149.

The obscurity in which this, the *Pecten lævis*, and *glaber* of PENNANT, have been enveloped, by the very short and indefinite descriptions of the authors who have described them, demands a closer investigation in order to extricate them from their present confusion. Mr. PENNANT observes that his *obsoletus* is smooth, with eight obsolete rays; and his figure is rayed, not striated, and the rays nearly as large as the intermediate furrows or depressions, but do not extend quite to the *umbo*. DA COSTA, who describes a *Pecten* under the title of *parvus* with reference to the *obsoletus* of PENNANT, says, “with numerous fine close set longitudinal *striæ*, and at irregular intervals they rise much more prominent into some eight or ten rays, which are the obsolete rays

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of

of PENNANT. The *striæ* notch the margin very finely, and some few slight *striæ* run across the shell." DONOVAN has given an exceedingly good figure of a *Pecten* that exactly accords with DA COSTA's description, and quotes that author's *parvus* as well as PENNANT's *obsoletus*, but neither of these writers remark the most essential character, the minutely fine decussate *striæ*, that appear under a powerful lens like shagreen; for in other respects scarcely two specimens are to be found alike. It is not surprising that Mr. PENNANT should call his shell smooth, or that any other conchologist, not in the habit of examining attentively by glasses, should have overlooked that circumstance, for it is not apparent to the naked eye; indeed we acknowledge ourselves to have been deceived in the first specimen we obtained, which happened to be a variety without any ribs, and that appeared to the naked eye perfectly smooth. This we had placed in our cabinet as the *Pecten lævis* of the *British Zoology*; and other varieties occurred, which we described as that shell, not having been able at that time to compare the three species in question. Since that period we have fortunately obtained each, and amongst the *obsoletus* so many varieties that it is scarcely possible to identify it by the descriptions hitherto given, or to fix any character but the invariable shagreen appearance. Some, it is true, possess the eight or ten ribs more prominent than the rest, while a greater number are quite plain, or destitute of ribs; others have more numerous intermediate ribs near the margin. A specimen before us has fifteen faint ribs without any larger. Another variety from Mr. LASKEY (who found it in *Scotland*,) has thirty fine  
obsolete



obsolete ribs, besides which the shell undulates into seven large elevations, which do not separate the smaller ribs, but are equally covered by them, and besides these, it has like all other varieties the invariable and unerring character, the minute decussate *striæ*, which are not to be found on either the *P. glaber* or *lævis*.

Having acknowledged ourselves to have been puzzled in the discrimination of these shells, we do not hesitate to desire those shells described in *Testacea Britannica* for *P. lævis* may be considered as varieties of this species.

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Pecten glaber, *Br. Zool.* No. 86.

GLABER:

p. 150.

Tab. 28. f. 6.

It will be observed by every conchologist that this species originated with Mr. PENNANT, and that all succeeding writers who made mention of it, have been equally in the dark respecting its identity, and therefore could do no more than copy the description from the *British Zoology*. Whether the shell in question may be a variety of *Ostrea glabra* of LINNÆUS is not to be easily determined, but we confess there is some probability, from the singular circumstance of the internal double rays, if the shell hereafter described is the *Pennantian glaber*, and of which we have very little doubt, when we consult the variety several species of this genus are subject to, as before remarked of the preceding. The specimen from which the following description and figure is taken, was favoured us by Mr. LASKEY, who found it on the *Scotish coast*, near *Dunbar*.

The shell is mottled, with rufous-brown and yellow, thin, and nearly smooth, but not glossy: it has seven rounded rays, not much elevated: the ears are nearly equal, and large, one is reticulated, the other only striated. The inside is singularly marked with twenty one slender rays, the fifteen middle ones are placed in fours; that is to say, there are four rays between the *fulci* that form the rays on the outside, and the two middle of these series of quadruplicate rays approximate; the others are remote: the colour is paler than the outside, except at the upper part about the hinge. Length three quarters of an inch, breadth rather less.

Mr. PENNANT gives his shell fifteen faint rays. In the specimen before us there is some slight appearance of intermediate rays in the depressions that separate the evident ones, and which are formed by the *fulci* between the approximate rays on the inside. The inside of Mr. PENNANT'S shell is described to be "marked with rays, divided by a single *fulcus*." What the author could intend by that description appears inexplicable; but that he did observe an unusual structure in that part of the shell seems evident; upon the whole therefore we do not hesitate to consider it to be that species so long in obscurity, and so much sought after by collectors.

Those who are fortunate enough to obtain this shell will observe by the assistance of a pocket lens, that it is most minutely striated concentrically, but does not possess any longitudinal *striæ*, like *P. obsoletus*.

*Ostrea sinuosa*, *Lin. Trans* viii. p. 99. DISTORTUS.  
*Pult. Hutch. Dorset*, t. 10. f. 3. 6. p. 148.

This is probably the *Ostrea sinuosa* of GMELIN, p. 3319, since he refers only to the works of LISTER, and those correctly; and not the *Pusio*, so generally referred to.

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*Pecten lævis*, *Br. Zool.* No. 67. LÆVIS.

This shell is not less in obscurity than *Pecten glaber*, no one having thrown any additional light upon the subject since the publication of the *British Zoology*. It is in all probability a very rare species, and (we believe) is not in the cabinet of any collector of *British* shells except our own. To the essential characters of this species nothing can be added to the short description given by Mr. PENNANT, "being perfectly smooth, with unequal striated ears."

The largest of the specimens before us, does not much exceed half an inch in diameter, and the breadth is nearly equal to the length; and except being slightly and irregularly wrinkled concentrically, is smooth and glossy: one ear is very large, the other small, and slightly striated longitudinally: the colour is nearly white, or pale cinerous. It is a very thin semi-diaphanous shell, and may at once be distinguished from the plain variety of *P. obsoletus* by being destitute of the shagreen appearance formed by the minute decussate *striae*. The specimen adverted to was found in *Falmouth* harbour; a similar one but smaller was taken amongst *Sertulariae*, by trawling on the coast of Devon; and  
not

not less than twenty small, and mostly mutilated valves were discovered together in a new species of *Millepora*, taken in deep water on the same coast.

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FRAGILIS. *Ostrea fragilis*, *Gmel. Syst.* p. 3332.—*Turt. Lin.* iv. p. 272.  
*Pecten fragilis*, *Chem. Conch.* vii. p. 349. t. 68. f. 650.?

Shell sub-ovate, oblong, convex, fragile, sub-pellucid white, wrought with numerous slightly undulated longitudinal *striæ*, with two or three minutely fine intermediate ones: valves equal, inequilateral, one side straight, the other arcuated: auricles small, equal: *umbo* prominent, small, even; beaks distant. Inside smooth, white: hinge a little oblique. Length three quarters of an inch; breadth not quite half an inch.

Several of these shells were taken by the trawl on the coast of *Devon*, intermixed with *Sertulariæ*, and in the interstices of a new and interesting species of *Corolina*.

This we believe is the first instance of any of the division of irregular and sub-auriculated *Pectens* being found in our seas. It is nearly allied to *Ostrea fasciata* of LINNÆUS, but upon comparison does not exactly accord in the hinge, and is possessed of more numerous *striæ*, independent of the minute intermediate ones, of which that shell is destitute. It is true there appears only a slight distinction between *P. fragilis* and *fasciata* of CHEMNITZ, but the former is longer in proportion, and is flatter. As we have not the means of comparing

paring ours with the foreign *fragilis* it must be submitted with a degree of doubt, as that shell appears to be a rare production from *Nicobar*, and according to the figure referred to, the *striæ* are less numerous than in ours. These however are not sufficient objections to induce us to unnecessarily multiply the species, when in other respects it so perfectly corresponds.

Shell ovate-oblong, pellucid, white, equilateral, equivalve, SUBAURICULATA. furnished with small, equal, angular projections, or sub-auricles, and wrought with numerous longitudinal *striæ* that slightly crenate the margin; along the middle are two *striæ* that appear more conspicuous than the rest by being opaque, and are equally evident on the inside; a character constant in several specimens examined. Length a quarter of an inch; breadth half its length. Tab. 29, f. 2.

This new and very curious little species of *Pecten* differs materially from *fragilis* by being exactly equilateral, and in being destitute of the finer intermediate *striæ*, as well as in the hinge, which stands at right angles with the shell, and not sloping to either side.

Several of these shells were taken with the last in deep water.

ANOMIA:

## ANOMIA:

CYMBIFORMIS.

*Lin. Trans.* viii. p. 104. t. 3. f. 6.

Shell sub-ovate, sub-pellucid, white; the upper valve considerably convex, contracting at the *umbo* into a lengthened beak, which is incurvated over the other valve; it is slightly wrinkled transversely, and sometimes a few faint longitudinal undulated *striæ* may be discovered by the help of a glass. The lower valve as is usual with shells of this nature conforms in shape to the body to which it is affixed: the perforation is formed like that of *ephippium*. Length rarely exceeding a quarter of an inch; breadth somewhat less.

The superior valve of this species was known to us long before the publication of *Testacea Britannica*, but as in that state the genus could not be ascertained with any degree of certainty, no mention was made of it. In the same defective state Mr. LASKEY found it in *Scotland*, and it was not till very lately that we obtained a few perfect specimens on *Sertularia abietina*, and *antennina*, taken alive in deep water.

It is well known to the Testaceologist, that shells of this class being parasitical, are subject to much variety in growth; but in this the convexity of the superior valve is sufficient to discriminate it from the common species; sometimes a specimen occurs of this valve which bears a strong resemblance to a *Patella*, and not very unlike the young variety of *P. ungarica* with the hook of the beak mutilated.

Since

Since the above was prepared for the press the authors of the *Descriptive Catalogue of British Shells* have described and figured this species from specimens taken on the coast of *Caitbness*. And we have examined a specimen from *Scotland*, in which the *striae* were very conspicuous.

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## MYTILUS.

This species seems to be pretty generally diffused throughout this island; we have found it on almost all parts of our coast from east to west, from Lincolnshire to Cornwall, and in no instance so large as half an inch in breadth. In this state of growth it is also not uncommon on the sands near *Dunbar*, in *North Britain*, but to our astonishment we were informed by Mr. BOYS and Mr. LASKEY, that they had taken several by dredging in the *Frith of Forth*, not less than an inch and a half broad, and one in particular that actually measured two inches. A specimen of the former size the latter gentleman favoured us with, so that we have no difficulty in determining it to be the same species, there being no difference whatever, except in the colour of the *epidermis*, which is nearly black, and usually decorticated at the *umbo*.

DISCREPANS.  
p. 169.  
Tab. 26, f. 4.

This circumstance shews how difficult it is to determine the full extent of a shell's growth, and how cautious we should be in admitting size alone to determine a species. In this place we cannot help adverting to two other supposed species of this genus, the *Modiolus* and *barbatus*, which we

have great reason to believe are actually the same; for between these, the medium in size and colour, with a slight appearance of the fibrous epidermis has occurred, which leaves very little doubt that no other young of the *Modiolus* will ever be obtained than the *barbatus*.

Since the above was written for the press, we are happy to find a coincidence of opinion with respect to the two last named shells, of two respectable conchologists, who have lately favoured the public with their conjoint observations. At the same time we cannot help expressing our surprise that they should have united our *Mytilus discors* and *discrepans*, two species so essentially different, both in habit and manners, as never before to have admitted of a doubt. Both these shells were well discriminated on the coast of *Scotland* by the gentlemen to whom we have referred for the valuable additional remarks on this species. We can therefore only attribute such an opinion to the want of specimens of each for comparison; and we are the more inclined to this opinion by consulting fig. 8 and 9 in Tab. 3, of vol. 8 of the *Transactions* of the *Linnean Society*. To rescue therefore a species from oblivion whose distinctive characters are so much more strongly marked than many others of the genus, which perhaps have remained divided more, because preceding naturalists of celebrity had given them distinct places, than from any personal conviction of modern conchologists, is obviously necessary, and the more so in proportion to the weight of the authority of the dissenting opinions. Under so decided a conviction it would have been highly blameable to remain  
silent,



silent, and we trust by the figure here given of a specimen of such superior growth, no doubts will in future obtain even by those who may not have had an opportunity of comparing the real shells.

The *Mytilus discrepans* is in no instance found to inhabit the *Ascidia Mentula*; and the *M. discors* is rarely found except bedded in the exterior coat of that animal, or some of the larger *Fuci*: on the western coast some *Ascidia* are so studded with them as nearly to cover the whole surface; twenty or thirty may sometimes be counted in an old corrugated specimen, and it is in those *Ascidia* only they make a lodgment, or are found of superior size. If the comparative description before given is consulted, no mistake can happen in identifying the species.

It has been said that the foreign *discors* are always found in clusters, enveloped in a yellowish silky *byssus*; but no such instance has ever occurred to us or our friends in the *British* specimens. It has sometimes occurred fixed in the stalks and roots of *Fucus digitatus*, upon the Western shores, and we are informed it is commonly found in that situation in *Scotland*.

Those who have an opportunity of consulting CHEMNITZ will find in Vol. viii. Tab 86. fig. 767, a good representation of a large specimen of *Mytilus discrepans*, which exactly accords with those found in *Scotland*. That conchologist has like some others confounded it with *M. discors*, and has given

it as a variety, of that shell; and we are told his shell came from Sweden; from which it may be inferred that the northern seas are most congenial to the growth of this species.

## STAGNALIS.

*Mytilus Stagnalis*, *Gmel. Syst.* p. 3362.

Schroet, *Flusconch.* t. 1. f. 1.

*Br. Miscel.* 1. t. 16.

It will be observed GMELIN on the authority of SCHROETER has described a shell under this title, which he likens to *M. cygneus*, differing only in being larger and less convex. We also on the authority of Mr. SOWERBY give it a place as *English*, but not without very considerable doubt of its being distinct from *M. cygneus*. The shell which was found by a friend of Mr. SOWERBY by the side of the lake in *Kew* garden, differs from SCHROETER'S shell in that particular which was supposed most essential to its distinction from *cygneus*, for instead of its being less convex, it is admitted to be more convex than *cygneus*. Upon the whole therefore, when a considerable number of these shells are examined, we find those gradations which connect these two supposed species, and no criterion of distinction remains as specifically characteristic.

There is scarcely perhaps a species of *Testacea* if the extremes, or two specimens most dissimilar were alone examined by the most able conchologist, but what would be pronounced distinct; whereas could he have consulted the intermediate shades, and gradations, his opinion would have been entirely changed.

We

We have before remarked the great similarity in several of the species of this genus, destitute of fixed distinguishing characters, and of course individual opinion will be founded on the specimens consulted. By this rule we cannot at present be convinced that the *M. Avonensis* is the same as *M. anatinus*, notwithstanding the high consideration we entertain for a recent opinion to that effect given in Vol. viii of the *Linnean Transactions*.

Mytilus faba, *Gmel. Syst.* p. 3559?

*Chem. Conch.* viii. t. 85. f. 761?

DECUSSATUS.

Shell longitudinally ovate, with the *umbo* at the smaller end: sides equal. It is very thin, pellucid, of a pearly white when divested of the *epidermis*, (which is of a pale olive-brown); and is finely striated longitudinally, crossed by more minute *striæ* in a transverse direction, that gives it a decussated appearance when examined under a microscope. The inside is smooth with a nacreous gloss; at the hinge is a slight indenture, and the margin contiguous slightly denticulated; and near the front margin is a singular reflected transverse ridge, but whether this is a constant character, or accidental, cannot be determined: indeed only one valve of this curious little shell has come under examination, and that through the favour of Mr. LASKEY, who found it in sand on the *Scotish* coast.

It is about one eighth of an inch in length, and not quite so broad. The convexity of the valve gives it the appearance

ance of a Patilla, but the hinge bespeaks it a bivalve destitute of teeth ; it must however be submitted with some doubt with respect to its proper place.

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PLICATUS.      *Mytilus plicatus*. *Gmel. Syst.* p. 3358.  
*Chem. Conch.* viii. t. 82. f. 733. a. b.

Shell oblong, truncated on one side close to the *umbo* : it is extremely thin, pellucid, and uneven on the surface, slightly plicated, and irregularly wrinkled concentrically : the beaks are extremely small, a little incurvated, and placed at one end ; the opposite end is rather the broadest. Inside very glossy, with a slight nacreous hue ; the hinge is wholly destitute of denticles. Length less than half an inch ; breadth double its length.

This species has somewhat the habit of *Mytilus præcisus*, but differs in form of the *umbo*, and in being pellucid, and hiant at the anterior end. There can however be very little doubt that it really is the shell figured by CHEMNITZ, at least it is so like, that we dare not give it as a distinct species, although it is described as a rare shell from *Nicobar*.

From the same gentleman as the last, taken alive by him off the isle of *Sky* in the year 1806.

We cannot help expressing some doubts with respect to **UMBILICATUS**, the *Mytilus umbilicatus* being a distinct species; Mr. PEN- p. 164.  
NANT was the first who publicly noticed it, and it was afterwards described by other English authors upon his authority. There are however some circumstances from which it is reasonable to conjecture that it is only a *lusus* of *M. Modiolus*. It must be confessed we have long been induced to this opinion, but did not venture to pronounce it, till we found other conchologists inclined to accord with us. Mr. LASKEY informs us he has a specimen of *Mytilus demessus*, and another of *M. edulis* with similar depressions; and of the last species one occurs in our own cabinet; so that it is but a reasonable conclusion that *Modiolus* may accidentally assume the form in which we find *umbilicatus*.

That there is no other distinction between these shells than the depression near the beak will not be disputed, and the scarcity of the latter favours the supposition. It has not been described by any foreign author, nor has it we believe occurred above two or three times to English collectors. Under all these circumstances we cannot help concurring with Mr. LASKEY and some other conchologists that the three formerly described species of *Mytilus*, the *curtus*, *modiolus*, and *umbilicatus* of the *British Zoology*, are one and the same.

The great variety of shape observed in *Mytilus edulis* must also favour an opinion that the *incurvatus* originally described by Mr. PENNANT, is no other than a distorted

torted shell of that species; these distortions appear to be occasioned by being fixed in the crevices of rocks, and are by no means uncommon on most of our rocky shores, where all the gradations may be found.

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## PINNA.

INGENS.  
p. 180.  
p. 583.

*Pinna lævis.* *Don. Br. Shells.* v. t. 152.  
*P. ingens.* *Lin. Trans.* viii. p. 112.

From one of these shells in which the animal was alive, we extracted two very globular pearls of considerable size, but extremely foul. In another was a crab corresponding nearly to *Cancer pinnotheres*, if not the same.

We are assured by Mr. LASKEY, that the shell described by Mr. PENNANT from the cabinet of DOCTOR WALKER, is the same as that found on the coast of *Devon*, having examined those in the Doctor's collection. It appears to be known to the inhabitants of *Barra*, one of the Western islands, by the name of *Feaskand*, as the following note, extracted from a manuscript of DOCTOR WALKER, appears to evince. "No. 2268 *Pinna borealis*, it was brought up on a fishing hook, with the animal alive in it, 30 miles E. N. E. off Schetland. It is different I think from all the *Linnæan* species, and different also from all those figured by *Gualtieri*, *Seba*, and *D'Argenville*. It is the same as the *Feaskand* I found in *Barra*."

In

In our former account of this shell we had referred to a figure in LISTER, with doubt, and as we have now very great reason to believe that to be perfectly distinct, beg the reference may be cancelled.

# UNIVALVE SHELLS.

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## NAUTILUS.

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BECCARII.  
p. 186.  
Tab. 18. f. 4.

Nautilus Beccarii, *Lin. Trans.* viii. p. 116.

*Pult. Hutch. Dorset.* t. 19, f. 28.

This and the *Beccarii perversus*, are not uncommon in a fossil state; Mr. MEAD favoured us with specimens which he collected from the *Appenines*, near *Sienna*, in *Italy*. These are crowded in a yellowish earthy matrix, mixed with *Nautilus Crispus*, and another very minute nondescript species rarely, and less frequently *Serpula lobata*.

Both the *Beccarii* are about double the size of the recent shells found on our shores, the effect of a warmer climate. PLANCUS noted these amongst other minute species in the sands on the shore of *Areminum*, now *Rimini*, in the *Adriatic*.

The opening or entrance of the syphon in these shells, is situated at the interior side close to the second whirl, and is continued throughout all the numerous *septa* without a break. An examination of the structure is more easily and accurately obtained by these antideluvian relicts than by recent shells, as they bear grinding much better.

The



The *Beccarii perversus* is without doubt perfectly distinct from the other, and not a *lusus*, or accidental heterostrophon variety; it is more numerous than *Beccarii*, and both too common to favour an opinion that one is a *lusus* variety of the other.

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*Nautilus lævigatulus*, *Lin. Trans.* viii, p. 115.

LÆVIGATULUS.

p. 188.

We found this shell in the *Boysian* cabinet, mixed with *Nautilus depressulus* and *calcar* by mistake; and a very good drawing of our *N. calcar*, from the same source, was marked 67, referring to that number in *Testacea Minuta Rariora*, which is *N. lævigatulus*; so that it may be conjectured these two shells have been generally confounded. Our former description of this species was only copied from WALKER, as at that time it had never come under our observation; and as we consider that author's concise account by no means sufficient to define the distinguishing characters, we shall describe it from the specimens before us.

Shell opaque, smooth, pale ferruginous-brown, with about ten visible flexuous rays marking the *septa*; these are rather deeper in colour, a trifle raised or embossed, radiating from the centre: both sides are considerably and equally convex, declining to a rounded marginal edge, but not strictly carinated: mouth, or exterior *septum* surrounded by a margin or rim, forming a triangle; so that the body is not intersected by the anterior end, but the volution is lost just below the margin of the first *septum*.

In this particular it differs from *N. calcar*, whose body is clasped very much by the margin of the anterior *septum*, a may be seen by a comparifon of fig. 4, Tab. 15, and fig. 7, 8, Tab. 18. This fhell is alfo different in colour, is larger, and the cells more numerous.

Aperture a fmall fyphon near the exterior angle, not protruded.

CALCAR  
p. 189

*Nautilus rotatus*. *Lin. Trans.* viii. p. 114.

In our former *synonyma* of this fhell, it will be feen we had refered to WALKER, and ADAMS, for our *Calcar*, with doubt: the light however thrown upon the fubject by the *Boysian* cabinet, requires that thofe references fhould be transferred to *Nautilus subarcuatulus*, hereafter defcribed. Nothing could have induced us to have referred to WALKER'S fig. 66, for our *calcar*, but the authority of our late valuable friend Mr. BOYS, who at the time of ill health did not difcriminate fuch minute objects with his ufual accuracy.

MARTINI gives the figure of a *Nautilus*, which he confiders as one of the varieties of the *Linnæan calcar*; it is however perfectly diftinct from our fhell. That fpecies which may be confulted in MARTINI, *Conch.* i. Tab. 20, fig. 182, 183, Mr. MEAD difcovered foſſil with thofe before mentioned near *Sienna*. The fpecimens that we have examined do not much exceed a quarter of an inch in length, and fomewhat

somewhat less in breadth ; they are extremely compressed, with from twelve to fifteen visible concamerations, the four or five last *septa* only are raised or elevated on the surface, and these are a little wrinkled : aperture of the syphon narrow, subcrenated, and placed at the outer margin close to the *carina*. This Appenine extraneous fossil has not we believe ever been found in *England*, either in that state or recent ; but it should seem to exist in a living state in the *Adriatic*, having been described amongst the minute *Nautili* observed in the sediment of the sea, on the shore of *Rimini*.

FICHTEL has figured several varieties of *calcar*, some of which are destitute of *carina*, others are strongly carinated, and even shoot into spines on that part. If these can be admitted as the same species, especially fig. d. e. f. Tab. 12, we may bid defiance to specific definition : but this able author is not singular in supposing the species to be so fickle in its habit. Although we may differ in opinion with M. FICHTEL in this particular, we cannot but offer the tribute due for his elegant work on minute *Nautilus*, intitled “ *Testacea Microscopica aliaque minuta ex generibus Argonauta et Nautilus, ad naturam picta et descripta.*” It was the intention of this able naturalist to have divided the *Linnæan Nautili* into four genera, under the titles *Nautilus*, *Hammonium*, *Lituus*, and *Orthocerus* ; but we lament that other occupations will not permit him to attend to the other three genera.

**DEPRESSULUS.**            *Nautilus depressulus*, *Lin. Trans.* viii. p. 115.  
p. 190.

Tab. 18. f. 9.    Several of this species in the *Boysian* cabinet enables us to give a more full description, accompanied by a figure.

Shell semi-pellucid, glossy, white, depressed, with about nine visible *septa* radiating from the centre in curved lines marked by their opacity, but do not appear to be the least embossed: sides similar; in the centre is a small pellucid spot, which WALKER probably mistook for a *sub-umbilicus*.

The mouth, or anterior end is somewhat like *N. calcar*, but does not clasp the body so much; it differs also from that shell in colour, as well as being vastly more compressed, in having no *carina*, and in the number of concamerations being greater; neither is this half the size of that shell.

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**UMBILICATULUS.**            *Nautilus umbilicatus*. *Lin. Trans.* viii. p. 115.  
p. 119.

Tab. 18. f. 1.    This is another of the most rare species of *Nautilus*, the description of which we were formerly obliged to borrow from WALKER; to which we are enabled to add a more comparative description, having collected a few specimens from *Sabella Penicillus*, in the bay of *Kingsbridge*, where those cases of *Amphitrite Ventilabrum* are in vast abundance, and are a perfect repository of the more common minute *Nautili*.

Shell

Shell compressed, sub-pellucid, white, with nine or ten raised joints; the anterior end, or mouth, clasping the body whirl nearly equal, within which any interior volution is lost, and by which an *umbilicus* is formed on both sides.

This is by far the most minute of any species of *Nautilus* we have yet examined, not half as large as the *Crassulus* to which it bears some affinity; but besides being sub-hyaline, the *septa* are less numerous, and the joints become occult after a single turn; whereas in the *Crassulus* the volution does not terminate at the mouth and become lost, but part of the second volution is visible beyond the junction of the first, and is gradually lost in the *umbilicus*.

*Nautilus Crassulus. Lin. Trans. viii. p. 117.*

CRASSULUS.

p. 191

Tab. 18. f. 2.

From the *Boysian* cabinet we are also enabled to describe this shell more fully, in addition to what we have formerly given, which at that time was copied from WALKER, in defect of our personal acquaintance with this rare species.

Shell spiral, strong, opaque, pale brown, with numerous close-set elevated joints; sides compressed, similar, umbilicated, shewing part of the interior volution within the *umbilicus*: mouth placed a little oblique, scarcely clasping the body, and furnished with a syphon.

This very minute species was marked in the cabinet 70, as a reference to the figure to which that number is affixed in WALKER.

Nautilus

SEMILITUUS.

*Nautilus semilituus.* *Lin. Trans.* viii. p. 118.

p. 196.

Tab. 19. f. 3.

By the assistance of the *Boysian* cabinet we find this is not the *Nautilus subarcuatulus* of ADAMS, and consequently not figure 73 of WALKER, as we had formerly been induced to believe; but is perfectly distinct, and not before described as an English shell. We beg therefore the reference to those authors may be erased, as we have transferred them to *Nautilus subarcuatulus*. Nothing however has occurred to induce us to alter our opinion with respect to this being the *semilituus*, originally figured by PLANCUS, Tab. 1, fig. X. O. and X. P. It is true the specimen from which our figure was taken has no visible curved volution at the end, but in some this part is less obscure; and in a drawing of a specimen in the possession of Mr. HENRY BOYS, we perceive a very distinct convoluted termination at the posterior end. Shells that are subject to such material variation are difficult to identify, and consequently error in synonyms is sometimes unavoidable; this however is more excusable than multiplying species beyond their natural limits.



SUBARCUATULUS.

*Adams Microsc.* p. 642. t. 14. f. 38.

Tab. 19. f. 1

*Turt. Lin.* iv. p. 307.*Walker Min. Shells.* f. 73.*Nautilus crepidula.* *Fichtel.* t. 19. g. h. i.

Shell sub-arcuated, sub-convoluted, semi-pellucid, glossy, white, with the anterior or straight part containing about four of the cells; the posterior half convoluted: visible conca-  
merations

merations twelve, very distinct; the *septa* are more opaque, and a little elevated: back carinated, and slightly indented at the divisions of the cells: the anterior *septa* run considerably oblique, which causes that end to slope much from the back to the front, at the point of which the siphon is placed: the front margin is not carinated, but obtusely rounded. Length one eighth of an inch.

This we must consider as *subarcuatulus*, No. 73, of WALKER, for which reason we have transferred the above references from *N. similitus* to this shell; a good specimen of which we discovered in the *Boysian* cabinet, together with a very minute one not perfectly formed. In this last, which is quite hyaline, the concamerations are less numerous, and the convoluted end less formed. With these were placed several mutilated full grown specimens, having lost the straight part; the remaining convoluted portion so exactly corresponds with fig. 66 of WALKER, that we are induced to consider that shell a mutilated *subarcuatulus*, and not (as we before suspected) an imperfect specimen of our *calcar*.

M. FICHEL has given a very exact figure of the smaller specimen above mentioned, and which is equally well described: found in Tuscany.

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Shell spiral, opaque, brown, with three lobated volutions; INFLATUS. in the first whirl are five extremely ventricose articulations; Tab. 18, f. 3.

L. . . . . anterior

anterior end sub-globose: syphon placed as in *Nautilus Beccarii*. It is not so much depressed as that shell, nor are the articulations half so numerous, but vastly more tumid; the size inferior.

A nondescript species, rarely found amongst sand on the coast of *Devon*.

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RECTUS. *Nautilus rectus*, *Lin. Trans.* viii. p. 119.  
p. 197.

Tab. 19, f. 4 & f. 7. Recent discovery of the true *Nautilus Legumen* obliges us to request the references affixed to this shell in *Testacea Britannica* may be cancelled, as we have transferred them to their proper place in this supplement.

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LEGUMEN. *Nautilus Legumen*, *Lin. Syst.* p. 1164.—*Gmel. Syst.* p. 3373.  
Tab. 19, f. 6. *Turt. Lin.* iv. p. 309.—*Gualt.* t. 19. P.  
*Martini Conch.* i. vig. 1. E. e.  
*Walker, Min. Shells.* f. 74.  
*Lin. Trans.* viii. p. 118.

Shell sub-arcuated, smooth, glossy, pellucid, white, somewhat compressed, and nearly of equal size throughout; the ends are rounded, and a little contracted; the anterior end is surrounded by an oblique ridge or margin, above which rises an obtuse syphon, with a considerable aperture near to the concave side, from which side the *septa*, (eight or nine in number) oblique downward and are visible through the shell;



shell; the chambers gradually decrease in size towards the posterior end: the concave side is opaque by reason of the continuation of the syphon through all the concamerations, but there is neither margin nor *carina* on either side.

Length above one eighth of an inch; breadth one sixth of its length. Extremely rare, in sand on the coasts of *Kent*, and *South Devon*.

This is undoubtedly the *Nautilus Legumen* of LINNÆUS, and is certainly the shell intended by WALKER, so that we have transferred all the synonyms from *N. rectus*, where they had been placed with some doubt.

We are now quite clear that our worthy friend Mr. BOYS had by mistake sent us that shell for fig. 74 of Walker, a species which does not appear to have been well known to that excellent conchologist; for amongst all the drawings we have been favored with, both by him and Mr. HENRY BOYS, nothing like that has appeared. The figure however given in *Testacea Minuta Rariora* is by no means correct.

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The figure here referred to must, we believe, be considered as a mere variety of that before given in *Testacea Britannica*, Tab. 14, fig. 5; and if we may judge from observation it seems to be subject to very great variation.

This shell we found in the *Boysian* cabinet. It is nearly cylindrical, with five articulations, and seven longitudinal ribs; one end is truncated, the other is terminated by a slender cylindrical process as long as the first joint. Length one tenth of an inch.

In this specimen we find the produced point at one end is not the aperture or siphon, but is solid shell; the opening is at the truncated end, which may possibly be imperfect, or in this particular may also vary.

Another variety has been discovered by Mr. HENRY BOYS amongst his father's shells, (a drawing of which we have been lately favoured with) that has five articulations, and four ribs; in other respects like that above described.

It should however be remarked that these, independent of the want of the conic anterior end, have not that gradual taper shape described, and figured for the original *costatus*.

If this should really be a variety of that shell, possibly the *Ramphanus*, *Lin. Syst.* p. 1164 may also be a variety; the *Orthoceras minimum* of GUALIERI, Tab. 19, L. L. M. originally given by PLANCUS, Tab. i, fig. 6, and copied by MARTINI, i. vig. 1. fig. A. a. B. c. These figures are more taper, possess more ribs than any we have seen, and are rounded at the smaller end; the larger end has a produced siphon, round which is a scalloped margin, formed by the ribs.

Another

Another figure is given by these authors destitute of ribs, and of the crenated margin, shewing the internal structure of the concamerations; the syphon of each *septum* is produced the same as the external one.

A most elegant shell of this kind is found fossil upon the *Appenines*, near *Sienna*, several of which we have been favoured with by Mr. MEAD, and Mr. HIGGINSON. These vary a little, but the most perfect are an inch in length, completely cylindric except at the last joint, which is rather larger, and terminates conically, ending in a small protuberance, nearly half as long as the joint to which it belongs: the anterior end of those which appear perfect, is a little contracted, round, and smooth, or projecting beyond the ribs; in the centre is placed the aperture, or syphon, whose margin is finely crenated. They vary also as much in the number of chambers, as in that of the ribs; possessing from ten to fifteen of the former, and from nine to twelve of the latter: the joints are not much raised, but usually two or three at the anterior end more than the rest. The shell is extremely thick in proportion; and we found by dividing several down the middle, that the *septa* were equally strong, and each furnished with a small crenated perforation in the middle, but not a continued syphon: the cells are not round, but in the section appear rather concavo-convex. The colour is of a pearly-white.

May not this be a variety of the *N. costatus* of superior growth, occasioned by a more southern climate? but whether  
it

it is found at present in a recent or living state, we are ignorant.

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**SPINULOSUS.** Shell with three extremely globose articulations, of a pale chestnut colour, covered with spines; the superior bulb a trifle elongated to form the syphon: the spines all incline to the posterior end.

Since the figure referred to was engraved, we have been favoured with a drawing of a specimen in the possession of Mr. HENRY BOYS that is subarcuated, and rather taper, with eight joints not so ventricose, and appears to be rather tuberculated than spined. Length one tenth of an inch.

It is probable this is a more matured shell than the one figured, for there is little doubt but the number of chambers in most of this class of shells increases with age. Ours was discovered in the *Boysian cabinet*, mixed with *Nautilus radiculara*; and it must be admitted, there is so much similitude to some of the numerous variety of that species, that the principal distinction consists in colour, and the spinous, or tuberculated appearance of this.

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**BICARINATUS.** Shell sub-cylindric, arcuated, with eleven sub-globose, bicarinated articulations, or furnished with a slight longitudinal rib along the arc, and another on the opposite side: the larger end is terminated by a produced syphon; the joints

joints gradually decrease a little to the posterior end, which is rounded. Length one eighth of an inch; diameter of the largest part about one eighth of its length.

We are indebted to Mr. HENRY BOYS for a good drawing of this new species of *Nautilus*, found amongst some small boxes of minute shells belonging to our late worthy friend of *Sandwich*, where it was undoubtedly found; and regret it came too late to be figured.

It is somewhat similar in shape to *N. subarcuatus*, Tab. 6. fig. 5. but more curved, and at once distinguished by its carinated sides.

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Shell smooth, glossy, straight, a little compressed, linear, LINEARIS. and nearly of equal size throughout, or a trifle tapering, and Tab. 30. f. 9. furnished with faint ribs at the lesser end, which take rather an oblique direction, and scarcely extend half the length of the shell. It is pellucid white, except along the sides, and at the divisions of the cells, which are opaque, and mark the concamerations; the *septa*, about fourteen in number, run a little oblique, and not quite regular: the anterior end is quite smooth, and terminated by a produced siphon; the other end is rounded. Length nearly a quarter of an inch; breadth about one eighth of its length.

Discovered amongst a parcel of minute shells, sent to us by Mr. LASKEY, who collected them on the shell bank near  
*Dunbar,*

*Dunbar, in North Britain.* It is distinguished from *N. legumen* by being straight, and ribbed at the smaller end.

LACUSTRIS.  
p. 191.

*Nautilus lacustris.* *Lin. Trans.* viii. p. 114.

This shell is the *Nautilus Ypsilon* of the *Portland Cabinet*.

## CYPRÆA.

EUROPÆA.

*Cypræa pediculus.* *Test. Brit.* p. 200.

In the former part of this work we had expressed a doubt whether the shell commonly known under the denomination of *Cypræa pediculus*, in the cabinets of the collectors of *British Testacea*, was the true *pediculus*, since it differs so essentially in several particulars, especially in a character that should seem to mark so strongly a specific distinction; that of being destitute of the dorsal *fulcus*. If indeed it had been proved that the fulcated shell had been found on our shores, should we have considered them as the same species, if LINNÆUS had not implied they were varieties, by remarking that the *European* shells want the longitudinal furrow? That LINNÆUS did not believe the fulcated shell was found even in *Europe*, is therefore a natural conclusion.

In a periodical work our opinion has been somewhat contested, under a belief that the fulcated species was found on  
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the shores of the *Frith of Forth*, nearly opposite to *Edinburgh*; an assertion founded on oral, not ocular demonstration. To this enquiry however we directed our attention, and after a strict search for more than two years on that coast, by two able conchologists, no such shell was found, although that with the three dorsal spots destitute of the fulcus, as well as *C. arctica* or plain variety were observed to be common, as well opposite to *Edinburgh*, as on most parts of the shores of the *Frith of Forth*.\* Under these circumstances we do not only continue to doubt the existence of the fulcated species as *British*, but even as *European*; at any rate we have no hesitation in declaring it as our opinion that they are perfectly distinct, and have therefore, under the strongest conviction, been induced to separate the *European* species from the *Occidental*, under the title prefixed.

We cannot too often repeat that great care and attention are required in ascertaining what species are really *British*, for confusion becomes inevitable when once they have been admitted into foreign collections, or have been accidentally mixed with exotic specimens by friends who, wishing to oblige, have amassed every thing they could collect from others, without personal knowledge.

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\* Mr. H. BOYS and Mr. LASKEY, two gentlemen whose golden harvest in the field of Northern conchology has not only been amply experienced by the author, but fully demonstrated to the public in these sheets.

If we had followed the dictate of unreserved credulity, at least twenty additional species might have been given in this work; but such have been carefully excluded from our cabinet of *British Testacea* where doubts existed, or when, upon a strict investigation, there were reasons for conjecturing a mixture of foreign and domestic had occasioned mistake, and no succeeding communications from the same quarter had brought to light any thing to invalidate our former opinion.

It is really surprising to observe how frequently subjects in natural history are brought together as varieties of the same species that have invariable characteristic marks of distinction; and others destitute of any essential difference are divided into distinct species. That age occasions considerable variety will readily be admitted, and where opportunity has been wanting to trace the gradations from the infant to the adult state, several species are sometimes made out of one. Into this error we are all liable to fall, but candour demands the truth when discovered, and certainly there is as much merit in discovering the truth, as there is in discovering a new species.

When in the former part of this work we gave the *Cypræa arctica* and *bullata* distinct places, it was for want of sufficient evidence to enable us to actually differ in opinion from respectable conchologists; although it will be seen that we did express some doubt on the subject. Since that period sufficient opportunity has offered to collect these shells  
in



in all the gradations, even that which connects them with *Bulla diaphana*; so that we have no hesitation in bringing these four species into one. It is true some of our conchological friends did express some doubts about *Bulla diaphana*, suspecting it was the infant *Cypræa*, and we might have acceded, did not the animal also in that state differ as much from the adult as its shell, and thus deceived us. In this infant state the animal does not cover the shell with the reflexed membrane, as in adults, nor is the animal in the next stage perfectly formed and coloured in that part.

Having acknowledged the error in making *Bulla diaphana* a distinct species we beg that shell may be erased.

The *Cypræa Europæa* with spots, and that without spots, termed *arctica*, may be considered as perfectly formed varieties; the smooth kind, originally intitled *bullata*, is the same species in the adolescent state; and *Bulla diaphana* the first and most imperfectly formed shell.

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*Voluta lævis*, *Dón. Br. Shells*, v. t. 165.

*Lin. Trans.* viii. p. 133.

VOLUTA.

p. 203.

Mr. DONOVAN informs us, the figures of this species given by him were engraved from specimens originally in the *Portland cabinet*, and that they were taken in deep water at *Weymouth*.

## BULLA.

LIGNARIA. Recent opportunity of examining the animal in several of  
 p. 205, these shells while alive, has induced us to add some remarks  
 to those already given in *Vol. ii.* of the *Transactions* of the  
*Linnean Society.*

The animal is very large, of a cream colour, extending greatly beyond the shell: it consists of three lobes, besides that part obscured by the shell, which is comparatively small: the front or shield covers all the exposed anterior end, is somewhat rounded and scalloped, but neither eyes nor *tentacula* are visible. The *sustentaculum* is very large, projects even with the anterior lobe or shield, and extends on each side, reflecting a little, but scarcely covers any part of the shell; in the front between these two parts the mouth is concealed, of which the lips are black: besides the small convoluted part of the body within the shell, a membrane extends towards the *umbilicus*.

This apparently unformed mass is most remarkable for its stomach or gizzard, which has been so perfectly described and figured in the work before mentioned, as to render it unnecessary to enter into the particulars of its structure; but it may not be improper to remark, that we have more than once found that very strong little shell *Mya inequivalvis* in the passage to the stomach, in the same situation, and probably the same species described by the writer in question; but these had no perforation similar to what is in that work described,

scribed, and where the possibility is suggested of the *Bulla* being provided with some organ within the gizzard for perforating such shells as are too hard to be crushed by the action of the gizzard-valves against each other. If we consider the muscular powers of the gizzard of some species of birds, and compare the very superior strength of that of the *Bulla*, aided by the two thick and broad testaceous plates of the strongest texture, we shall not be surprised at its capability of grinding even the most compact of the smaller tribe of *testacea*, the powder of which is frequently observed in that part in considerable quantity. An animal possessed of such extraordinary powers for masticating and comminuting its testaceous food, cannot require an instrument for the tedious purpose of drilling holes to get at an inclosed animal; nor is it more probable that a *Murex* or a *Trochus* have that property, which has so frequently been ascribed to them.

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A recent specimen of this very rare *British* shell was taken **PATULA.** amongst *Sertulariæ* on the coast of *Devon* by the trawl. It was about three quarters of an inch in length.

The animal, though stale, was opened in search of the gizzard, which it is said to possess, but nothing of the kind occurred.

By the catalogue of *North British* shells affixed to this work it will be observed, this species has been found in more than one place on our northern coast.

**APERTA.**

- APERTA. *Lobaria quadrilobata*. *Mull. Zool. Dan.* iii. t. 100. (animal),  
 p. p. 208. *Id. Prodr.* No. 2741.  
 583 *Gmel. Syst.* p. 3143.—*Turt.* iv. p. 113.  
*Bulla aperta*. *Lin. Trans.* viii. p. 121.

The animal to which this shell belongs constitutes a distinct genus in the *Mollusca* class of the *Mullerian* arrangement, and stands singly between the genera *Ascidia* and *Clio*; but this author in his *Zoologia Danica* remarks, that the shell taken from the animal is like the *Linnæan Bulla aperta*. The *Gmelinean* system takes in the *Lobaria* between *Holothuria* and *Triton*, where the specific title *quadrilobata* stands solitary in the genus, without the least intimation of its being the animal of *Bulla aperta*. Thus the pages of Natural History frequently become tortured, and perplexing, by one part of an animal being described in the class of *Vermes Testacea*, and another part in *Mollusca* as distinct. ASCANIUS calls the animal *Philine quadripartita*.

HYDATIS.  
 p. p. 217.  
 584.

*Lin. Trans.* viii. p. 123.

An opportunity of examining the living animal belonging to this shell of a very superior size, enables us to correct a mistake in our former account, and to throw more light upon the subject.

The animal, when extended and in motion (which is similar to that of a *Limax*) is nearly as long again as the shell; the colour is a mixture of purplish-brown, cinereous,  
 and

and orange-yellow, disposed in minute confluent specks; this however is subject to vary in shade, in different specimens, as well as in different parts of the same individual: in the middle of the anterior shield are two small black eyes, placed remote, and sunk in small cavities of a pale colour: the *sustentaculum* is very large, and extends behind and on the sides into broad fin-like membranes, which reflect and almost conceal the shell; the two lateral ones turn under the shield at their anterior edges; the posterior membrane is divided from the others by a deep sinuosity, the right side is spread on the place whereon it is crawling; the left side takes a turn round the posterior end of the shell, and reflects over it. When the edge of the shield is thrown up, and exposes the longitudinal division that separates that part from the *sustentaculum*, a yellow marking in elegant ramifications like a feather, is obvious on each side, but not detached as in the animal of *Bulla plumula*.

A few mutilated specimens of extraordinary size, originally found in the estuary of *Kingsbridge*, left no doubt of its inhabiting some part of that inlet; but so local are some of the productions of nature, that not till after five years repeated search, did we discover the bed or place of resort, and where an abundance may generally be found at the lowest ebb of a spring tide. On the south side of a small isle, usually known by the name of the Salt Stone, by far the finest specimens we have ever seen may be collected; some of which are an inch and a quarter in length, and invariably covered with a ferruginous *epidermis*.

FONTINALIS.

FONTINALIS.  
p. 226.

*Helix Bullaoides*. *Don. Br. Shells*, v. t. 168. f. 2.

*Lin. Trans.* viii. p. 223.

*Bulla fontinalis*. *Lin. Trans.* viii. p. 126 t. 4. f. 1.

*Pult. Hutch. Dorset*, t. 21. f. 6.

We were not a little surpris'd to find this very common species of heterostrophon *Bulla*, described; and figured by Mr. DONOVAN for that rare and singular shell in the *Portland* cabinet, denominated *Helix Bullaoides*, by Dr. SOLANDER; for a description and figure of which we refer to *Voluta Bullaoides* of this work.

We have been assured by a conchological friend who favoured us with the *Portlandian Bullaoides*, that Mr. DONOVAN was in possession of a similar specimen, but by some unaccountable means the figure of *B. fontinalis* was substituted by mistake. Now as neither the *B. fontinalis* nor the *B. hypnorum* have found any other place in the *British Shells* (two specimens which have been sometimes confounded) it was natural to conceive the author had made some mistake in the title and reference to the *Bullaoides* of the *Portland cabinet*, especially as that is not only a dextral species, but extremely dissimilar to the other in many particulars. This circumstance however is in some degree reconciled by observing that Dr. SOLANDER had named two distinct species by the titles of *Helix Bullaoides*, that is to say our *Bulla fontinalis*, and that hereafter described as *Voluta Bullaoides*, but he marked a distinction in these by adding to the name of the last *Lincoln*. A confusion has evidently originated from these perplexing circumstances: a shell with the title  
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of *H. Bullaoides* having been figured, under a conviction that a species so called in the *Portlandian cabinet* was perfectly distinct from the *Linnæan Bulla*.

For a figure of *Bulla hypnorum* we refer to the *Transactions* of the *Linnæan Society*, vol. viii. tab. 4. fig 3; and to PULTENEY, in *Hutchins's Dorset*, tab. 18. fig. 20.

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*Bulla rivalis*, *Lin. Trans.* viii. p. 126, t. 4, f. 2. RIVALIS.

Shell ovate, pellucid, with five reverse prominent spires, with an acute *apex*: aperture ovate-oblong.

This species of heterostrophon *Bulla* is in its contour a medium between *Bulla fontinalis* and *hypnorum*; nevertheless it is evidently distinct from either. It is readily distinguished from the former by being much more produced, more acute in the *apex*, and more contracted in the lower part of the aperture; and from the latter by being more conic in the spires, and more acutely pointed. Since, however, doubts have been expressed by some authors of the distinction between the two last mentioned species, similar doubts may be entertained with respect to this, and may rather serve to confirm the opinion of those who have not the means of actual comparison, by supposing it an intermediate growth connecting them. It is but justice however to science to remark, that as far as our humble opinion can strengthen the respectable authority of those who first introduced this shell to public notice, we have no hesitation in bearing record of the identity

tity of *Bulla rivalis* as a distinct species, having been favoured with a specimen by the Rev. Mr. RACKETT.

It is said to have been first discovered in *Hampshire*, by Mr. JAMES HAY, but neither the *habitat* nor a description of the animal is mentioned, we may however reasonably conclude it to be an aquatic. It will be seen by consulting *Testacea Britannica* that the animals inhabiting *Bulla fontinalis* and *hypnorum* are so extremely dissimilar that all doubts must be removed from the most determined sceptic; and it is to be wished that with the shell in question, as with all others of similar affinity, the animal should be particularly attended to as the best and most incontrovertible auxiliary of distinction.

This appears to be common in the West Indies, growing to double the size of the British specimens, having received a great many from that quarter.

TRUNCATA.  
p. 223.

*Bulla retusa*, *Lin. Trans.* viii. p. 128.  
*Pult. Hutch. Dorset*, t. 18. f. 13.

VOLUTA.



## VOLUTA.

*Voluta triplicata.* Don. *Br. Shells.* iv. t. 138.

TRIPPLICATA.

A shell under this denomination appears in the *British Shells*, which is acknowledged to be given as a production of this country, solely on the authority of a manuscript note of DA COSTA being attached to the shell, which says, "This shell is figured by WALKER." Nothing however is further advanced by either to induce a belief that such was found in England; but the *Turbo bidentata* of WALKER is resorted to, as the shell nearest allied to it in the work referred to by DA COSTA. That it is not the *T. bidentata* of WALKER we can speak from the fullest authority, because we received that shell from Mr. BOYS repeatedly, marked 50, as a reference to *Testacea Minuta Rariora*: and we have been favoured with *Voluta triplicata* from *Guernsey*. It is true Mr. DONOVAN has justly fixed a note of interrogation to his quotation.

Shell ovate, smooth, chestnut-brown, with six spires, the first occupying three fourths of the shell: aperture contracted; *columella* triplicated. It is a strong shell, and the spires are so extremely flat as only to be marked by the separating line. Length scarcely half an inch.

For a comparison of these shells we refer to the work above quoted, and to our *Voluta denticulata*, Tab. 20, Fig. 5.

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which will obviate the necessity of pointing out their great dissimilarity ; for whether this is really British or not, it becomes essential to prevent the two species being confounded, since the *triplicata* has been referred to for *denticulata* in the *Linnean Transaction*, Vol. viii. p. 130.

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BIDENTATA. Shell strong, thick, conic, and of a pure white, with six  
 Tab. 29. f. 3. or seven moderately smooth, and somewhat glossy volutions, wrought with a few distant longitudinal wrinkles that undulate the separating line ; the first or body whirl is two thirds of its length : the *apex* pointed : aperture narrow, about half the length of the shell, contracted at the upper angle ; lips thick ; *columella* much thickened, and folding back forms a *sub-umbilicus*, and is furnished with teeth-like plications. Length a quarter of an inch.

We are obliged to Mr. LASKEY for pointing out this new species of *Voluta*, which he discovered on the *Scottish* coast, near *Dunbar*, but observes it is rare, and only found after a tempestuous sea. Since we received specimens from that gentleman we have discovered it alive on the coast of *Devon*, considerably more plentiful, but scarcely so large ; and never mixed with *Voluta denticulata*.

This species much more resembles *V. denticulata* than *V. triplicata* will be found to do, and though so nearly allied to it there are sufficient invariable characteristic distinctions by which they may readily be distinguished. It differs in being  
 generally

generally white, thicker, and being always somewhat wrinkled; in the aperture being more contracted, the pillar lip thickened, and never more than two plications, nor any teeth on the outer lip. But the colour and substance of the shell, and its being more ventricose in the body in proportion to its length, are evident distinctions at first sight, as may be seen by a comparison of the figures.

The animal is a white *Limax* with two remarkably short angular *tentacula* usually margined with black, and two black eyes at their base behind: *sustentaculum* extending before the head, bifid. Locomotion extremely confined.

Shell pellucid, white and smooth, tapering to an obtuse point, with six, flat volutions scarcely defined by the separating line: the body whorl is more than half the length of the shell: the aperture contracted, the base truncated, and canaliculated; outer lip smooth; *columella* plicated with seven or eight fine thread like striæ that originate from behind the pillar lip. Length a quarter of an inch; breadth more than one third its length. HYALINA.  
Tab. 29. f. 5.

This new and elegant species in the cabinet of Mr. LASKEY, was found by him on the Shell Bank, near *Dunbar*.

A very minute species, which appears so nearly allied to the shell originally sent to us by Mr. Boys for No. 61, of ALBA.  
p. 235.  
WALKER,

WALKER, that we dare not from the single, and somewhat worn specimen before us, give it as distinct. There has certainly been a considerable degree of confusion about WALKER's shell; amongst the many and valuable communications of that ever to be lamented friend of science Mr. BOYS, a minute species of *Voluta* was sent to us for comparison, and from which a drawing was taken. By comparing this shell with the figure of that, we are now obliged to form an opinion; for by some unaccountable oversight, our late worthy friend had, in his *Testacea Minuta Rariora* cabinet, affixed this name to the young *Bulla obtusa*; and we cannot help doubting whether WALKER did not actually give that shell for it, and by some such mistake those two shells became confounded.

That which we now offer, and appears so like the original specimen of *V. alba*, from Mr. BOYS, is equally minute, and ovate, with four plications on the *columella*: the aperture narrow, and open at the base like *V. pallida*, but it has not the contour of that shell; the superior volutions are somewhat worn, and obsolete, but the *apex* is sufficiently produced to indicate three or four. There are on the *columella* besides the folds, some slight denticulations higher up.

Found in sand from the coast of *Dunbar*, by Mr. LASKEY.

BULLAOIDES. Shell ovate, pale horn-colour, inclining to purplish-brown  
 Tab. 23. f. 6. at the tip, with eleven or twelve flat spires; these are not  
 divided

divided by any depressed line, but each folded over the other, leaving the edge abrupt, and not turned inwards: the body volution consists of three fourths of the shell, those at the top not only extremely small, but the four or five last decrease so suddenly that they form a nipple on the shell, like the stile on the top of an acorn, and which it much resembles; the *apex* is more minute than in any shell of its size we ever remember to have seen: the aperture is much contracted; the outer lip extends about half the length of the shell; the pillar lip quite smooth without any duplicature, but at the base, or lower part of the aperture, the outer lip makes a short revolution, enters the aperture, and forms a strong plication or ridge on the *columella*, the spiral turn of which may be traced through the shell, although considerably thick and opaque; the sudden flexure of the lip that forms the spiral ridge on the *columella*, forms also a sort of canal or gutter. Length three eighths of an inch.

The form and structure of this curious shell is somewhat similar to *Voluta tornatilis*, and not the least like *Bulla fontinalis*, which, as we have remarked under that species, has been mistaken for it.

It appears singular that this interesting little shell should so long have remained dormant if really of *British* origin; and we now submit it on the authority of the *Portland* cabinet, where it was placed amongst the land and freshwater shells, indiginous to this country. At the sale of that cabinet, this shell amongst a great many others, all *English*, was  
bought

bought in lot 2487 with the word *Lincoln* attached to the name, purporting, (it is presumed) that it came from that county. This identical specimen is now in the cabinet of Mr. LASKEY, by whose favor we have been enabled to give a figure of it, but we must confess that neither ourselves, nor any modern collectors to our knowledge, have been fortunate enough to find it, or discover any traces of its *habitat*, in addition to what has already been related.

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CATINATA. We found in a parcel of occidental shells a great number of this species, differing in nothing but in wanting the rufous spots; and the band of opaque-white spots vary in number from four to seven or eight, and are so obsolete as scarcely to be traced by the naked eye.

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## BUCCINUM.

LAPILLUS.  
p. 239.

*Lin. Trans.* viii. p. 135.

*Pult. Hutch. Dorset.* t. 15. f. 1.—4, 9, & 12.

In our former account of this shell we omitted to speak of the very extraordinary *succus* produced by the animal inhabitant, from personal experience, though we made mention of the beautiful colour it yielded; and referred to authors where some information might be obtained on the subject. We have since attended more fully to experiments on the dye, or colouring matter extracted from this, as well as from

from the animal of *Turbo clathrus*; a short account of which may not be unacceptable to the more philosophical part of our readers, especially as some curious circumstances are noted that do not appear to have been known.

Since the account given by Mr. COLE, in the *Philosophical Transactions*, and afterwards reprinted, and sold separately in the year 1689, no further experiments seem to have been tried, except by a French naturalist, and these went only to prove the existence of a purple dye within the animal of *Buccinum lapillus*, which was considered as the famous *Tyrian purpura* of the ancients, and the method of marking with it detailed.\*

The animal is of a pale colour, with slender *tentacula*, upon which, about half way up on the outside, are placed the eyes: the ends of the *tentacula* as far as the eyes are retractile in the same manner as those of the common snail: there is also a small arm protruded at the canal of the shell.

The part containing the colouring matter is a slender longitudinal vein, just under the skin on the back, behind the head, appearing whiter than the rest of the animal. We broke several of these shells in a small vice (which is not so

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\* DUHAMEL published some experiments on the colouring matter of the *Purpura*, with remarks on the species; and which are inserted in the *Mem de l'Acad, Royale des Sciences* for 1736. This philosopher considers the purple dye of the ancients to have been extracted from a species of *Murex*, differing in opinion with his countryman REAUMUR, who supposed it to be the *Buccinum Lapillus*.

liable to crush the animal as a blow from a hammer), and with a needle laid open the vein, which was found to contain a tenaceous yellowish matter, of the colour and consistence of thick cream; after which a fine pointed, stiff hair-pencil was introduced, and several marks were made upon linen, silk, and paper. As soon as the fluid was exposed to the air it became of a brighter yellow, and speedily turned to a pale green on the several materials, and continued to change imperceptibly darker, until it had obtained a bluish cast, and from that to a purplish-red, more or less deep according to the quantity used; and these changes were more or less accelerated by the presence or absence of the solar rays; but even without the influence of the sun, it went through all the changes in the course of two or three hours.

A portion of the fluid mixed with diluted vitriolic acid, did not at first appear to have been sensibly affected, but by more intimately mixing it in the sun, it became of a pale purple, or purplish-red, without any of the intermediate changes.

Several marks were now made on fine calico, in order to try if it was possible to discharge the colour by such chemical means as were at hand; and it was found that after the colour was fixed at its last natural change, *nitrous*, no more than *vitriolic acid*, had any other effect than that of rather brightening it: *aqua Regia* with, and without solution of tin, and *Marine acid*, produced no change; nor had fixed, or volatile *alkali* any sensible effect. It does not in the least give out its colour to alcohol like cochineal, and the *succus* of the  
animal.



animal of *Turbo clathrus*, but it communicates its very disagreeable odour to it most copiously, so that opening the bottle has been more powerful in its effects on the olfactory nerves, than the effluvia of *assafœtida*, to which it may be compared.\* All the markings which had been alkalized, and acidulated, together with those to which nothing had been applied, became, after washing in soap and water, of an uniform colour, rather brighter than before, and were fixed at a fine unchangeable crimson.

As the stain given by this animal fluid is, as far as our experience has gone, indestructible, attempts were made to collect a quantity for the purpose of marking linen, when fresh shells could not be procured. Many shells were broken, all of which were more or less possessed of the colouring *succus*; this was, by means of a pair of fine pointed scissars, extracted with as little of the adjoining flesh as possible, and ground on a piece of plate glass, with a few drops of spring water. Thus prepared of a proper consistency, it was of a dull green colour, which it continued for a considerable time in bulk; but some which was spread thin changed to its ultimate colour in the course of the day, without the assistance of the sun, though we have found it continue many days in its premature green, if light has been excluded. Some of this matter when thoroughly dry taken up by a hair pencil, dipped in water, and applied to linen, was by the assistance of the solar rays speedily turned to dull purple, and afterwards, by

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\* For a further account of the colouring matter see *Turbo clathrus*.

washing with soap, to a crimson, not much inferior in colour to the recent dye, but never so strong.

Whether the colouring matter of this species was ever used by the ancients, is to be doubted, since so small a quantity is produced by each animal.

We are informed that some Spanish philosopher discovered a shell on the coast of *Guayaquil* and *Guatemala*, in *Peru*, that produced a purple dye. All the description we have of this shell is, that it is the size of a walnut, and that the dye, similar to that of *Buccinum lapillus*, changes from white to green, and is not purple till dry; the method however of extracting it clearly proves it to be very distinct from that species. The operation is performed either by killing and pressing the animal, or by drawing it partly out of the shell and squeezing is made to yield the fluid which serves for dyeing; this is repeated four times at different intervals, but always with less success. If continued the animal dies. No colour at present known, says the **ABBE RAYNAL**, can be compared to this; either as to lustre, liveliness, or duration.\*

We strongly recommend the use of this secretion for the purpose of marking, where an indelible dye is desirable; letters marked on linen or other articles of wearing apparel from the recent animal, appear indestructible, bidding defiance to chemical process; as such it may be rendered extremely useful with very little trouble, almost every indivi-

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\* *Encyclopædia Britannica*, Article Murex.

dual being provided with this fluid, without regard to sex or season.

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Buccinum brunneum. *Don. Br. Shells* v. t. 179. f. 2.  
 Buccinum minimum. *Lin Trans.* viii. p. 139.

MINIMUM.  
 p. 247.

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Buccinum glaciale. *Gmel. Syst.* p. 3491.  
*Turt. Lin.* iv. p. 404.  
*Chem. Conch.* x. t. 152. f. 1446.—47.  
*Don. Br. Shells.* v. t. 154.  
*Lin. Trans.* viii. p. 136.

GLACIALE.

Tritonium glaciale. *Mull. Zool. Dan. Prodr.* No. 2942.

In giving this shell a place in a work expressly on *British* subjects, we only follow the example of Mr. DONOVAN, who acknowledges to have no other authority than that of Mr. AGNEW, gardener to the late DUCHESS DOWAGER of PORTLAND, who is said to have found it amongst the *Orkney Isles*, and was in consequence admitted into the division of *British* shells in the *Portland* museum. Whether any doubt of this authority afterwards existed with DOCTOR SOLANDER is not certain, but to this species in that museum, No. 569, we are credibly informed was prefixed the following remark:—  
 “Both from *Grönland*, and very rare.”

Shell rather thin, taper, and of a livid-brown colour, with about nine spirally striated volutions: the top of each spire  
 is

is dentated, or femicoftated: near the base it usually has a single tranfverfe *striae* larger than the rest, which has occasioned it to be described as flightly carinated: the aperture is ovate, the outer lip thin, and in matured specimens rather spreading. Length two inches or more.

It should appear from the description of most authors that the single flight ridge furrounding the body volution is a constant character. A variety is mentioned in which the spiral ridge is observed on all the volutions except very near the *apex*; and we are informed also that in others the outer lip is not only spreading but thick.

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## STROMBUS.

**TURBOFORMIS.** Shell with seven plain costated volutions, destitute of spiral *striae*; the volutions are well defined by the line of separation: the *apex* obtuse: the base smooth: aperture sub-orbicular, the outer lip thickened at the margin and a little spreading: colour pale rufous-brown, the mouth and *apex* nearly white. The number of ribs are about eightee. Length rather more than a quarter of an inch; breadth at the base one third of its length.

This species has much the habit of *Strombus costatus*, but is more coarsely ribbed, and destitute of the thread-like spiral elevations that run round the base of each volution in that shell.

Inhabit

Inhabits the shores of *Nuns* island, opposite *Jona*, or *Y. Columb-kil*: not common.

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## MUREX.

*Murex antiquus*. *Mull. Zool. Dan.* iii. t. 118.

*Don. Br. Shells.* i. t. 31.

*Lin. Trans.* viii. p. 145.

*Pult. Hutch. Dorset.* t. 17. f. 4.

**DESPECTUS.**

p. 256.

In the termination of the *British shells* we are desired to substitute the name of *antiquus* for that of *despectus*, given to the figure in *Tab. 31*, the author having in *Vol. 5, Tab. 180*, figured a shell which he considers as the true *Linnæan despectus*, being possessed of two elevated spiral lines.

That LINNÆUS himself having made some confusion by quoting figures for his *despectus* which do not accord with “*anfractibus octo lineis duabus elevatis*” may have led many writers to affix his synonyma to our *despectus*, is pretty obvious: we must however admit that “*anfractibus octo teretibus*,” the character of his *antiquus*, would better answer to our *despectus*.

In *Iter. Westgothicum*, LINNÆUS seems to have defined by *fig. 8, Tab. 5*, what Mr. DONOVAN considers as the true *despectus*, although the former refers to LISTER'S *Angl. Tab. 3, fig. 1*, which evidently answers better to his *antiquus*.

We

We shall here also remark that the author of the *British Shells* has considered our *antiquus* as a distinct species, and at the latter end of his work desires it may be called *duplicatus*, a shell which he expressly considers as distinct from his *carinatus*, *Tab.* 109.

If we are to be guided by those authors who appear to have had good opportunity of consulting these shells, it should seem there is considerable doubt whether three out of the four shells in question are not actually the same. Upon the whole there appears so much difficulty in determining how to divide these shells, which are so closely connected by every shade of gradation, that only additional confusion would arise by another division, until more light is thrown on the subject; but we think Mr. DONOVAN is right in referring to the *despectus* of *English* collectors for the *Linnæan antiquus*.

MARTINI remarks that all these varieties are found upon the shore at *Elsineur* in vast abundance, all of which he has considered as mere varieties of the *Linnæan antiquus*. For further information we beg leave to refer to that author's arguments, and to the variety of figures given in *Vol.* iv, *Tab.* 138.

The reason we have not united the plain and ridged shells into one species is, that not a single instance of the latter has ever occurred to us, amongst the vast quantity of the others taken on some parts of our coast; and yet they are sometimes extremely thick, ponderous, and wrinkled, especially those on the coast of *Lincolnshire*.

The

The shell figured by Mr. DONOVAN for the *Linnæan despectus*, we are not authorised to refer to as *English*, having been figured more for the sake of comparison than with a view to insert it in the catalogue of *British shells*.

We shall here remark that a specimen of *Murex carinatus*, of PENNANT, has been recently taken on the *Scotish* coast by Mr. LASKEY, who, at the time of communication, observed that he thought it distinct, and not a variety of what we had formerly considered the *antiquus*.

In this place it may not be improper to note that we have received from a friend, a shell under the title of *Murex decollatus*, which appears to be without doubt the infant state of this species.

Most collectors in this branch of science have the *pulli* of some species of *Murex* marked with this name, and consequently every unformed shell wanting a finish to the *apex*, has been considered the same; whereas almost all the larger shells have, when first excluded from the *ova*, a globose termination. Those figured by PENNANT and DONOVAN appear to differ from the one in question. This is of the same form and colour as our *despectus*, and differs in nothing but in the *apex* being globose, and destitute of the replication or thickening on the columella; it is slightly striated in both directions like that shell, and instead of the columella being replicated, there are two slight ridges that run spirally into the aperture, but which in older shells are covered and lost in

the thickening of that part. It never is found above an inch in length, for by that time it has taken a more perfect shape:

Upon the whole we cannot consider any of these decollated shells otherwise than the fry of some large species unformed, for the same appearance in the fry of *Buccinum undatum* is notorious to those who have taken the trouble to extract them from the *ova*, so commonly thrown in clusters upon our coast.

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**ACCINCTUS.** Shell taper, with six or seven costated volutions, the ribs are slightly angulated, or more elevated in the middle of each spire; the volutions are also finely striated in a spiral direction: the aperture oblong; canal short; the lip intire at the upper angle: colour yellowish-white, with an obsolete brown band on the middle of the lower volution, which continues up the shell at the base of the superior ones; this band, by the assistance of a lens, is observed to be constituted by four or five contiguous thread-like lines of that colour, in the depressions between the *striae*. Length four lines; breadth one line.

This has somewhat the habit of *Murex gracilis*, but differs essentially in the aperture, and the canal, and in being destitute of the notch at the upper angle of the aperture; the spiral *striae* is also much finer.

In the cabinet of Mr. LASKEY, who took it in deep water in the *Firth of Forth*: extremely rare.

Shell



Shell slender, white, with about fifteen- scarcely raised SUBULATUS. spires, defined by a purplish-brown spiral line, each wrought Tab. 30, f. 6. with two rows of beads-divided by a depressed line, in which are observed minute elevated *striæ*, in a contrary direction : aperture small ; canal short, and turning to the left ; in this part it somewhat resembles *Murex tuberculatus*, but the canal is more turned ; the base is smooth, or destitute of tubercles, and of a dark-brown colour. Length three eighths of an inch.

Found amongst sea sand at *Scalafdale*, in the found of *Mull*: very rare.

<i>Murex duplicatus</i> . <i>Don. Br. Shells.</i> iii. t. 119.	ANTIGUUS.
<i>subantiquatus</i> . <i>Lin. Trans.</i> viii. p. 147.	p. 257.
<i>Murex elegans</i> . <i>Don. Br. Shells.</i> v. t. 179. f. 3.	LINEARIS.
<i>Linearis</i> . <i>Lin. Trans.</i> viii. p. 148.	p. 261.
<i>Murex angulatus</i> . <i>Don. Br. Shells.</i> v. t. 156.	TURRICULA.
<i>Turricula</i> . <i>Lin. Trans.</i> viii. p. 144.	p. 262.
<i>Pult. Hutch. Dorset.</i> t. 14. f. 15.	
<i>Murex emarginatus</i> . <i>Don. Br. Shells.</i> v. t. 169. f. 1.	GRACILIS.
<i>Gracilis</i> . <i>Lin. Trans.</i> viii. p. 143.	p. 267.
<i>Pult. Hutch. Dorset.</i> t. 14. f. 18.	
<i>Murex septemangulatis</i> . <i>Don. Br. Shells.</i> v. t. 179. f. 4.	SEPTANGULARIS.
<i>septangularis</i> <i>Lin. Trans.</i> viii. p. 144.	p. 268.
<i>Turbo reticulatus</i> . <i>Don. Br. Shells.</i> v. t. 159.	ADVERSUS.
<i>Murex adversus</i> . <i>Lin. Trans.</i> viii. p. 151.	p. 271.

This shell in the *Boysian cabinet* under the title of *Murex adversus* being marked 48, with reference to that figure in WALKER, will remove any doubts the author of the *British Shells* might have had with respect to referring to that shell: and it could have been wished that the trivial name *reticulatus* had been confined to the *Strombiformis reticulatus* of DA COSTA, our *Murex reticulatus*, a species so much more common and better intitled to that denomination, but which is omitted in the work alluded to.

Previous to the publication of *Testacea Britannica* we were favoured with a large sub-pellucid white variety from our late estimable friend Mr. BRYER, of *Weymouth*, who found it on the shore near that place; but as only that instance had then occurred, and as we knew it was not uncommonly found of that colour amongst packages of *West Indian* shells sent to this country, we could not venture it as really *British*; these scruples however are done away by its having been more than once found by Mr. LASKEY, in *Scotland*.

TUBERCULARIS.  
p. 270.

Murex Tubercularis. *Lin. Trans.* viii. p. 150.

An elegant sub-pellucid, white variety of this shell was found near *Dunbar*, by Mr. LASKEY.

Independent of the contrary turn of the spires from that of *M. adversus*, this species has an invariable character. It has three series of tubercles of equal size on each volution, whereas

whereas *M. adversus* not only has the middle series much smaller, but that these become less conspicuous after a few turns, and are wholly lost in about half the length of the shell, or on the fifth or sixth spire; the remaining volutions possess only the two larger series: the separating line is also less distinct in that shell than in *tubercularis*.

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Murex Bamffius. *Don. Br. Shells.* v. t. 169. f. 2.  
*Lin. Trans.* viii. p. 149.

BAMFFIUS.

In the *British Shells* we find a *Murex* under this title, with the following specific characters: "Shell ventricose, white, ribbed longitudinally, with acute plaits." To this the author observes it was discovered by Mr. CORDINER, on the coast of *Bamffshire*, in *Scotland*; and communicated by him to the late DUTCHESS OF PORTLAND.

In addition to this information we are happy to add, that it is by no means uncommon on some other parts of the *Scottish* coast, especially on that of the *Frith of Forth*, having received several from two of our conchological friends, Mr. H. BOYS and Mr. LASKEY, which they found near *Dunbar*. By these specimens it is observed that the younger shells are most commonly rufous-brown, and frequently with white ribs; they are conic, with six ventricose volutions, terminating in a fine *apex*, and the canal is rather ascending, or turned to one side: their length in general not above half an inch. In this state of growth the ribs are very thin and  
acute,

acute, and seldom less than twenty in number. As this shell advances in age and size it becomes white, and usually grows thicker, and the ridges lose their sharp edge; such, of three quarters of an inch in length, accompanied the others from *Scotland*.

Previous to the kind communications of our friends, we had discovered this species in a tour through *Lincolnshire*; so that it is by no means confined to the northern shores, but in all probability is sometimes thrown up on most of the north-eastern parts of *South Britain*, where the sandy flats prevail.

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**PROXIMUS.** Shell thick, white, with six strongly costated spires; *apex* Tab, 30. f. 8. moderately pointed: aperture ovate-oblong: outer lip remarkably broad, and reflexed; the canal short, and rather spreading at the end. Length nearly half an inch.

This shell might readily be mistaken for an extraordinary growth of *Murex costatus*, but it differs materially from that species in the number of ribs, being possessed of eleven on the body or lower volution, whereas the *costatus* never has more than eight, and usually only seven, and those are broader.

Found by Mr. LASKEY, on *Tynningham* sands, near *Dunbar*, and is extremely rare.

**TROCHUS.**

## TROCHUS.

*Trochus conicus.* *Don. Br. Shells.* v. t. 155. f. 1.

*Trochus erythroleucos.* *Lin. Trans.* viii. p. 156.

*Pult. Hutch. Dorset.* t. 18. f. 2.

STRIATUS.

p. 278.

If the author of the *British shells* had consulted the *Trochus parvus* of DA COSTA, he would have been convinced this shell has been long known as a *British* species.

*Trochus cinereus.* *Don. Br. Shells.* t. 155. f. 1.

*Lin. Trans.* viii. p. 152.

CINEREUS.

p. 289.

The author of the *British shells* has very properly remarked upon this shell, originally given by DA COSTA as indigenous, that he suspects that writer was mistaken respecting it; for though he describes it as common, such had never occurred to him as *English*. The only inducement Mr. DONOVAN had for introducing it into his work, he informs us was, from being in possession of the actual specimen from which DA COSTA took his figure and description.

It seems to be the general opinion that DA COSTA was mistaken, especially as he speaks of it as common; and that it should be expunged from the catalogue of *British testacea*.

This species is the produce of the *Mediterranean*.

TURBO.

## TURBO.

CLATHRUS.  
p. 296.

Turbo Clathrus. *Lin. Trans.* viii. p. 170:

*Pult. Hutch. Dorset.* t. 15. f. 11.

This shell has recently occurred to us alive, at the *Salt Stone* in the estuary of *Kingsbridge*, of a superior size, and every specimen is more or less veined, or mottled with brown. The *operculum* is coriaceous, black, and spirally striated.

The animal is mottled black and white, with a long tubular proboscis capable of receding within itself, like the *tentacula* of a common *Limax* or snail: this is the mouth, from whence it must be inferred that all sustenance is taken in with the water through this trunk which probably consists chiefly of animalculi. The eyes are small, and situated at the base of the *tentacula* behind, a little elevated: *tentacula* slender, black: *sustentaculum* white.

As the animal becomes sickly by keeping for some days in sea water, it frequently discharges a most beautiful purple liquor. This circumstance was known to PLANCUS, who observes that it is one of those shells which yields the purple dye of the *Mediterranean*; and which is also recorded by MARTINI. It may indeed with much reason be conjectured that this is really one of the shells from the animal of which the ancients procured their famous purple dye; though if *Pliny* is consulted, the shells that produced this precious colour were either *Murices* or *Buccines*, or both; “glowing  
with

with *Tyrian Murex*," is an expression of VIRGIL that indicates it to have been collected from shells of that genus only; but we must recollect that conchology was at the time of those writers in its very infancy, scarcely systematized, or formed into any divisions; so that *Turbo clathrus* may possibly have some claim to the credit of contributing to the celebrated *Tyrian Murex*. Indeed it appears much more probable that the colouring secretion of this animal should have attracted notice, and have been collected as a dye, than that of *Buccinum Lapillus*, for the obvious reason that it not only produces the fluid spontaneously, and in much greater quantity, but that its primitive colour is of that richness so glowingly described.

*Murex Brandaris*, called by RONDILETIUS *Murex purpura*, is generally believed to be one of the species that afforded that costly dye in the *Mediterranean*. This shell, which in *English*, has been called the *Thorny Snipes head*, is figured in CHEMNITZ; *vol. 10. tab. 160.*

The vast heaps of shells mentioned by authors to be found about *Tarentum*, are supposed to be those from which this celebrated dye was extracted, and seems to indicate that place to be one of those where it was prepared; but of what species these really are, we do not find sufficiently ascertained.

The *Tyrian purple* which appears to have been in perfection in the days of PLINY, the greatest philosopher of that era, is said to have been extremely costly; the double dyed

purple of *Tyre* yielding 1000 *Roman Denarii* the pound, computed at more than thirty pounds sterling; a colour probably confined to *Emperors* and *Senators*: nor can we be surpris'd at so great a price when it is considered how small a portion is afforded by each animal.

As the beautiful dye of the animal of *Turbo clathrus* is little known we shall briefly state a few experiments with it: The animal as before stated has the power of discharging it, but it may be collected either recent or when the animal is dried, by opening the part behind the head.

The colouring *succus* was extracted from five animals, and after grinding with a few drops of spring water, appeared sufficient to cover half a sheet of paper with a beautiful purple.

Neither volatile nor fixed alkali materially affect it; *mineral acids* turn it to a bluish-green, or sea-green; *sulphuric acid* renders it a shade more inclining to blue; *vegetable acids* probably do not affect it, since cream of tartar did not in the least alter it.

These colours laid on paper were very bright, and appeared for some months unchanged by the action of the air, or the sun; but being exposed for a whole summer to the solar rays in a south window, they almost vanished. The application of *alkali* to the acidulated colour always restored it to its primitive state, and was as readily changed again by  
*mineral*



*mineral acid*: in this particular it differs materially from the *succus* of *Buccinum lapillus*, which as we have before remarked is unalterable.

Its property is materially different from that of *Litmus*, which is turned from blue to red with the most trifling mixture of any acid. It differs also from vegetable colours in general by not being affected by *alkali*, which turns the infusions of blue or purple flowers to green.

The colouring matter is readily taken up by spirit as well as water, and may be ground up and formed into a pigment with a small portion of white: and it is remarkable that the colour of this secretion is not affected by putridity, as we had occasion first to try it in a highly putrid state.

Although this colour is not proof against *mineral acids*, nor fixable by any astringents hitherto tried, either in its primitive or acquired colour, yet it is probable some means might be found by chemical process to give it durability equal to cochineal; but that article has now entirely superceded these more costly dyes.

It is remarkable that cochineal (which at first is similar in colour, though not so beautiful,) is determined to a bright scarlet, by a solution of tin in *aqua Regia*, whereas this is rendered of a bluish-green by the same process.

CLATHRATULUS.

Q.2

CLATHRATULUS.  
p. 297.

Recent opportunity of examining many of this, and the young of the preceding species, have inclined us to believe they are really distinct. The *clathratulus* we believe never exceeds half an inch in length, and very rarely so much; and in all our specimens the number of ribs are from fifteen to seventeen, and are extremely thin and delicate. The young of *Turbo clathrus* of the same size are not so slender, and the number of ribs rarely exceed ten or eleven: in fifty specimens examined of that species full grown, not a single instance has appeared where more than twelve ribs could be counted: It is however possible in such nice distinctions, intermediate specimens may be found; but when a great many of the same size of both have been examined, and the character has hitherto appeared invariable, it is reasonable to infer they are really distinct, though so nearly allied.— Unfortunately this species has never come to hand alive, so that the animal could not be consulted.

We have lately received this from the *Scotish* coast.

ELEGANTISSIMUS.  
p. 298.

*Turbo acutus*. *Don. Br. Shells.* v. t. 178. f. 3.  
*Helix Elegantissima*. *Lin. Trans.* viii. p. 209.

BRYEREUS.  
p. 313.

*Turbo costatus*. *Don. Br. Shells.* v. t. 178. f. 3.  
*Bryereus*. *Lin. Trans.* viii. p. 172.  
*Pult. Hutch. Dorset.* t. 19. f. 7.

This

This species, which must not be confounded with the shell described under the title of *costatus*, in *Testacea Britannica*, we are assured by Mr. DONOVAN has been found at *Margate*. We have also identified it as a northern production, by favour of Mr. LASKEY, who found it on the shell bank near *Dunbar*:

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Turbo vittatus. *Don. Br. Shells. v. t. 178. f. 1.*  
Cingillus: *Lin. Trans. viii. p. 165.*

CINGILLUS.  
p. 328.

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Turbo tridens. *Lin. Trans. viii. p. 181.*  
*Pult. Hutch. Dorset. t. 19. f. 12.*

TRIDENS.  
p. 338,

In the *Boysian* cabinet, which contains nothing but what the worthy owner considered as *British*, we find this shell; and in the notes found in one of the drawers, it was referred to under the title of *quadridens*, without any remarks; so that we are still at a loss where to find the native place of it in *England*, for we suspect our late friend DOCTOR PULTENEY was mistaken in believing it had been found on water plants by the river *Stour*. The banks of that river and neighbourhood have been searched by us and other conchologists in vain.

Mr. HENRY BOYS does not believe it was ever taken about *Sandwich*, but is rather inclined to think those specimens in his father's possession were received from DOCTOR SOLANDER, out of the DUTCHESS OF PORTLAND'S cabinet. In this opinion  
we

we are ready to concur, as it stands by the name of *quadridens*, marked by DOCTOR SOLANDER, and now in the possession of Mr. LASKEY, having been bought at the sale of the *Portland* cabinet.\*

It is however with pleasure we are able to assure our scientific readers that this shell has recently been found to inhabit *Scotland*, having been discovered, together with *Helix lubrica*, in *Carline park*, near *Leith*, by Mr. LASKEY.

MAMMILLATUS..

Turbo mammillatus. *Don. Br. Shells. v. t. 173.*  
*Lin. Trans. viii. p. 166.*

This species having been introduced in the work first referred to, we are under the necessity of describing it in the words of the author, never having been fortunate enough to meet with it.

“Shell imperforate, sub-ovate, whorls striated with raised dots, and slightly angulated by a few of the *striae*, the dots of which are larger.”

The remarks that accompany the description are as follows :

“This remarkable shell is introduced among the *British* species of the *Turbo* genus, only on the authority of a posthumous memorandum in the hand writing of DA COSTA,

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\* The quadridens of MULLER is a very distinct species, and we believe has never been found in this country.

which

which we find in the collection of that conchologist affixed to one of the specimens figured in the annexed plate.

From this it appears the shell had been picked up by Mr. PLATT, on the *Scilly* rocks, at the western extremity of *Cornwall*, and communicated by him to DA COSTA."

The figure is about the size of *Helix nemoralis*, or rather less.

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Turbo pallidus. *Don. Br. Shells.* v. t. 178 f. 4.

Turbo Crassior. *Lin. Trans.* viii. p. 159.

CRASSIOR.

p. 309.

Mr. DONOVAN describes his shell to be "somewhat taper, pale: whirls very slightly bicarinated." And adds that, "it is found on the western coast: a shell of very plain appearance, brownish colour, and rather flattened on the wreaths, so as to form two slight spiral ridges or obtuse angles, especially on the first or largest volution."

The figure of this shell has nothing in it that can cause it to be confounded with the *pallidus* of *Testacea Britannica*, but we suspect it may be a variety of *T. crassior*, by the size, shape, and colour; and as the appearance of a few faint elevated *striæ* is not unusual in that shell, a specimen with two only might occur.

It will be observed in the *Descriptive Catalogue of British Shells*, published in Vol. viii. of the *Linneæan Transactions*, these two shells are brought together,

MARGINATUS.

**MARGINATUS.** Shell sub-cylindric, white, very strong, and obtusely pointed, with six ribbed volutions, finely striated in a spiral direction: aperture oval; pillar lip thickened; outer lip extremely thick, and rounded by a rib at the back. Length three eighths of an inch; breadth one fourth of its length.

This species somewhat resembles *T. coniferus*, but is more slender, and the ribs are regularly arched over each volution, and not abruptly finished at the top, as in that shell.

As a *Guernsey* production it is perhaps scarcely intitled to a place in the *British Testacea*, but as others from the same quarter have recently crept into a similar work, the critical conchologist has the option of rejecting or retaining it, as may be thought proper.

From the cabinet of Mr. LASKEY: Another specimen had eight volutions, much worn, but the *apex* is more pointed.

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**DISJUNCTUS.** Shell rather slender, white, and perfectly smooth, with six remarkably rounded volutions, divided by a broad and deep line of separation, the bottom of which is flat, or a little concave, not angular as in most other shells, giving it somewhat the appearance of the volutions being disjunct, similar to the cast of some fossil species: aperture nearly orbicular; pillar lip reflected, behind which is an umbilicus. Length scarcely a quarter of an inch.

From the cabinet of Mr. LASKEY, who took it on the *Scotish* coast.

*Lin. Trans.* viii. p. 162.

SEMICOSTATUS.

p. 326.

A very elegant pellucid variety of this shell we have received from the *Scottish* coast.

Shell sub-cylindric, glossy, white, with five or six spires INDISTINCTUS, nearly flat, but well defined by the separating line; these are finely striated longitudinally, and slightly and indistinctly punctured in the furrows, observable only by the aid of a powerful lens, by which it appears cancellated, but the fine transverse *striae* are confined to the *fulci*, and do not cross the ridges: the *apex* is obtuse: aperture sub-ovate: pillar lip smooth, and a little spread on the *columella*. Length one tenth of an inch; breadth one third of its length.

This species has somewhat the habit of *T. interstinctus*, but is much finer in the longitudinal ribs or *striae*: it is also destitute of the tooth observable in that shell, and is at once distinguished under a microscope by its decussated appearance.

Found in the *Boysian* cabinet.

Shell sub-pellucid, white, and taper, with five or six moderately convex spires, finely and regularly striated throughout, in a spiral direction: *apex* obtusely pointed: aperture sub-ovate: pillar lip with a faint duplicature forming a sub-umbilicus, and furnished with a small tooth.

R

Length:

Length one eighth of an inch ; breadth one third its length.

This rare shell, from the coast of *Devon*, must not be confounded with *T. semistriatus*, which is vastly broader in proportion, and is destitute of the tooth.

BIDENS.  
p. 357.

*Turbo nigricans*. *Lin. Trans.* viii. p. 180.

*Pult. Hutch. Dorset.* t. 19. f. 10.

Nothing has caused more perplexity in conchology than the confusion of the several species of heterostrophon *Turbo*. When we consider that there is a degree of similitude in their shape, which, together with the circumstance of their spires turning contrary to most other shells, our surprize will cease that they should be confounded by those who could not bring the whole together for comparison.

So great has been the diversity of opinion with respect to determining which of these are the two reversed shells described by LINNÆUS, under the titles of *bidens* and *perversus*, that scarcely two writers have agreed upon the subject, each referring to one or other of the *Linnæan* shells for any of the reversed species that occurred.

The authors of the *Descriptive Catalogue of British Testacea* appear to have discovered a shell in the *Pulteney* cabinet that seems to accord with the *Linnæan* description of *bidens* better than any other, as being smooth, and sub-crenated only in the futures ; and which we are informed the DOCTOR notes

as



as a *Dorsetshire* shell. But however this may be the true *Linnæan bidens*, (a figure of which is given in the *Transactions of the Linnæan Society, Vol. viii. Tab. 5. fig. 3.*) we most cordially join in the opinion there stated, that the DOCTOR was deceived with respect to its being *British*: indeed it is most probable such a note had been so placed by mistake, for in the Catalogue of Shells published in *Hutchins's Dorset*, DOCTOR PULTENEY particularly describes his *bidens* to be closely and minutely striated the whole length; and adds that it is common in woods, upon trees, and on moss; also in the chinks of old walls.

As however there is great probability that the shell alluded to is the *Linnæan bidens*, though not indigenous to this country, it will perhaps be proper to adopt the name of *nigricans* for the *bidens* of *Testacea Britannica*, as that title was given to it by DOCTOR SOLANDER, in the *Portland cabinet*, and is now affixed to it in the *Descriptive Catalogue* before mentioned.

Turbo perversus. *Lin. Trans. viii. p. 181.*

*Pult. Hutch. Dorset: t. 19. f. 11.*

PERVERSUS.  
p. 355.

The largest and most perfect specimens of this species we have received from *Scotland*; in the aperture of which is observed one small denticle, a rare occurrence in *English* specimens.

R 2

FASCIATUS.

FASCIATUS. Helix bifasciata. *Lin. Trans.* viii. p. 210.  
 p. 346. *Pult.-Hutch. Dorset.* t. 18. f. 10.

In the *Portland* Museum this was called *Helix fasciaris*.

CARYCHIUM. Turbo carychium. *Lin. Trans.* viii. p. 144.  
 p. 339. *Pult. Hutch. Dorset.* t. 19. f. 13.

In the *Boysian* Cabinet this is marked *Turbo minimus*.

MUSCORUM. Turbo Muscorum. *Lin. Trans.* viii. p. 182.  
 p. 335. *Pult. Hutch. Dorset.* t. 21. f. 16.

This in the *Portland* Cabinet was denominated *Turbo Dolioliforme*.

CALATHISCUS. Shell conic, with six brown spires elegantly tuberculated  
 Tab. 30. f. 5. in spiral lines; on the body whirl are eight series of tubercles, on the second four rows, and afterwards one less in each succeeding superior volution till wholly lost at the apex, which is acutely pointed: aperture sub-orbicular, the margin white, outer lip denticulated within. Length a quarter of an inch.

Inhabits the shores of the island of *Jura*, but rare: discovered by Mr. LASKEY.

A shell in every respect similar to the *Jura* specimen, except in size, and the spiral ridges on the lower part of the body not being raised into tubercles, we discovered amongst a parcel of sand from *Dunbar*. In its worn state it is so like *Turbo Cimex*, that several which had been picked up on the western shores of *England* had been placed in our cabinet with

with a few of the *striae* however that form the *cancelli* are  
 leaving the depressions much smaller; the shape  
 shell is also more slender, and may readily be known  
 in this state from *Cinex*, by having four series of *cancelli*  
 the second spire instead of two, which that shell invaria-  
 bly has.

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*Voluta Ambigua.* *Lin. Trans.* viii. p. 132.

PALLIDUS,  
 p. 325.

We may be permitted to remark in this place that, al-  
 though our *Cypræa Voluta* may with as much propriety be  
 placed in the genus *Voluta*, as in that it now stands in *Testa-*  
*cea Britannica*, yet we cannot assent to the removal of our  
*Turbo pallidus*, no more than of *spiralis*, *unidentatus*, *in-*  
*terstinctus*, and *plicatus*, into the *Linnæan* genus *Voluta*.  
 There is nothing in the construction of these shells that can  
 bear out the character of *apertura subeffusa*, *columella plicata*.  
 It is true there is a ridge or lengthened denticle on the *colu-*  
*mella* of these species, but by no means sufficient to constitute  
 the generally accepted terms applied as the leading characters  
 of a *Voluta*.

How can we apply sub-orbicular, or sub-oval aperture to  
*subeffusa*, even though it was admitted that a small denticle  
 might be considered a plication on the *columella*?—for surely  
 the characters must be taken conjointly. If indeed a denti-  
 cular, or as some may term it, plicated *columella*, without re-  
 gard to other characters is sufficient to constitute a *Voluta*,  
 why

why are the denticulated *Turbines*, such as *sexdentatus*, *carychium*, *juneperi*, *tridens*, *bidens*, and others of the reversed species of that genus, not removed to the genus *Voluta*?

The great respect due to the abilities of the authors of the transposition of the species here alluded to, will of course attach very deserved merit to their labours in defining the *Linnæan* species of *British Testacea*; but how far they may have fully exemplified the *Linnæan* definition in this instance, or in their division of *Turbo* and *Helix* must, we believe, still depend on private opinion. Where a *Linnæan* species has been clearly ascertained, the continuance of it in its original station may be urged as absolutely necessary, whether it strictly conforms to the generic characters or not. But it might be asked, would not this be fettering science? It must be obvious to every naturalist that the productions of nature are so varied, and yet so interwoven, that all classification must be arbitrary, since the shades and gradations are so extremely nice. In fact there is no possibility by the *Linnæan* definition of these two genera, to ascertain to which many of our shells most properly belong, and nothing can tend more to prove this opinion to be well founded than the great difference observed in the classification of different authors, some placing those which have not the least title to the character of *aperture contracted, orbicular, intire*, in the genus *Turbo* and *vice versa* retaining in the *Helix* genus many with the aperture as much or more intitled to these characters. If an *intire* aperture (that is a detached marginal aperture) was sufficient to constitute a *Turbo* without regard to shape,  
and

and all others thrown into the genus *Helix*, the distinction would be more evident; but as it must be also *orbicular* to constitute a *Linnæan Turbo*, without regarding the ambiguous term *contracted*, very few are there of the *British* species which ought be retained in the present long catalogue of that genus. In fact there never was a naturalist that did not differ in opinion with himself at different times, as the secrets of nature become more disclosed, and her veil removed by the hand of time: even the great LINNÆUS was not proof against this mortal defect, as his various editions of the *Systema Naturæ* will evince; so that at last under ambiguous terms there are, and will be, points in classification subject to diversity of opinions.

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Turbo Ziczac. *Lin. Trans.* viii. p. 160. t. 4. f. 14.

ZICZAC.

*Lister. Conch.* t. 583. f. 38.

Trochus Ziczac: *Gmel. Syst.* p. 3587.

*Chem. Conch.* v. t. 166. f. 1599.

Shell conic, with six sub-striated, white, or purplish-white spires, marked with equidistant, longitudinal, undulated, purple, or purplish-brown lines: *apex* acute: base sub-carinated: aperture sub-ovate. Length half an inch; breadth a quarter.

This species is subject to some variation in colour. A small variety without the zigzag lines, we are informed through the medium of the *Linnæan Transactions*, has been found near *Sunderland*, in *Durham*, by LADY WILSON.

SIMILLINUS.

**SIMILLIMUS.** Shell slender, white, with eight or nine spires furnished with fourteen ribs, or elevated *striae*; these stand straight in the line of the shell: *apex* pointed: base destitute of *striae*: aperture sub-ovate. Length three eighths of an inch.

This has much the habit of *Turbo elegantissimus*, but is not so slender, the ribs are less numerous, and consequently more distant, the *fulci* or depressions being larger than the elevations. Those who have an opportunity of comparing these two shells, will also observe that the ribs in *elegantissimus* do not run straight, but oblique to the right, are not so much arched, and are larger than the interstices.

Discovered by Mr. LASKEY to inhabit the shores of the island of *Jura*.

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**SEMISTRIATUS.** Shell thick, conic, white, with five or six slightly rounded spires, but well defined by the line of separation: *apex* rather obtuse: the base of the shell as far as the upper or interior angle of the mouth, is finely striated in a spiral direction, and the same is observable on the upper and lower parts of the other volutions; in some the *striae* are obviously more general by the aid of a lens, but in live shells which are covered with a brown *epidermis*, the middle of each spire usually appears plain: aperture sub-ovate, angulated at the interior end; pillar lip thickened on the *anterior* side. Length one eighth of an inch; breadth one half its length.

The

The contour of this shell is not unlike *T. interruptus*, and is sometimes similarly marked with faint interrupted brown stripes; the mouth however is different, the outer lip is not so much expanded, which together with the spiral *striae* in perfect specimens, are sufficient marks of distinction. In a worn state it might readily be confounded with some varieties of that shell, and even with colourless specimens of *T. ruber*: indeed there are so many smooth shells of this size, most of which have been polished by the sand, in conjunction with the agitation of the water, that it requires great nicety, and accurate comparative investigation to discriminate; and with every possible attention, some distinct species in the more minute division, will probably be omitted for want of sufficient character.

Coast of *South Devon*, not common.

Turbo Calcar. *Gmel. Syst.* p. 3592.

*Chem. Conch.* v. t. 180. f. 1786-87.

*Gualt.* t. 65. f. N. P.

*Lister Conch.* t. 608, f. 46. a.

CALCAR.

Tab. 29. f. 3.

Shell somewhat compressed with four volutions, the superior ones depressed, forming the summit flat; round the larger, and part of the second whorls, are large, smooth, lanceolate spines, radiating in straight lines from the shell, about thirteen in number: aperture orbicular: base convex, umbilicated: colour pale pink. Diameter a quarter of an inch or rather more.

S

A

A perfect and fresh specimen of this size was taken by Mr. LASKEY in *Jona*, one of the Western islands, and from which the figure was taken.

If we may judge by the figures usually referred to, this species appears to vary considerably; but we have only quoted one figure in CHEMNITZ which exactly corresponds with ours except in size. Some have supposed it to be a variety of *Turbo rugosus*, but that shell in all its stages appears to be destitute of spines, and to have a considerably produced apex. It is said to inhabit the *Mediterranean* and *Indian* seas.

## HELIX.

PALUSTRIS,  
p. 370.

*Helix fragilis*. *Don. Br. Shells*. v. t. 175. f. 1.

*Helix fontinalis*. *Don. Br. Shells*. v. t. 175. f. 2.

*Helix palustris*. *Lin. Trans.* viii. p. 216. t. 5. f. 8.

The figure given in the work first referred to, is only a full grown *palustris*, which is not unfrequently marked with a few slight spiral ridges.

DOCTOR PULTENEY, as has before been remarked, described the young, or smooth variety as the *fragilis*, and the larger and older shells as *palustris*; whereas we find the smooth variety of this species corresponding exactly to that DOCTOR PULTENEY sent to us for his *fragilis*, figured in the above work under the title of *fontinalis*, and is probably the same as that so named in the *Portland* cabinet, where we also find *palustris* denominated *fragilis*.

Helix



*Helix putris*. *Don. Br. Shells*. v. t. 168. f. 1.  
*limosa*. *Pult. Hutch. Dorset*. t. 18. f. 19.  
*Helix succinea*. *Lin. Trans.* viii. p. 218.

PUTRIS.  
 p. 376.

The animal like other *Limaces* possessing four tentacula, is hermaphrodite, and sometimes unites as late as the month of August.

We are inclined to agree with the authors of the *Descriptive Catalogue of British Testacea* that this is not the *Linnæan putris*, upon a recurrence to the description of that writer; a mistake probably induced by the opinion of MULLER, and other respectable authors. The reference also to our *Helix peregra* for the true *putris* is probably correct.

In the work referred to, mention is made of a variety of this last shell with a white thickened lip; and, we might add, expanded, and sub-reflexed, from consulting the specimens favoured us by Mr. RACKETT, who remarked that they were found in a pond between *Whitchurch* and *Milbourne* in *Dorsetshire*. Should this character hereafter appear to be general in particular situations, it might be conjectured, with much reason, that it is actually a distinct species.

*Lin. Trans.* viii. p. 222.

GLUTINOSA.  
 p. 379.

Since the publication of *Testacea Britannica* we have been fortunate enough to discover this very local species in a water course near *Reading*, in *Berkshire*, that communicates

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with

with the *Kennet*, by which we are enabled to add to the description of the animal, having kept several in a glass of water for a considerable time.

It is large in proportion to its shell like many of the *Bulla* tribe, and might with as much propriety be placed in that genus as many others. It is covered with a tenaceous slime, and is of a pale dull yellow colour, sprinkled with bright brimstone spots; *tentacula* very broad at the base, and flat; eyes small, placed at the base of the *tentacula* on the inside; front broad; *sustentaculum* spread and moderately long. When the membranes that usually cover the shell are withdrawn, the colour of the animal beneath the transparent shell gives it an appearance of highly polished tortoiseshell.

It is by far the most pellucid, and fragile, of any species of shell with which we are acquainted, and from which it is extremely difficult to extract the animal without breaking, as it will scarcely bear handling.

LEVIGATA.  
p. 382.

*Bulla vellutina*. *Mull. Zool. Dan.* iii. t. 101.

*Helix lævigata*. *Lin. Trans.* viii. p. 222.

*Pult. Hutch. Dorset.* t. 18. f. 9.

As there is little doubt this is the *Bulla vellutina* of MULLER, so there is also much reason for believing it to be the *Helix Haliotoidea* of LINNÆUS and FABRICIUS: both GMELIN and MULLER appear to concur in this opinion.

Nothing

Nothing can be more different in appearance than this shell is when perfect, and when divested of its striated, pilose epidermis.

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*Lin. Trans.* viii. p. 205.

*Pult. Hutch. Dorset.* t. 17. f. 2

VIVIPARA.

p. 386.

In the month of May every full grown specimen is found to possess from eight to twelve young, with their testaceous covering; a proof of its not only being viviparous, but that it differs from the general conformation of other aquatic *Limaces*, being hermaphrodite; a circumstance that did not escape the notice of our countryman LISTER.

The animal is dusky-black, thickly speckled with orange-yellow: the snout is produced: *tentacula* taper, projecting forwards, and turning a little outwards at the tip: eyes small, placed on the base of the tentacula on the outside, and a little prominent.

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*Turbo albus* *Don. Br. Shells:* v. t. 177.

*Strombiformis albus* *Da Costa.* p. 116.

*Helix polita.* *Lin. Trans.* viii. p. 210.

*Pult. Hutch. Dorset.* t. 19. f. 15.

POLITA.

p. 398.

This species is figured in the *British Shells* with a reference to *Strombiformis albus* of DA COSTA.

We

We confess this shell has caused some wavering in our mind, with respect to whether it really was the species described by that author, and must own that popular opinion had considerable influence in referring to *S. glaber*, instead of *albus* of DA COSTA, finding such were the sentiments of all our conchological friends, who had collected, and particularly attended to *British Testacea*. It is however but right to acknowledge, that as Mr. DONOVAN has given a shell which better accords with the description of DA COSTA'S *Strombiformis glaber*, under the title of *Turbo subulatus*, with a reference to the shell in question, we are inclined to agree with him; and therefore request that the synonym of *Strombiformis albus*, under the title of *Helix labiosa*, in *Testacea Britannica* p. 400, may be cancelled, having transferred it to this species in the room of *Strombiformis glaber*, which is now affixed to *Helix subulata*.

## SUBULATA.

*Turbo subulatus*. *Don. Br. Shells.* v. t. 172.

*Strombiformis glaber*. *Da Costa.* p. 117.

*Helix subulata*. *Lin. Trans.* viii. p. 210.

*Pult. Hutch. Dorset.* t. 19. f. 14.

Shell subulate, extremely smooth and glossy, being destitute of *striæ* or wrinkles, and tapering to a fine point, with about ten scarcely defined wreaths: the colour is white, marked with two faint yellowish lines, which follow the spiral turn of the shell, but become obsolete towards the *apex*: aperture narrow, contracted at the interior angle. Length about three quarters of an inch.

As

As Mr. DONOVAN has given a good figure of this obscure shell, and we think has with great propriety referred to DA COSTA'S *S. glaber*, we have adopted the name of *subulata*. This author describes it thus "It is an elegant shell of a taper form, thin, and semitransparent; when very perfect, of a pale flesh-colour, spirally wreathed with whitish lines, and others of an ochreous or brownish hue: the stripes are not uniformly disposed alike in all specimens."

Mr. DONOVAN received his from *Weymouth*.

It is also a *Scotish* shell, Mr. LASKEY having found it on the sandy shore near *Dunbar*, but considers it very rare of the size described; but amongst a box of minute shells from that coast, we discovered several much smaller. All these specimens had invariably two yellowish, or pale ferruginous lines; whereas the figure in the *British Shells* exhibits no less than six lines on the body, and these appear to be of the same colour as ours.

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Shell with four strong, convex volutions, and the apex MARGARITA moderately produced: colour white, with one faint rufous-brown band on the upper part of the body whirl, following the course of the wreaths, but is lost in the third volution: aperture sub-lunated, sub-orbicular; inside beautifully nacreous: base very convex, and largely umbilicated. Diameter one eighth of an inch or more.

Frequently.

Frequently quite white with a pearly gloss; and a variety with a slight tinge of bronze. When alive the animal gives the shell a darker appearance. Discovered by Mr. LASKEY on the *Scottish* coast, particularly about *Dunbar*.

## OCTONA.

*Lin. Trans.* viii. p. 211. t. 5. f. 10.

*Pult. Hutch. Dorset.* t. 18. f. 5.

This shell, which appears to be the *Linnaean Helix octona*, was originally given by DOCTOR PULTENEY in his *Dorset Catalogue*, but as we suspected the DOCTOR had been deceived, it was not admitted into *Testacea Britannica*, and only noticed under the article *Helix octanfracta* in comparative description with that species. Having however been continued in the *Descriptive Catalogue of British Testacea*, we have been induced to record it, but not with any additional proof of its existence in this country.

That very local species the *octanfracta* of *Testacea Britannica* has been discovered in Dorsetshire by Mr. RACKETT.

RUFESCENS.  
p. 420.  
Tab. 23. f. 2.

*Helix rufescens.* *Pult. Hutch. Dorset.* p. 47. t. 20. f. 6.

*Don. Br. Shells.* v. t. 157. f. 1.

*Lin. Trans.* viii. p. 196,

*Helix hispida.* *Don. Br. Shells.* v. t. 151. f. 1.

It should seem the true *Helix hispida* is not commonly known, for we find Mr. DONOVAN has fallen into the same error

error with other writers, by mistaking the young *H. rufescens* for it. We have introduced a figure of this shell in its hispid state, for the purpose of comparison with the true *hispidata*, which is also figured in the same plate fig. 3.

*Helix pallida*. *Don. Br. Shells*. v. t. 157. f. 2.

*Cantiana*. *Lin. Trans*. viii. p. 197.

*Pult. Hutch. Dorset*. t. 19. f. 21.

CANTIANA.

p. 422.

Tab. 23. f. 1.

This species was observed by Mr. DONOVAN, on the great Roman wall of *Caerwent*, in *Monmouthshire*; and we have recently taken it in *Hertfordshire*. Mr. RACKETT found it at *Ripley, Surrey*; *Spetisbury, Dorset*; and *Alton, Hants*.

*Helix nitens*. *Lin. Trans*. viii. p. 198. t. 5. f. 7.

*Pult. Hutch. Dorset*. p. 47. t. 21. f. 10.

LUCIDA.

p. 425.

Tab. 23. f. 4.

This species occupied no less than three distinct places in the *Portland* cabinet, by as many different names. The matured shell appeared under the title of *glabella*, the smaller size *lucida*, and the fry *minuta*. In the *Boysian* cabinet they also stand by those names, having been so marked by DOCTOR SOLANDER.

*Lin. Trans*. viii. p. 200.

TROCHIFORMIS.

p. 427.

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In

In the *Boysian* cabinet we find this shell marked *Trochus compressus*, *Sandwich*. This name also occurs affixed to the same species in that part of the *Portland* collection now in possession of Mr. LASKEY.

UMBILICATA.  
p. 434.

*Lin. Trans.* viii. p. 200.

*Pult. Hutch. Dorset.* t. 19. f. 24.

This species bears the name of *Helix Turboformis* in the *Boysian* cabinet, with a reference to that of the *Portland*. And we find that name affixed to it in the cabinet of Mr. LASKEY, who obtained it from the *Portland* collection.

FONTANA. In the *Portland* cabinet there were two species marked p. 462. *Helix Nautiloides*, No. 22 and No. 56; the first is our *Helix fortana*, the other *Helix Nautilus*.

CONTORTA. This shell was probably mistaken for the *Linnæan Helix complanata* by DOCTOR SOLANDER, as we find it by that name in the part of the *Portland* cabinet now in the possession of Mr. LASKEY.

OBSCURA.  
p. 391.  
Tab. 22. f. 5.

*Lin. Trans.* viii. p. 212. t. 5. f. 11.

*Pult. Hutch. Dorset.* t. 19. f. 27.



In the *Boysian*, as well as the *Portland cabinet*, this is named *Turbo Muscorum*; and in the latter, the try is marked in another place *Turbo polyodens*.

By the specimens in the *Boysian cabinet*, we have no **GLOBOSA**: doubt this shell of WALKER, as well as *Helix coarctata*, is the fry of some other species. p. 444.

Shell compressed, glossy, white, with three volutions definite of *striae*: apex depressed, scarcely elevated above the other whirls: aperture orbicular, slightly adhering to the body, and turning considerably downwards, forming a large and deep *umbilicus*: the under part shews the volutions more round and distinct than any other *British* species of marine *testacea* we are acquainted with. It bears some resemblance to *Helix depressa*, but differs in the slight connection of the whirls, and the superior cylindrical appearance of them underneath. It is about the size of that shell, but not of the same colour. *Devon coast*, extremely rare. SERPULOIDES. Tab. 21. f. 3.

*Turbo cristatus*. *Lin. Trans.* viii. p. 169.

**CRISTATA.**  
p. 460.

This was marked in the *Portland cabinet*, *Helix, cornea minime*.

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VIRGATA.

VIRGATA. . . . . *Lin. Trans.* viii. p. 195. . . . .  
p. 415. . . . . *Pult. Hutch. Dorset.* t. 20. f. 7.

In the *Portland* museum both this and our *Helix cingenda* were marked *zonaria*, but to this was added *Weymouth*, as a distinction.

This appears to be the *media* of GMELIN, and not *pisana*; but this author quotes the same figure in SCHROETER, for both.

FUSCA. A shell in every respect like this except in colour, has been  
p. 424. sent to us from *Scotland*, by Mr. H. BOYS. It is beautifully white, and pellucid, with considerable gloss; not in appearance like a bleached shell, which usually becomes dull and opaque. It may possibly hereafter prove a distinct species, but without knowledge of its habits, it would be highly improper to divide it on account of colour only, when in every other respect there is no difference.

## NERITA.

CANRENA. *Nerita canrena.* *Gmel. Syst.* p. 3669.  
*Chem Conch.* v. t. 186, and t. 187.  
*Gualt.* t. 67. Q. R. S.  
*Lin. Trans.* viii. p. 223.  
*Nerita intricata.* *Don. Br. Shells.* v. t. 167.  
*Lister Conch.* t. 560. 3.--564. 11.--& 566. 16.

Mr.

Mr. DONOVAN is certainly right in conjecturing that his *Nerita intricata* is a variety of *N. canrena*; and which according to the opinions of Testaceological writers are innumerable in their variation with respect to markings.

The specimen we were favoured with by Mr. DONOVAN differs very little from the figure he has given, and is greatly like some specimens of *N. glaucina*; indeed so much do these shells resemble each other, that a separate description is needless, as the distinction principally consists in the different formation of the *umbilicus*. The shell before us is of a livid, or purplish flesh-colour, with catinated bands of mixed ferruginous and white: the *umbilicus* is furnished with two spiral ridges, and two grooves, corresponding with the *Gmelinian* character "*umbilico gibbo bifido*." Diameter of *British* specimens not much more than half an inch. Said to be found at *Weymouth*, but we conclude very rare.

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*Nerita Pes Elephantis*. *Chem. Conch.* v. t. 189. f. 1922—23. NITIDA.

*Lister Conch.* t. 571. f. 22.

*Lin. Trans.* viii. p. 225.

*Nerita nitida* *Don. Br. Shells.* iv. t. 144.

This is another species of *Nerita*, very much resembling in shape the *glaucina*, but the superior volutions are not placed so lateral, and differs a little in the *umbilicus*, which is half closed, or lunated: the colour is pure white, and extremely glossy. Diameter scarcely half an inch.

We

We are assured by Mr. DONOVAN this was not only amongst DA COSTA'S shells, with a note importing it to be *Englisb*, but that it has also been recently discovered near *Caithness*, in *Scotland*, by Mr. M'LEAY. We have likewise identified the same species from the *Frith of Forth*.

It is not unfrequent amongst parcels of occidental shells, and has been considered by some as the *Mammilla* of LINNÆUS, but it appears to be distinct.

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TUBEROSISSIMA. Shell pellucid, white, with three or four volutions: on the  
 Tab. 29. f. 5. body whirl are four elevations broken into tubercles; the upper volutions are very small: *apex* minute: *umbilicus* large. Diameter one eighth of an inch, or rather more.

The figure of this shell was taken from a specimen in the cabinet of Mr. LASKEY, who took it by dredging in deep water in the *Frith of Forth*. A single live specimen only occurred.

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RUFA. *Nerita rufa*. *Gmel. Syst.* p. 3672  
 Tab. 30. f. 3. *Chem. Conch.* v. t. 187. f. 1874—75.  
*Nerita spadicea*. *Gmel. Syst.* p. 3672.  
*Chem. Conch.* v. t. 187. f. 1872—73?

Shell smooth, glossy, and of a livid-purplish colour, with a white band round the top of the volutions, and two others on the body whirl. Diameter more than half an inch.

This

This is another species of *Nerita*, with somewhat the contour of *N. glaucina*, but differs materially in the *umbilicus*; the pillar lip reflects, and forms a large projection that narrows the *umbilical* perforation, and occasions an indenture on each side of it; the volutions are about the same in number, rather more lateral, and the second more tumid.

Taken on the coast near *Dunbar* in *Scotland*, by Mr. LASKEY.

A shell very much resembling this, sometimes occurs on the coast of *Devon*, but of a very inferior size, the largest hitherto found being less than a quarter of an inch diameter. The *umbilicus* in these forms a channel to the end of the pillar lip, like *Helix lacuna*, and might be mistaken for that shell, was it not for the great difference in their substance, this being thick and strong, the other thin and fragile. These which we take to be the young of *N. rufa*, are sometimes pure white, others flesh colour, and some of different shades of chestnut, and between that and purple; the darker specimens all possess the white band round the top of the largest volution, and sometimes another below; but the most elegant specimen has the body volution chestnut, with the white girdle, and the *umbilical* regions the same; and the other volutions of a fine pale purple. The great disproportion between the second and third spire in these smaller shells is very considerable, and causes the second to be remarkably round and tumid.

We are the more inclined to conclude these are the young of *N. rufa*, as amongst a parcel of minute shells taken on the  
same

same part of the *Scotish* coast, such occurred. Although we have with doubt referred to *N. spadicea* as a variety, both having originally come from the island of *Maurice* in *Africa*, yet CHEMNITZ particularly remarks the distinctions in the *umbilicus*, and says they must not be confounded.

Having sent one of the smaller specimens to our conchological friend Mr. RACKETT, we are assured by him, that upon comparison with the *Cochlea parva* of DA COSTA, in the PULTENEY collection, it is that species; so that the reference to *Cochlea parva* of that author for our *Turbo quadrifasciatus* should be transferred to this shell.

That in the advanced state it is the *Nerita rufa* of GMELIN there cannot be the least doubt, by the description; and more particularly by the figure he refers to in CHEMNITZ, which is so exactly similar to a specimen in our possession, that it might well pass for a representation of the same shell. It is also a *West Indian* species.

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## PATELLA.

CÆRULEA.      *Patella cærulea*. *Gmel. Syst.* p. 3697.  
*Pult. Hutch. Dorset: t. 23. f. 6.*

Ever anxious to rectify any errors we may have fallen into for want of sufficient opportunity to fully ascertain all the species of which we are necessitated to treat, it is proper  
to

to remark in this place that recent occurrence has induced us to believe that what we had formerly considered as the older shells of *Patella pellucida* are actually distinct; and therefore request that they may be separated, and that the synonyms of *cærulea* affixed to *pellucida* in *Testacea Britannica* may be transferred to this. It must be observed that the principal distinction of the *pellucida* is the regular ovate and convex appearance, with scarcely any obvious beak; but what little it has is always close to the margin: besides it is always pellucid, and seldom has more than four or five blue lines. The *cærulea* on the contrary is extremely various in its shape at all ages, some being much depressed, and others greatly elevated, and the beak is never so low as to be destitute of margin. It is also usually rayed from the *vertex* on all sides, sometimes with a few blue lines, and the rest brown: the beak is generally decorticated even in the smallest specimens, and often stands abrupt as if a small shell was placed upon a larger. In this abrupt *apex*, one, and sometimes two black spots are observable, especially when worn; and when this part only remains of the shell, having by accident been separated; or being much thicker has been left after the rest has been worn away, recent observation has inclined us to believe is what we originally considered to be a distinct species, and described in the former part of this work under the title of *bimaculata*. We are supported in this opinion by the observation of Mr. LASKEY, who has had frequent opportunity of noticing it on the shores of *Scotland*. This being admitted, the *Patella bimaculata* must be erased from the catalogue of *British shells*.

INTORTA.

Patella Intorta. *Br. Zool.* t. 90. f. 148.*Don. Br. Shells.* v. t. 146.*Lin. Trans.* viii. p. 231.

Mr. PENNANT'S draftsman not having been very correct in the figure of this shell, we had been induced to believe it a mere variety of *Patella pellucida*; recent opportunity however of examining a shell discovered by Mr. LASKEY in *Bideford* bay, on the north coast of *Devon*, and afterwards on the *Scotish* coast, which is considered by that gentleman as the *intorta* of the *British Zoology*, obliges us to request the reference to this shell under the title of *P. pellucida* may be cancelled.

Shell ovate, with upwards of twenty equidistant tuberculated ribs, and alternate smaller obsolete ones: beak situated at one end, and turning downwards: colour rufous-brown; some of the tubercles almost black, inside paler; the margin slightly indented by the ribs. Length three fourths of an inch; breadth rather more than half an inch; height rather less. At a little distance has the colour, and somewhat the appearance of a nutmeg.

Mr. DONOVAN has given a very excellent figure of this shell, and very justly remarks that it is perfectly distinct from the *Mammillaris* of GMELIN.

PARVA.  
p. 480.Patella virginea. *Gmel. Syst.* p. 3711.*Mull. Zool. Dan.* i. t. 12. f. 4. 5.*Lin. Trans.* viii. p. 235.*Pult. Hutch. Dorset.* t. 14. f. 11.

Patella



*Patella fissurella*. *Mull. Zool. Dan.* 1. t. 24. f. 4. 6.

*Id. prodr.* No. 2865.

———apertura *Lin. Trans.* viii. p. 236.

APERTURA.

p. 491.

This is undoubtedly the *fissurella* of MULLER, but his figure does not appear to be so strongly ribbed, or tuberculated as ours, and is marked with two rufous-brown bands. This author speaks of it as rare in *Fuci*. FABRICUS found it in the *Iceland* seas adhering to stones.

## DENTALIUM.

*Dentalium striatum*. *Lin. Trans.* viii. p. 238.

*Dentalium octangulatum*. *Don. Br. Shells.* v. t. 162.

STRIATULUM.

There appears very little reason to doubt but this is the *D. striatum* of GMELIN, p 3738, and figured by MARTINI, vol. 1. tab. 1. f. 5. B. as well as LISTER, tab. 547. fig. 1. b.

Several of these shells are said to have been found on the sands near *Lelant* in *Cornwall*. Length about two inches.

The shell is described to be white, somewhat curved, with eight ribs or angles, and three intermediate *striæ*.

The only difference between this and the *Gmelinean striatum* appears to be in colour, that shell is stated to be green, with a white tip, possibly stained by some adventitious matter.

STRIATUM,  
p. 495.

Dentalium Dentalis. *Lin. Trans.* viii. p. 237.

This may possibly be the *Linnean Dentalis*.

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## SERPULA and VERMICULUM.

### *General Observations.*

In these intricate classes of *Testacea* we have not neglected any opportunity where there was the smallest prospect of elucidating the subject, but we find it so extremely difficult to satisfactorily define several of the irregular divisions of these genera, that a few general remarks are all that we shall venture to add, except one new species of chambered *Serpula*.

As far as these genera have been communicated to the public in *Testacea Britannica* there has not appeared any reason to induce us to change our opinion: but it should be remarked that in examining a great number of *Serpula*, many that were in appearance *triquetra* were found to be inhabited by animals so extremely different in that part usually termed the proboscis, as to warrant a conclusion that they are actually distinct; but as it is utterly impossible to perceive the smallest distinction in the shells, we shall briefly remark that, besides the *triquetra*, (the animal of which has been described to possess a striated membranaceous termination to its proboscis) there are four others essentially different in that part:—

1. With a smooth, and slightly concave *testaceous* termination or operculum.

2. With a *testaceous* termination armed with two or three spines in front.

3. With a *testaceous* conical termination.

4. With a smooth termination, grooved on each side for the reception of two *cirri* placed at the base of the operculum, which is corneous, furnished with a bifid stile.

It is remarkable that amongst those authors we have been able to consult, no mention is made of any animal belonging to the *Serpula* class with a *testaceous operculum*, MULLER excepted, (for that part which has been considered as a tongue, or proboscis, is undoubtedly a pediculate *operculum*), who besides figuring that with a single striated membranaceous *operculum*, which we have considered as belonging to *triquetra*; has in his *Zool. Dan. vol. iii. Tab. 86*, given a figure of that which we have described to be the animal of *vermicularis*, with a double *infundibuliform operculum*; and also a third which appears to be our second animal above described.

That the species of these irregularly contorted *Serpula* are more numerous than have generally been considered is evident, since we find seven very distinct animals inhabiting shells of this class so extremely similar as to be totally undefinable by their habitations, and sometimes all grouped together in one contorted mass. From the numerous specimens examined, we suspect no conchological distinction can ever be defined, so as to make them subservient to that  
branch

branch of science exclusively, although the specific distinction will readily be ascertained by the Helminthologist on a careful examination of the several animals.

It is true our *Serpula tubularia* is invariably round, or destitute of any *carina*, and in this respect differs from most of the others, which generally possess more or less dorsal elevation; but then it bears so much resemblance to *vermicularis* that the animal of the former being an *Amphitrite* is the only absolute criterion of distinction. The *triquetra* and the other four species whose animals have been briefly described, run so much into each other by possessing all the gradations from that of being tricarinated, to scarcely any trace even of a dorsal ridge which unites them to the other two; and these vary so greatly in individuals, that to attempt a division by the shells would be only leading to error and confusion: we must therefore refer those who wish to discover these seven species of irregularly contorted *Serpula* to an inspection of the animal inhabitants.

It may not be foreign to the subject, cursorily to remark in this place, that there appears no animal so little understood, and so unsuccessfully attempted to be defined by different authors as that of the *Linnæan Terebella*; and as we do not think this class of animals with two plumous *tentacula*, and furnished with a *pediculate operculum* for closing the aperture of the shell with which they are covered, accords with the *Linnæan* characters of the *Terebella*, we propose that these animals which are confined intirely to the *Serpula*, as far as  
discovery

discovery has gone, and that are found to inhabit nearly the whole of that class of *Testacea*, should be separated from the *Terebella*, and formed into a distinct genus.

The animals belonging to the two species of the concentered division of *Serpula* hereafter noticed, have notwithstanding the utmost attention escaped detection, and probably never will be ascertained, since the aperture itself is scarcely discernable by the most improved microscope.

With respect to *Vermiculum* we cannot help expressing our surprise at the recent doubts expressed in *vol. viii.* of the *Transactions* of the *Linneæan Society*, and we must be induced to conclude that the want of opportunity, or perhaps habit of investigating these minute microscopic *testacea*, can alone have led to a supposition that the *intortum*, *subrotundum*, *oblongum*, and *bicorne* are mere varieties of the same species. It is true that some of these are subject to vary in shape, especially that which is considered the *feminulum* of *Linneæus*; but no conchologist could possibly examine *bicorne* without being at the first glance convinced of its strong specific characters of distinction. We must therefore be permitted to say that a continuation of our researches has not only confirmed us in our former opinion, but that we are inclined to believe the species of this genus might be extended: the very great difficulty however of expressing those distinctions, either by description or figure in such minute variable subjects, has induced us to content ourselves with these remarks.

SERPULA.

## SERPULA:

LOBATA.  
p. 515.

*Nautilus Farcus*. *Fichtel.* t. 9. f. g. h. i.

*Nautilus lobatulus*. *Lin. Trans.* viii. p. 117.

Is said to be found fossil about *Senam*, in *Etruria*. We have also noticed it in that state amongst minute *Nautili* from *Sienna*.

Vast abundance have recently occurred amongst *Sertulariæ* brought to us by fishermen, taken in the deep by trawling: some specimens of *Sertularia abietina* are covered with them.

Notwithstanding such respectable authority for placing this among the *Nautili*, we cannot assent to that opinion. No *Nautilus* is ever sessile, whereas this is never detached but by accident, and then the animal dies. Besides nothing can be more irregular in structure, and the *Linnæan* characters of the *Serpula* admit of being often chambered.

RATA. Shell suborbicular, compressed, flat beneath, slightly convex above, and of a sub-pellucid white colour, with three irregular volutions, and numerous dissimilar concamerations; the exterior whirl has about nine glossy and tumid cells, of unequal size, but usually a larger and smaller alternate. Diameter half a line.

This

This very minute species is at once distinguished from *S. lobata* by possessing much more numerous, and infinitely more minute chambers, which are smooth and glossy, and not of that frosted appearance the *lobata* is invariably found to be, when examined by a microscope.

It is a rare species, taken up by the *Amphitrite ventilabrum* in the construction of its tube, which is described in *Testacea Britannica* as *Sabella penicillus*; but its natural habits are like *S. lobata*, fixed on *Sertulariæ*.

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## SABELLA.

It might be expected that some additions were made to this genus since the publication of the former part of this work; and it is true we have not been idle in our attention to the subject, but we must confess that, that attention has so fully convinced us of the impropriety of classing these heterogeneous tubes with *testacea*, that we shall not add to those already given, merely in compliment to the system of our great master, since in the present era, the improved cultivation of science so imperiously demands their separation; and we are glad to find that even the more rigid disciples of LINNÆUS have ventured to adopt this alteration.

The *Sabella* independent of their beautiful inhabitants are scarcely worth a place in the cabinet of the naturalists; if however, they are an object of retention, they are more

W

nearly

nearly allied to some parts of the class *Zoophyta* than to that of *Testacea*. To the genus *Tabularia* several might be added with more propriety; or perhaps if they were only noted in Helminthology as subservient to the knowledge of the animal, and an assistant to its specific distinction, it would be most conducive to a more perfect natural system. Our countryman the immortal ELLIS did not scruple to class the *Sabella alveolata*, and *penicillus* amongst his *Zoophyta*, as *Tabularia*; and MULLER has followed the example. However they do not strictly belong to that genus, nor indeed to any other; so that should they be removed into that class by those who prefer making the case or tube the substantive instead of the animal, they must constitute a separate genus.

When the great LINNÆUS rejected the *Echinus* from the conchological part of his system, it was not probably from any comparative view of the substances chemically analyzed, or he would no more have placed the membranaceous cases termed *Sabella* amongst shells, than he would have included the *Echinus*. The detection of *phosphate* of lime in the covering of *Echini* certainly distinguishes them from testaceous substances, which contain only *carbonate* of lime, mixed with animal gluten.

By this natural constitution of the component parts of animals, is the *Sabella* detached from either the above, being in all probability destitute of either *phosphate* or *carbonate* of lime, if divested of all extraneous matter.

APPENDIX.



## APPENDIX.

LEPAS  
FASCICULARIS.

A few days previously to the Appendix going to the press this species of *Lepas* (which is esteemed so extremely rare) was thrown up in considerable abundance on the south coast of Devon, between *Milton* and *Thurlstone*: of these we obtained alive all the intermediate sizes, from the smallest or most infant state, to that of full an inch in length. They were attached in groupes to various substances, but particularly to a remarkably yellow variety of *Fucus vesiculosus*: others were observed on some slender leaved *Conserva*; one group on the quill feather of a Gull; and another on a bit of charcoal. Many of the clusters are furnished with a whitish vesicular membrane, of considerable tenacity, as a common base; possibly the spawn of the larger animal from which the young issue. The colour of the shell while the animal inhabitant is fresh, is blueish, participating of the tint of the animal by reason of its pellucidity. The peduncle is shorter than the shell, and nearly destitute of wrinkles, that of the larger specimens hyaline-blue, the smaller are paler.

The body of the animal is blue, furnished with twelve bifid tentacula of a similar colour but paler, spotted with brown.

The only specimen we had before seen, is described in

page 5 of this supplement, but which was destitute of the foot-stalk; this addition therefore compleats the description, and corrects the error in the colouring of the figure given in the *British Shells*, which could only be imaginary, as the author acknowledges he never had found it, and there is nothing in the description originally given by ELLIS that could induce an opinion that the peduncle was of an orange colour.

It is a curious circumstance that this species, originally discovered by Mr. ELLIS at least thirty two years ago, and probably much before that period, should never have been subsequently noticed by any conchologist, nor found in the cabinets of collectors, especially as it seems to be equally as prolific, and gregarious as the more common species.\* It is therefore reasonable to conclude that it inhabits the deep where the tempest is not sufficiently felt to detach it, or the substances to which it adheres; and that such an accidental occurrence may have been caused by the action of some large fish. There had not been any storm previously to the appearance of those shells, and in two or three days scarcely a vestige of them were to be found on the shore.

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LEPAS            Shell consisting of five small valves connected by broad  
MEMBRANACEA. membranes, and furnished with a short peduncle. The two  
valves on the top are linear, and project over the front, where

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\* Mr. ELLIS's death is recorded to have taken place in the year 1776.

they

they are slightly hooked, and turn downwards: the two front valves are also narrow, and spread backwards a little in the middle; the dorsal valve is slender, and does not occupy one third the length of the shell; the sides, which are entirely ligamentous, are wrinkled, and there is a projecting membrane on each side that runs from the peduncle to the top of the dorsal valve. Length nearly half an inch; breadth a quarter.

This was sent to us for a *British* shell by a conchological friend, who thinks it was taken on the *Welsh* coast; and as we conclude he had good authority, though not personal, we venture to insert it; more especially as it appears to be a nondescript.

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Shell ovate, of a pink colour shaded to white at the shorter MYA  
 end, and regularly striated concentrically: the beak is not NITENS.  
 quite central, but moderately prominent. The inside is  
 similar in colour but not so glossy as the outside; the hinge  
 is furnished with a single tooth in one valve, which shuts  
 into a deep cleft between two slight elevations in the other  
 valve. Length nearly a quarter of an inch; breadth not  
 quite three eighths.

This species bears some resemblance to *Tellina lata*, but is more regularly oval without being attenuated at one end, besides differing in the obvious distinction of the hinge.

Taken

Taken on the *Scotish* coast near *Dunbar*, but is extremely rare.

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MYA  
FERRUGINOSA. This new species has been described at page 22 as an inhabitant only of the *Scotish* coast; we have little doubt however that it is occasionally found in South *Britan*, since a specimen has been noticed in the *Bryerian* cabinet, without doubt the production of the coast of *Weymouth*.

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LIGULA  
DISTORTA. Since the former part of this supplement went through the press, a remarkably fine specimen of this shell was taken by deep trawling, between *Kingsbridge* and *Plymouth*, and brought to us with the animal in it. The valves of this shell are unmutually deep, making the thickness when closed not less than one inch and a quarter; the length is one inch and three quarters; and the breadth two inches and a half. The shell is thin, and extremely light, but yet it is considerably wrinkled by irregular concentric ridges; and one end is much smaller than the other.

This species, the *Ligula pubescens*, and *præternis* have been usually confounded. The specimen of *pubescens* of the *Portland* cabinet, from which Mr. PENNANT is said to have originally described his *Mya declivis* is now before us, being at present a part of the cabinet of Mr. LASKEY; and we have the satisfaction to declare that it is actually our *pubescens*. This specimen is not so large as one we have lately taken off  
the

the coast of *Deron*, which is about two inches and a half in breadth.

The smaller specimens of *pubescens* and *distorta* are not uncommon on many of our shores, the former vastly plentiful on some parts of the *Scotish* coast; but we cannot find that the larger shells have occurred to any of our friends in that quarter, notwithstanding the authority of Mr. PENNANT for their frequency in the *Hebrides*; and we cannot help conjecturing that he was mistaken in the species of which he relates the fish to have been eaten by the gentry.

These large thin shells are rarely taken but in the deep, and never cast on our shores, being ground to pieces by the agitation of the sea. Of the three analogous species above-mentioned the *pratensis* is the least common, and of which no instance to our knowledge has yet occurred of its being taken much above one inch in breadth.

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Tellina Similis. *Brit. Miscel.* p. 29. t. 75.

TELLINA  
SIMILIS.

Mr. SOWERBY, (with whom originates the discovery of this new species) describes the specific characters as follows:

“Ovate, compressed. Both valves diagonally striated five-sixths over the surface. Beak not curved.”

The author remarks the great similitude between this shell

shell and *Tellina fabula*, but observes that it differs in many particulars, especially in being rounded at the smaller end, and not curved; and in both valves being furnished with diagonal striae. It inhabits the shores of *Brighton* in company with *T. fabula*. The figure given in the *British Miscellany* is not above half an inch in breadth.

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VENUS  
GUINEENSIS. A small specimen of this very rare shell has been discovered in the *Bryan* cabinet since the description of it was given in page 48, we may therefore conclude it was found at *Weymouth*.

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VENUS  
REFLEXA. Since the printing of the former part of this Supplement, we have taken a small specimen of this rare shell on the south coast of *Devon*.

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BULLA  
FLEXILIS. Shell pellucid, horn-colour, and in a moistened state flexible, similar to the valve extracted from the back of *Aplysia depilans*, but differs from it in being convoluted, and in being brittle when dry; the apex is white and opaque. In the shape and conformation of the spire it so very nearly resembles *Bulla Haliotoidea*, as not to require further description; we shall therefore only remark that this shell is much more wrinkled, and that the smaller volution does not make more than one turn. Length half an inch.

Two only of this new and rare species have been taken at Dunbar by Mr LASKEY, and both were destitute of the animal; there cannot however be a doubt but that it is one of those shells which is naturally concealed, as in *Bulla Halioidea*, and a few others.

Shell glossy, white, veined like ivory in a longitudinal direction, and furnished with eight or nine reversed volutions slightly tapering to an obtuse point; the lower whirl occupies two thirds of the shell: the aperture is narrow, not quite half the length of the shell; and the columella possesses one plication. Length a quarter of an inch; breadth one third of its length.

VOLUTA.

HETEROCLITA.

This elegant little Voluta is one of the very few marine heteroclitical species found on our shores. It was taken with the last described shell, and is extremely rare.

We have lately learned that this very local-species has been taken in the western *Highlands* of *Scotland*. When Mr. LASKEY favoured us with a shell from *Nuns* island for examination, which he considered as a nondescript, we perceived a considerable degree of affinity between it and *Strombus Costatus*; but as we were informed two specimens had been taken in the same place, and perceiving that the one from which our description was taken was destitute of the essential character of *costatus*, the spiral *striae*, we readily

STROMBUS

COSTATUS.

subscribed to the opinion that it really was a distinct species, and as such gave it in the former part of this supplement, under the title of *Strombus Turboformis*. Candour however obliges us to remark that, that shell must be received with caution, since the specimen which was found with it, and which we have since had an opportunity of examining, is actually *Strombus costatus*; so that it is probable our *S. Turboformis* may hereafter be found to be only a variety of that shell.

MUREX  
GYRINUS.

*Murex gyrinus*. *Lin. Syst.* p. 1216—*Gmel. Syst.* p. 3531.  
*Martini*. iv. t. 128. f. 1231. 1232.

Shell strong, short, conic, and considerably tumid, with four brown volutions regularly covered with dark chestnut-coloured tubercles; on the body whirl, including the lengthened base or canal, there are eight rows of tubercles, and three on the succeeding volution. Length scarcely a quarter of an inch; breadth one eighth.

Taken with the preceding by Mr. LASKEY.

This shell is so extremely like some of the numerous varieties of *Murex gyrinus* that we dare not venture to give it as distinct: the aperture in so young a specimen could not be formed, and of course is destitute of the thickened lip; and the single rib usually observed in that shell on the opposite side is also wanting. MARTINI gives figures of six varieties, but we have only referred to one which most nearly represents



represents our shell. Although this is the first instance of its being recorded as *British*, it seems to be common in most parts of the world, being found to inhabit the *Mediterranean, Atlantic, American and Indian seas*.

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In the cabinet of Mr. LASKEY is the finest specimen of SERPULA grouped *Serpula tubularia* we ever saw; the tubes stand in TUBULARIA. four detached parcels on an old valve of *Mastra lustraria*, the largest of which contains not less than twenty three, and all stand nearly perpendicular. Some have their apertures considerably spreading, or *sub-infundibuliform*, and extend nearly four inches in height, and not less than a quarter of an inch in diameter; and in two or three instances, an acute ridge or belt is observed to surround the shell: the base is confusedly entwined, and mixed with *Serpula triquetra*. Several species of *Corallina* are also attached to it.

This specimen was originally taken by dredging off the coast of *Essex*, and preserved in the *Leverian Museum*. The shell, together with the *Amphitrite* that inhabits it, were for the first time described in the former part of this work. The examination of such a specimen as the above in its native element, with all its beautiful congregated inhabitants extending their numerous ciliated arms in radiant order, would have been a spectacle of more than common attraction to the philosophic eye.

# CATALOGUE OF THE SHELLS OF NORTH BRITAIN.

This catalogue of the *Testacea* of *Scotland*, principally the result of the joint researches of Mr. LASKEY and Mr. HENRY BOYS communicated to the author, is with the highest consideration dedicated to the *Wernerian Society of Edinburgh*, in commemoration of the era of that institution, professedly formed for the development of physiology.\*

Those which are marked with a dagger are extremely rare: those with an asterisk less rare, but not common: and such as are destitute of any mark are plentiful.

## CHITON:

Marginatus	} Amongst the rocks and stones, at low water, <i>Dunbar</i> .
Lævis	
Cinereus	
Fascicularis	

## BALANUS.

Communis	} Upon the rocks, on various parts of the coast.
Balanoides	
Punctatus	
Rugosus	

\*Tintinnabulum, Shore of *Dunbar*.

Striatus	} Upon various marine bodies on all parts of the coast.

## LEPAS.

Anatifera	} Single specimens on the shore of the island of <i>Y Columbkil</i> .
Anserifera	
Pollicipes	

\*This, although by far the most copious of any hitherto given, must be considered as a very imperfect nomenclature of the shells of *North Britain*, especially of the more minute species. It is however remarkable that amongst a large parcel of sand replete with microscopic shells, with which the author was favoured by his friends from the shores of the *Frith of Forth*, only one new occurred; indeed the species were by no means so numerous as might have been expected. Much however remains to be done in the north, and much may be expected through the medium of the *Wernerian Society*.

PHOLAS.

## PHOLAS.

Dactylus, *Aberlady bay, Frith of Forth.*Crispatus  
Candidus } Dredged in *Leith*  
roads, and other  
parts of the coast.\*Striatus } In drifted wood,  
*Dunbar.*

## MYA.

\*Arenaria  
\*Suborbicularis }  
\*Feruginosa } *Dunbar.*  
†Nitens }  
†Decussata }  
\*Truncata }Inæquivalvis } *Leith roads of a su-*  
perior size.Margaritifera } *River Tay.*

## LIGULA.

Pubescens } On *Porto Bello*  
Prætenuis } sands.\*Distorta } *Dunbar.*Boysii } *Porto Bello sands.*\*Prismatica } *Belton and Porto*  
*Bello.*Compressa } Shore of *Leith.*\*Tenuis } *Musselburgh sands.*

## SOLEN.

Siliqua  
Ensis } *Dunbar, Aberlady*  
bay, and shore of  
*Leith.*\*Pellucidus } *Musselburgh and*  
*Porto Bello sands ;*  
large size.†Fragilis } *Dunbar.*  
\*Vespertinus }

Minutus }

} *Dunbar and Leith ;*  
between the roots  
of the larger *Fuci.*

## TELLINA.

\*Fervensis } *Dunbar and Leith roads:*†Squalida } *Belton sands.*  
†Læta }†Donacina } *Dunbar.*Tenuis } *Porto Bello sands.*Fabula } *Belton and Porto Bello*  
sands.Solidula }  
†Proficua } *Dunbar*  
†Carnaria }

†Striata }

Crassa } *Aberlady bay, Frith of*  
*Forth.*Radula } Dredged in *Leith roads.*\*Flexuosa } *Porto Bello sands.*†Polygona } Taken by the dredge off  
the isle of *Cramond.*Laskeyi } *Musselburgh sands and*  
other parts.

## CARDIUM.

Edule } All the sandy coasts of  
the *Frith of Forth.*\*Echinatum } Dredged in *Leith roads.*Ciliary } *Porto Bello.*†Discors } *Dunbar.*\*Nodosum } *Belton sands and Dun-*  
*bar.*\*Rubrum } *Dunbar, at the roots of*  
*Corallina Officinalis.*\*Exiguum } *Musselburgh sands.*Fasciatum } *Dunbar.*

## MACTRA.

<b>MACTRA.</b>		†Guineensis	} Dredged off <i>St. Abb's Head, Frith of Forth.</i>
Solida	<i>Aberlady bay and Leith.</i>	†Subrhomboidea	
uncata	<i>Musselburgh sands.</i>	*Auria	} <i>Frith of Forth.</i>
Subtruncata	<i>Porto Bello sands.</i>	†Dysera	
*Lutraria	} <i>Tyne and Porto Bello sands.</i>	*Compressa	
*Stultorum		} <i>Musselburgh sands, small size.</i>	
<b>DONAX.</b>		<b>CHAMA.</b>	
Trunculus	<i>Porto Bello.</i>	†Cor	} <i>St. Abb's Head and Y-Columb kil.</i>
†Castanea	} <i>Dunbar.</i>	<b>ARCA.</b>	
†Plebeia			†Fusca
<b>VENUS.</b>		†Noæ	
†Paphia	} <i>Belton sands, and other parts.</i>	†Minuta	
†Verrucosa		} <i>Dunbar.</i>	Nucleus
†Orbiculata			†Tenuis
Striatula	} <i>Dunbar and Leith roads and Sound of Mull.</i>	†Rostrata	} <i>Dredged near St. Abb's Head.</i>
Islandica		} <i>Aberlady bay and Leith roads.</i>	
*Decussata	} <i>Musselburgh sands, small.</i>		*Maximus
Exoleta		} <i>Porto Bello sands.</i>	Opercularis
Undata			*Pusio
†Substriata	<i>Isle of May.</i>	*Obsoletus	} <i>Dunbar and Belton sands.</i>
Ovata	} <i>Dunbar.</i>	†Glaber	
†Scotica			
†Danmonia			<b>OSTREA.</b>
Pullastra	} <i>Leith roads and Dunbar.</i>	Edulis	} <i>Leith roads and Porto Bello.</i>
Perforans			
†Reflexa	} <i>Dredged off the coast of Dunbar.</i>	<b>ANOMIA.</b>	
†Laminosa			

## ANOMIA.

Ephippium }  
 Striata } *Frith of Forth.*  
 \*Aculeata }  
 \*Cymbiformis }

## MYTILUS.

Edulis } On all parts together  
 with the incurvated  
 variety.  
 Pellucidus } *Leith roads.*  
 Modiolus } *Dunbar and Leith roads.*  
 Rugosus } *Dunbar, in the roots of*  
 Præcisus } *Fucus digitatus.*  
 Discors } *Dunbar and Leith*  
 sands, and in the roots  
 of the larger *Fuci.*  
 Discrepans } Dredged in the *Erith*  
 of *Forth* of a very su-  
 perior size.  
 †Ungulinus } *Aberlady bay.*  
 †Plicatus } *Isle of Sky.*

## PINNA.

\*Ingens } *Barra, one of the Wes-*  
 tern islands.

## NAUTILUS.

\*Beccarii }  
 \*B. perversus } *Porto Bello sands.*  
 †Linearis. }

## CYPRÆA.

Europæa } *Dunbar and Leith,*  
 with the spotless and  
 smooth varieties.

## BULLA.

†Ampulla }  
 \*Aperta } *Dunbar.*  
 Catena }  
 †Flexilis }  
 \*Patula } *Tyne and Porto Bello*  
 sands.  
 Haliotoidea } *Porto Bello sands.*  
 †Cylindræa } *Tyne sands.*  
 Truncata } *Dunbar and other parts.*  
 †Obtusa } *Dunbar, the latter very*  
 †Hydatis } small.

## VOLUTA.

\*Tornatilis } *Dunbar and Tyne sands.*  
 \*Catenata }  
 \*Denticulata }  
 †Bidentata } *Dunbar.*  
 †Hyalina }  
 †Alba }  
 †Heteroclita }

## BUCCINUM.

Undatum } *Dunbar, Leith roads,*  
 Lapillus } and most other parts.  
 Macula }  
 Reticulatum } *Dunbar, the smaller va-*  
 riety plentiful, the other  
 scarce.  
 †Bilineatum }  
 †Minimum } *Dunbar.*  
 †Terrestre }

## STROMBUS.

†Pes Pelecani } Dredged in *Leith roads.*  
 \*Turboformis }

\*Turboformis } On the shore of the isle  
 \*Costatus } of *Nuns*.

## MUREX.

\*Antiquus } *Aberlady* bay and *Leith*  
 } roads.

†Carinatus *Dunbar*.

†Purpureus Dredged in *Leith* roads.

Linearis }  
 †Muricatus } *Dunbar*.

†Sinuosus }

Turricula } *Dunbar* and *Belton*  
 \*Rufus } sands.

\*Costatus }  
 †Gyrinus } *Dunbar*.  
 \*Gracilis }

Nebula }  
 \*Septangularis }

\*Tubercularis } *Leith*, and white var.  
 \*Adversus } of the former.

\*Reticulatus } Coasts of the Western  
 } Highlands.

†Fuscatus *Isle of Jura*.

Bamffius } *Dunbar*, and larger spe-  
 } cimens in *Leith* roads.

†Accinctus }  
 \*Erinaceus } *Frith of Forth*.

†Subulatus *Sound of Mull*.

†Proximus *Tynningham* sands

## TROCHIUS.

†Crassus *Dunbar*.

Cinerarius On all parts of the coast.

Umbilicatus } On many parts of the  
 } coast, but not plentiful.

†Tumidus }

} Taken from the rejec-  
 } tamenta of a boat at  
 } *Newhaven*.

## TURBO.

Terebra } *Leith* and *Porto Bello*  
 } sands.

\*Clathrus }  
 †Clathratulus } *Dunbar*.  
 †Elegantissimus }

Littoreus }  
 Rudis } All the rocky shores.

Canalis }  
 Parvus } *Dunbar*.  
 Costatus }

\*Bryereus }  
 Interruptus } *Belton* sands

\*Subumbilicatus }  
 Ulvæ } *Dunbar*.  
 \*Cingillus }

\*Subtruncatus }  
 \*Truncatus }

Jugosus } *Rocks Dunbar* and  
 } *Isle of May*.  
 \*Crassior *Dunbar*.

Punctura }  
 †Disjunctus } *Belton* sands.

†Cimex }  
 \*Semicostatus } *Dunbar* sands.  
 Unifasciatus }

†Calcar } *Jona*, one of the Wes-  
 } tern isles.

\*Unidentatus }  
 Ruber } *Dunbar*.

†Calathiscus

†Calathiscus †Simillimus	} Island of <i>Jura</i> .
†Juniperi	
†Tridens	} Upon a hill near <i>Dunbar</i> .
Perversus	} <i>Carlisle park</i> .
	} <i>Arthur's Seat</i> , near <i>Edinburgh</i> .

## HELIX.

Putris	<i>Dunbar</i> .
Lubrica	<i>Carlisle park</i> near <i>Leith</i> .
*Obscura *Polita *Subulata Lacuna	} <i>Dunbar</i> , and the banded variety of the last, common.
*Lævigata	
*Labiosa	
*Decussata	
*Fusca	<i>Porto Bello</i> sands.
Aspersa Nemoralis	} Near <i>Dunbar</i> , with the ribbed variety.
*Contorta	
*Alba	<i>Porto Bello</i> sands.
	<i>Musselburgh</i> .
	} In many parts common.
	<i>Leith</i> .
	<i>Dunbar</i> .

## NERITA.

Littoralis	All the coasts.
Pallidula	<i>Dunbar</i> .
Glaucina	} <i>Porto Bello</i> and <i>Dunbar</i> .
†Rufa †Nitida	} <i>Dunbar</i> .
†Tuberosissima	
	<i>Frith of Forth</i> .

## HALIOTIS.

†Tuberculata *Leith* sands.

## PATELLA.

Vulgata	On all the coasts.	
Cærulea Pellucida Parva	} <i>Dunbar</i> .	
†Intorta		<i>Frith of Forth</i> .
†Antiquata †Militaris Fissura		} <i>Dunbar</i> .
Ungarica	} <i>Dunbar</i> , not uncommon but small.	
*Chinensis	<i>Dunbar</i> , very small.	
Fluviatilis	<i>Dunbar</i> .	

## DENTALIUM.


*Entalis	<i>Leith</i> roads.
†Glabrum	<i>Dunbar</i> .

## SERPULA.

Spirorbis Spirillum Granulata	} <i>Dunbar</i> , and other parts.	
Lucida Tubularia Triquetra		} <i>Dunbar</i> .
Vermicularis		

## VERMICULUM.

Subrotundum †Lacteum †Marginatum	} <i>Dunbar</i> .
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N. B. The number of the page refers to the original work, except where *Sup.* is placed against it.

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## ERRATA.

Page iv. line 15, for *its*, read *their*  
 v. l. 20, developement, r. *development*  
 6, l. 7, *Gmel. Lyst.* r. *Gmel. Syst.*  
 11, l. 7, circumambiant, r. *circumambient*  
 13, l. 1, gellatinous, r. *gelatinous*  
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 14, l. 1, epedermis, r. *epidermis*  
 23, l. 4, *Macta*, r. *Mactra*  
 31, l. 4, from more to science in a parenthesis  
 46, l. 15, inviolable, r. *invariable*  
 61, l. 17, cinerous, r. *cinereous*  
 78, l. 1, enables, r. *enable*  
 88, l. 8, shell, r. *shells*  
 92, l. 4, *inequivalcis*, r. *inæquivalcis*

Page 96, l. 4 & 5, *Bulaoïdes*, r. *Bullaoides*  
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 103, l. 26, indiginous, r. *indigenous*  
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 115, margin, Antiguus, r. *Antiquus*  
 135, l. 5. ought be, r. *ought to be*  
 145, l. 16, *glahella*, r. *glabella*  
 153, l. 19, observeable, r. *observable*  
 155, l. 4, FABRIICUS, r. *FABRICIUS*  
 161, l. 22, naturalists, r. *naturalist*  
 174, *Mactra uncata*, r. *Truncata*  
 176, *Turbo Interruptus*, r. *Interruptus*

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7



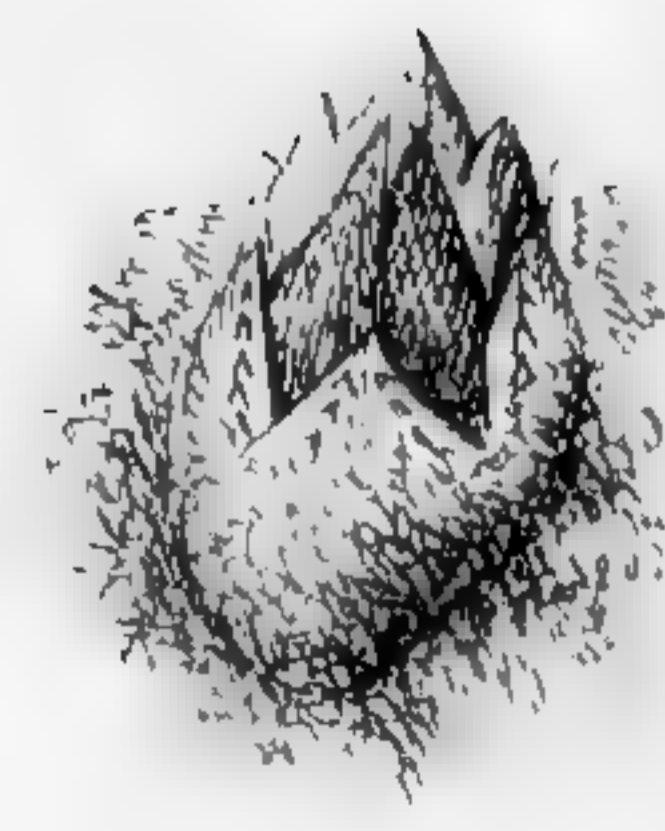
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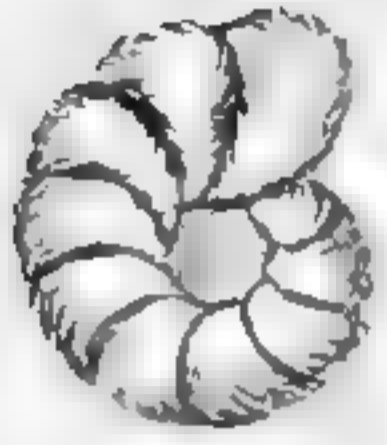


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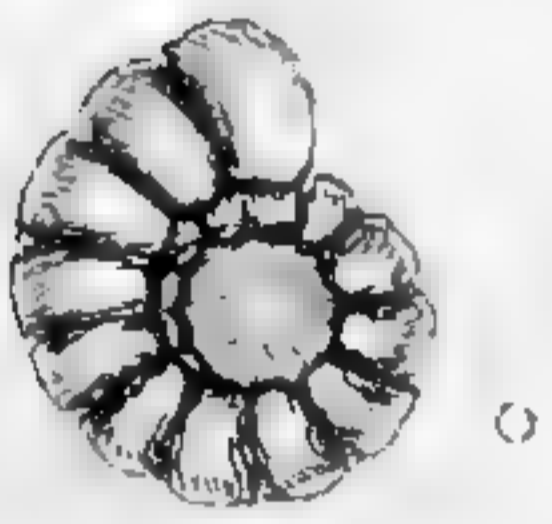




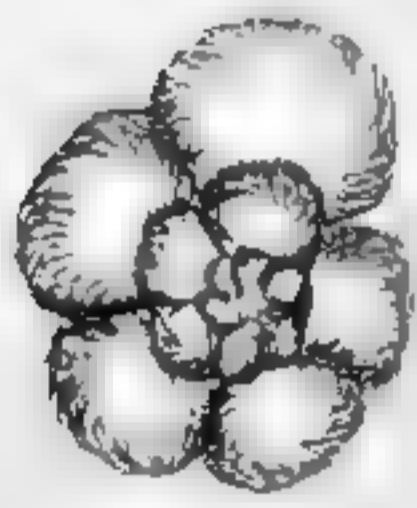




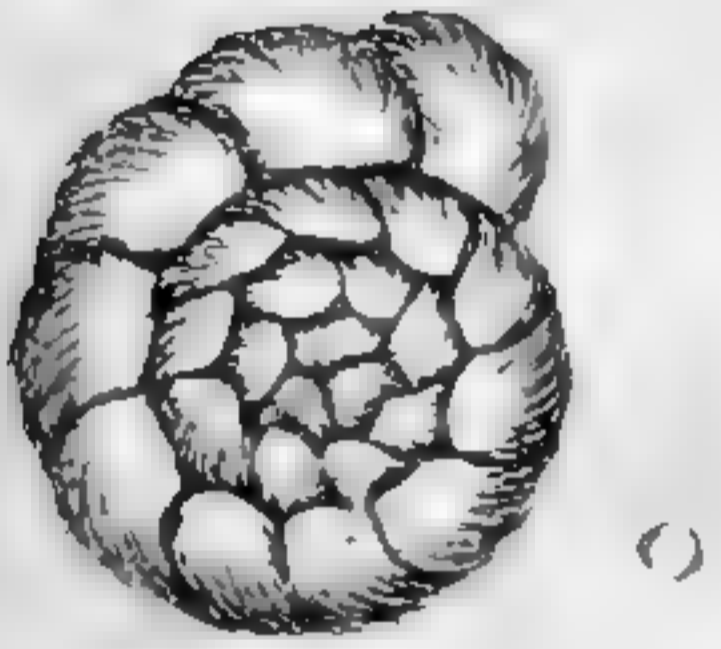
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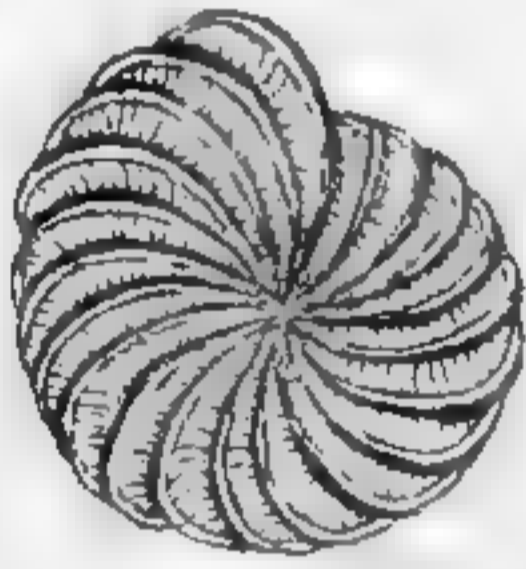
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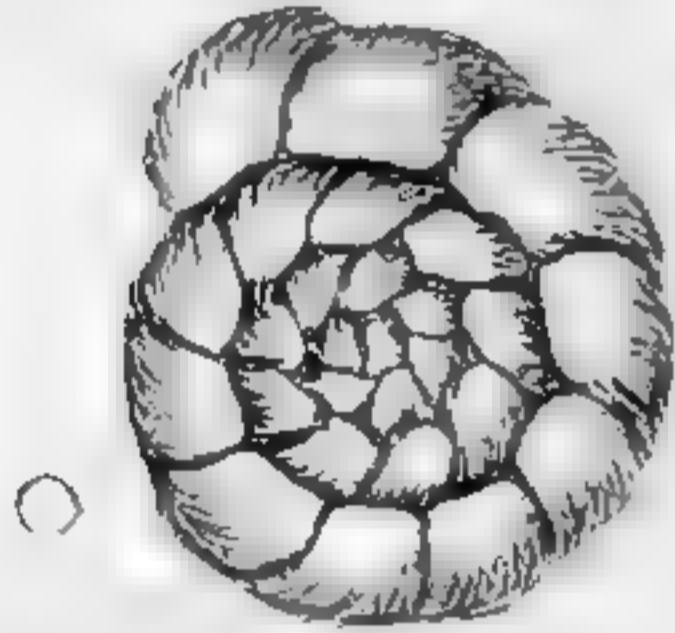
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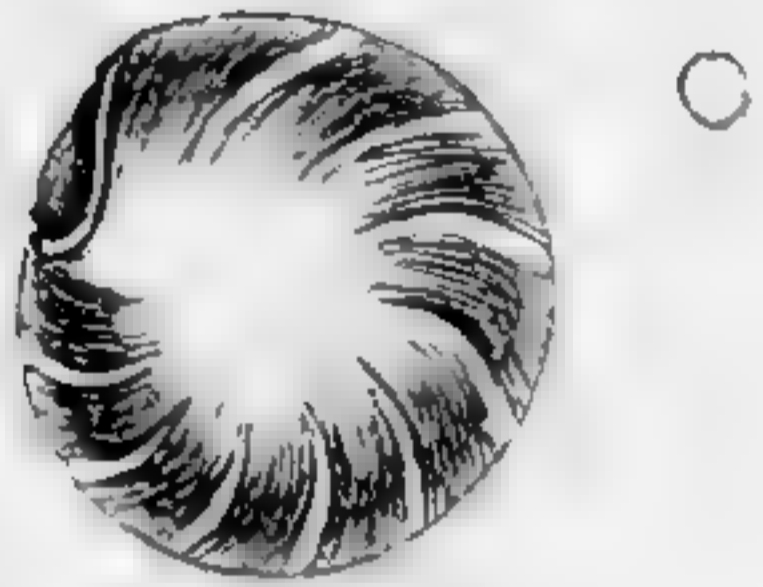
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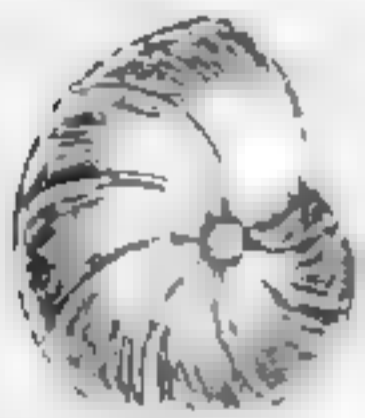
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*C. D.*



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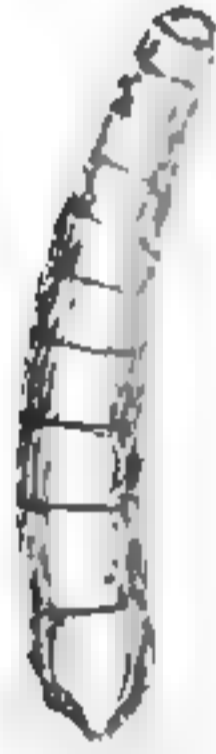
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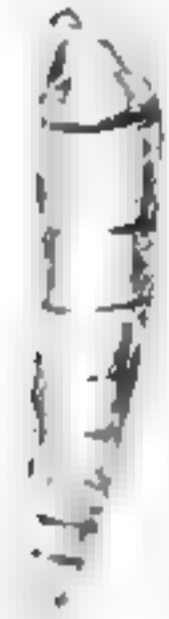
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A



7



C.D



20

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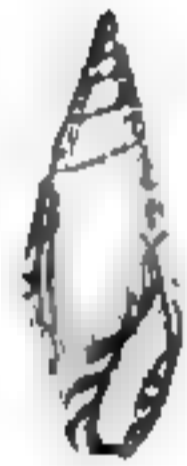
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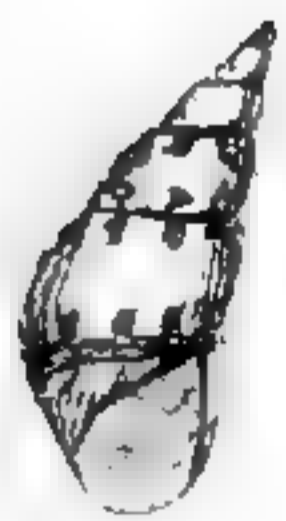
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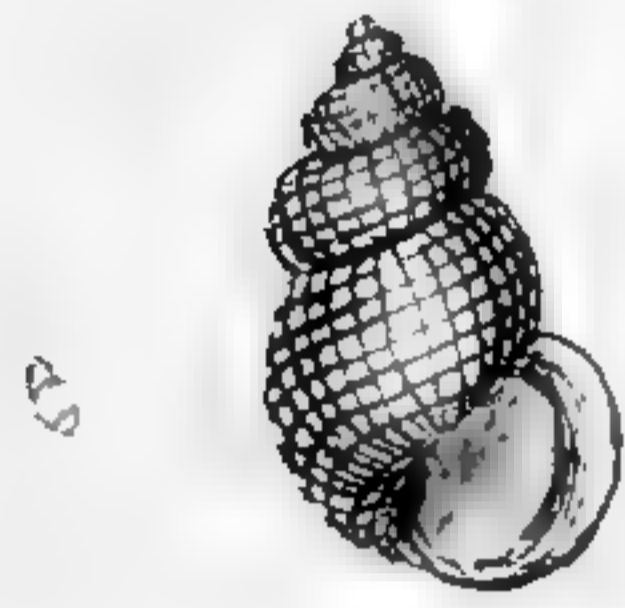


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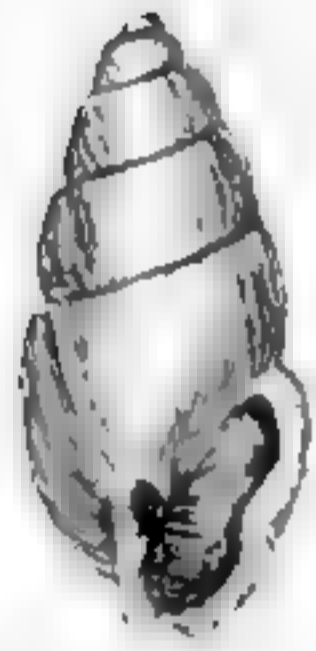




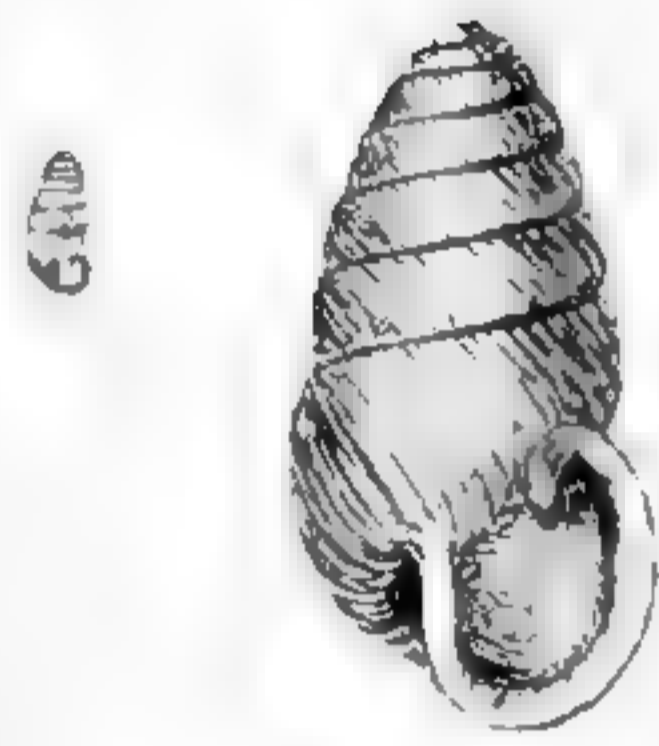
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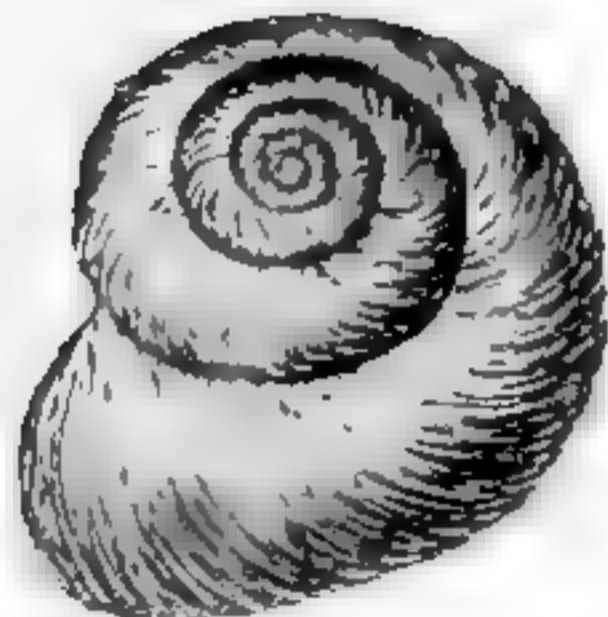
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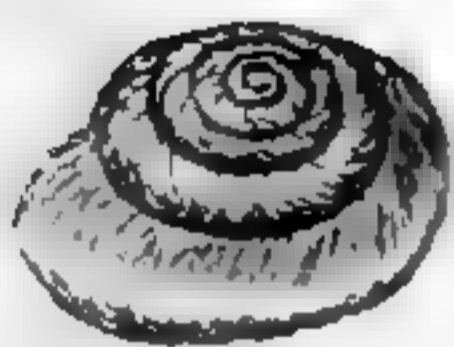
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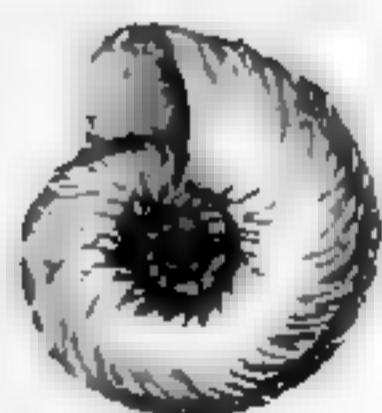


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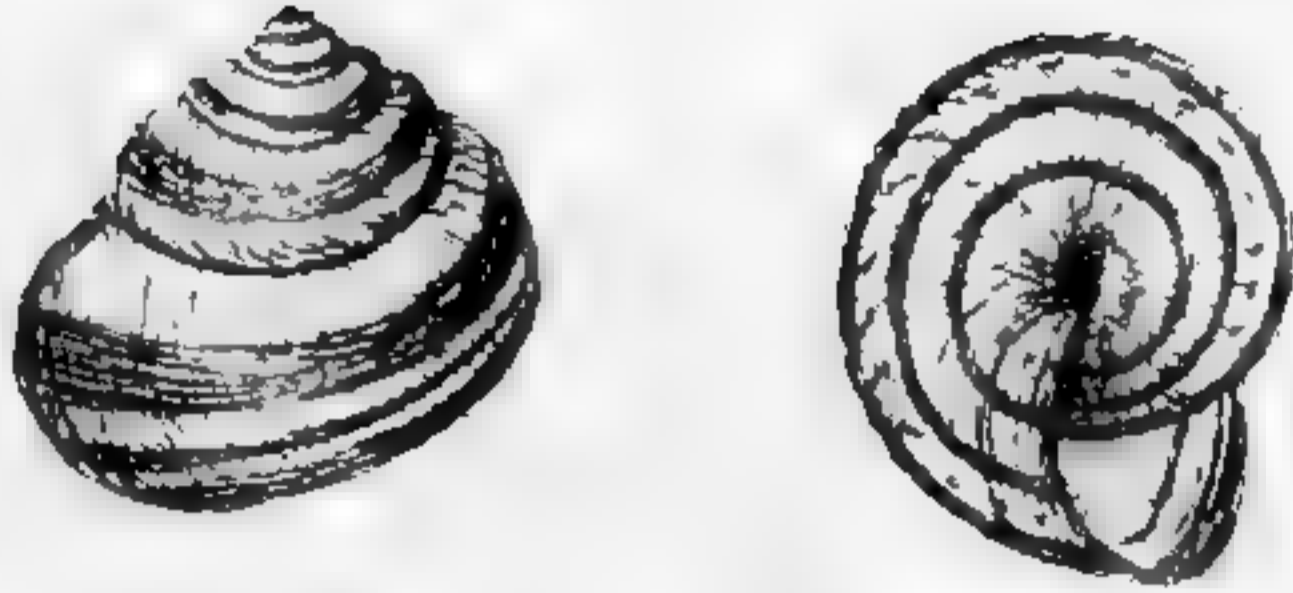
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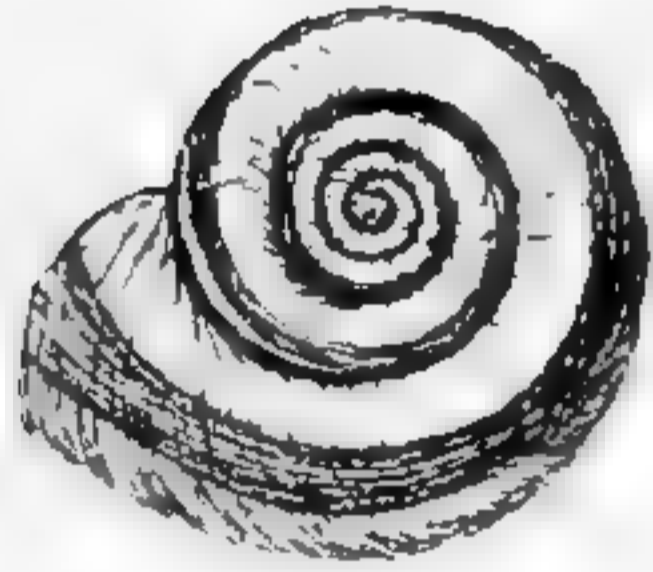
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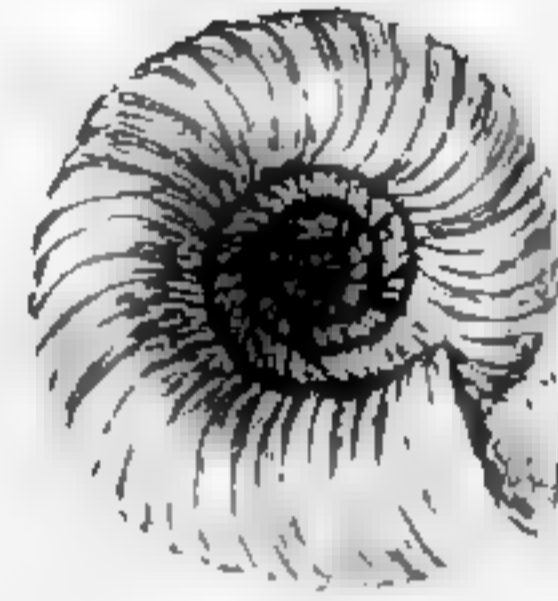
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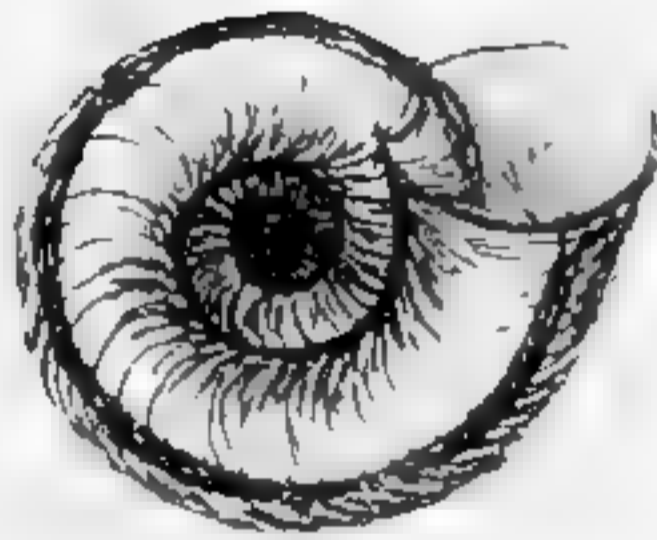
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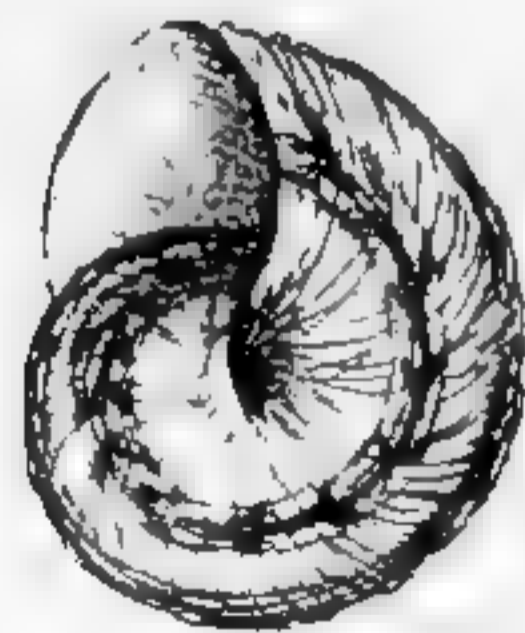
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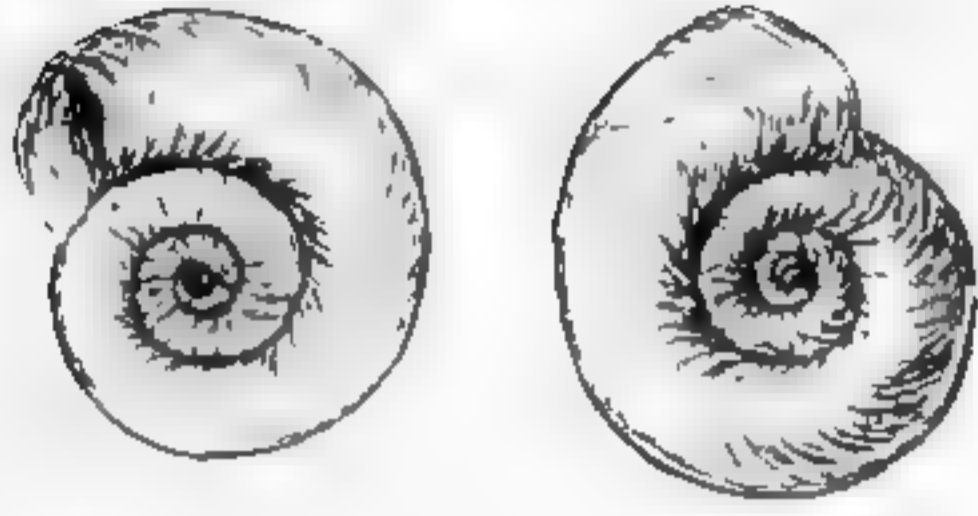
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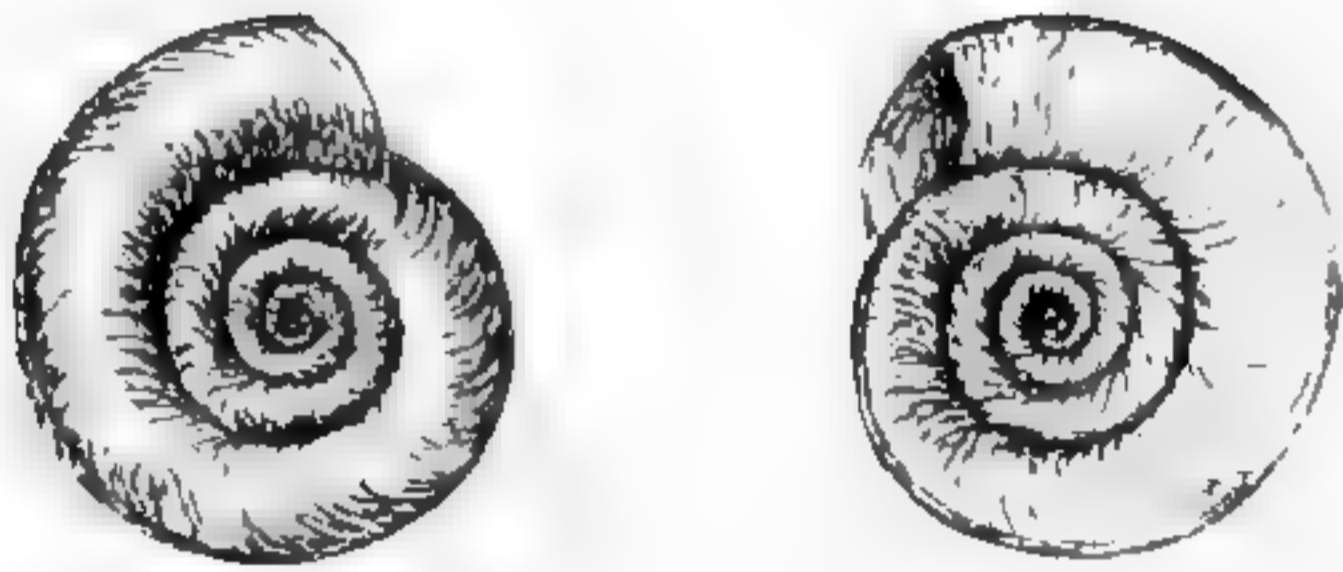


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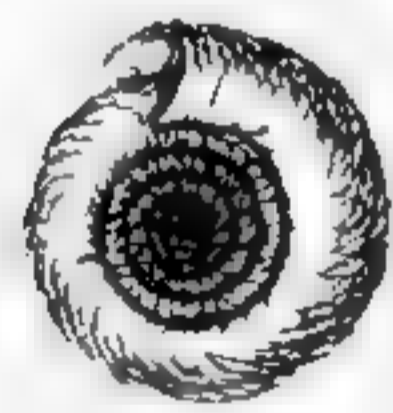


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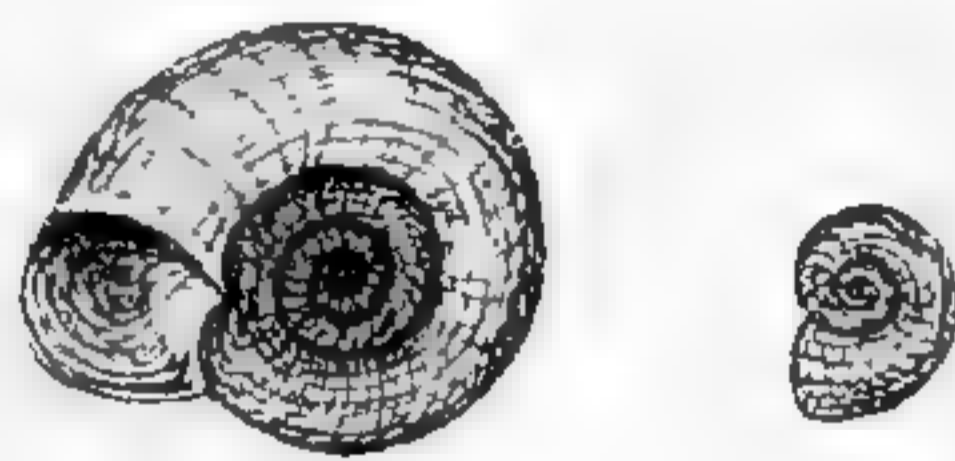
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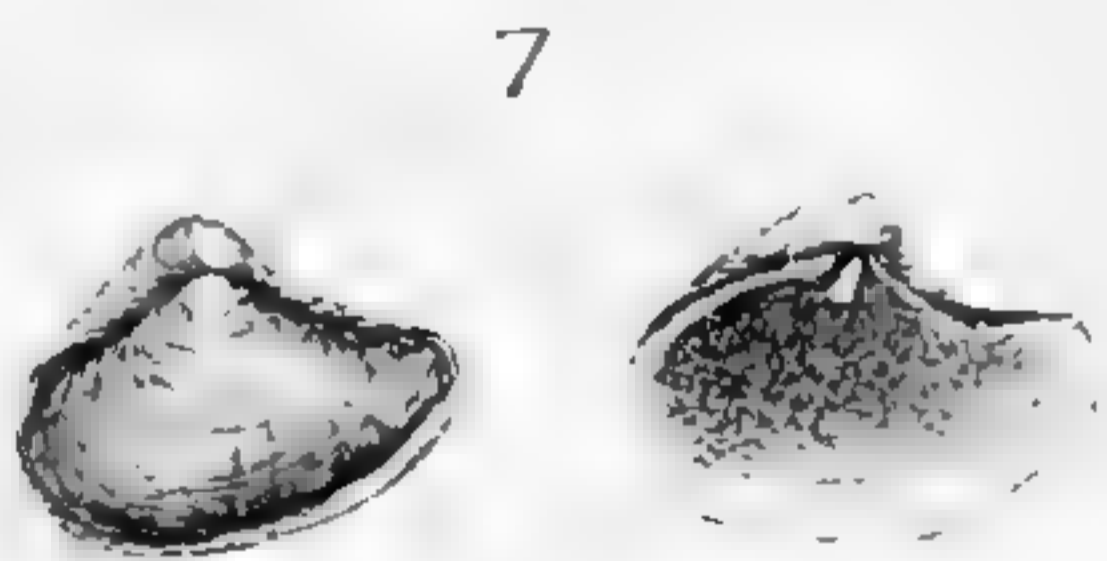
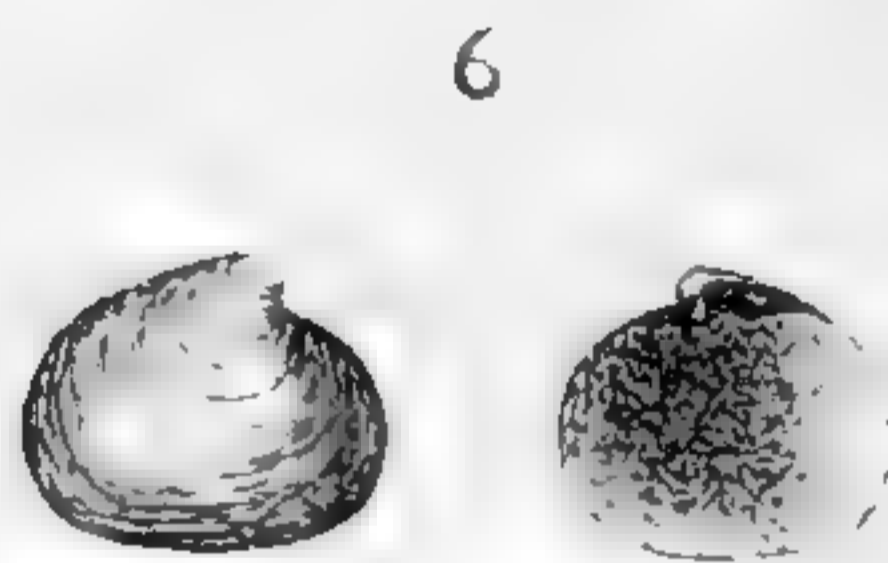
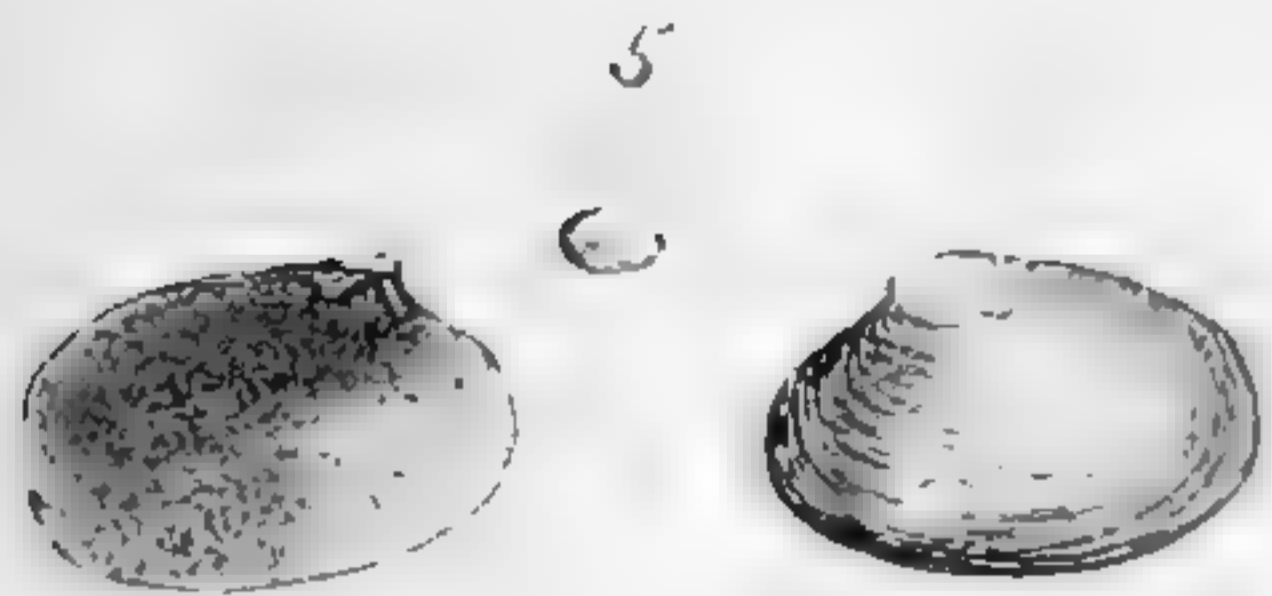
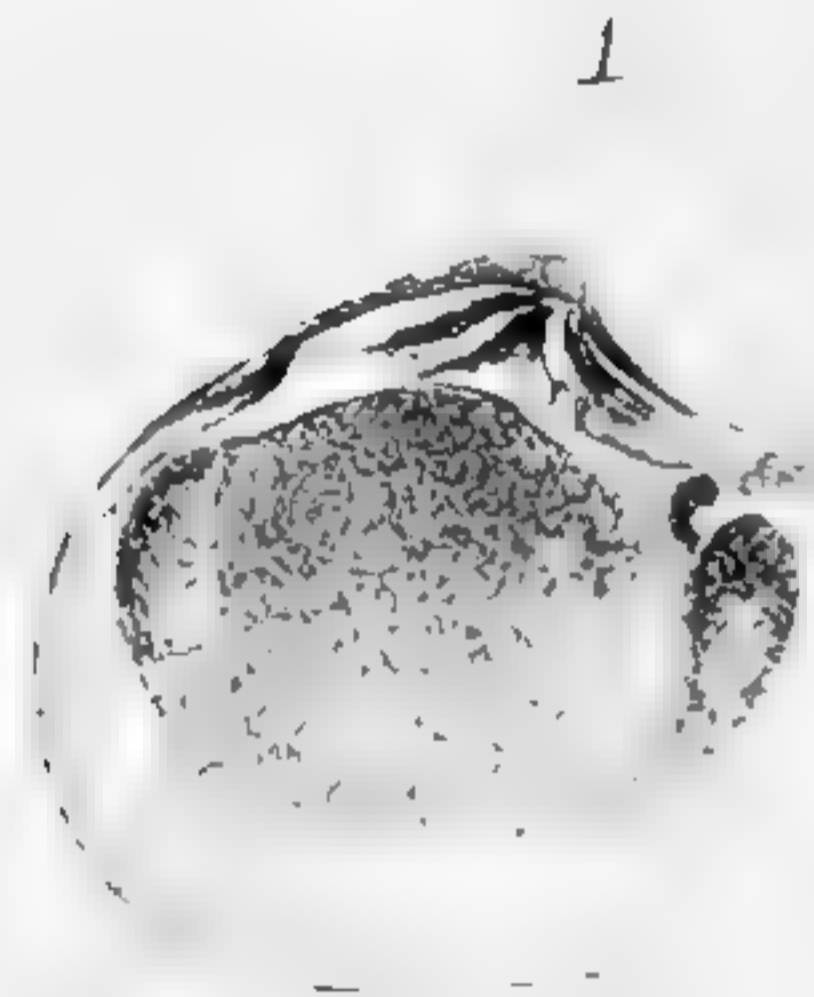
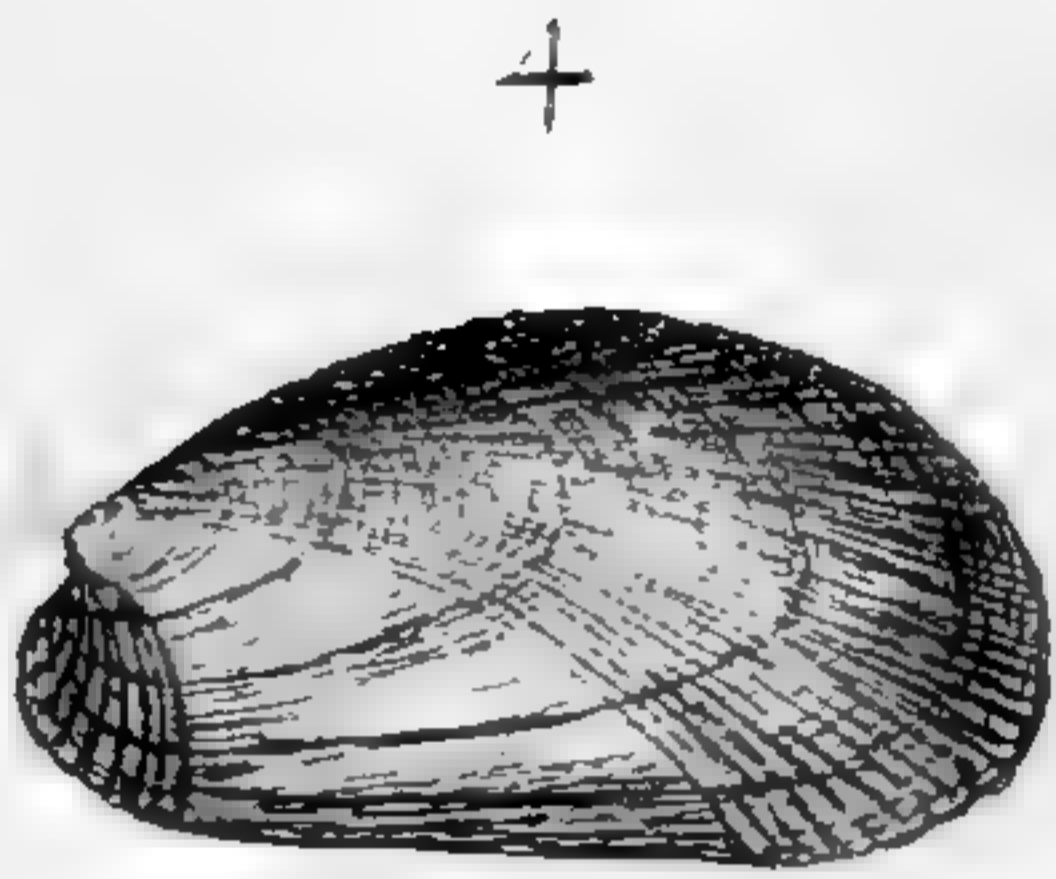
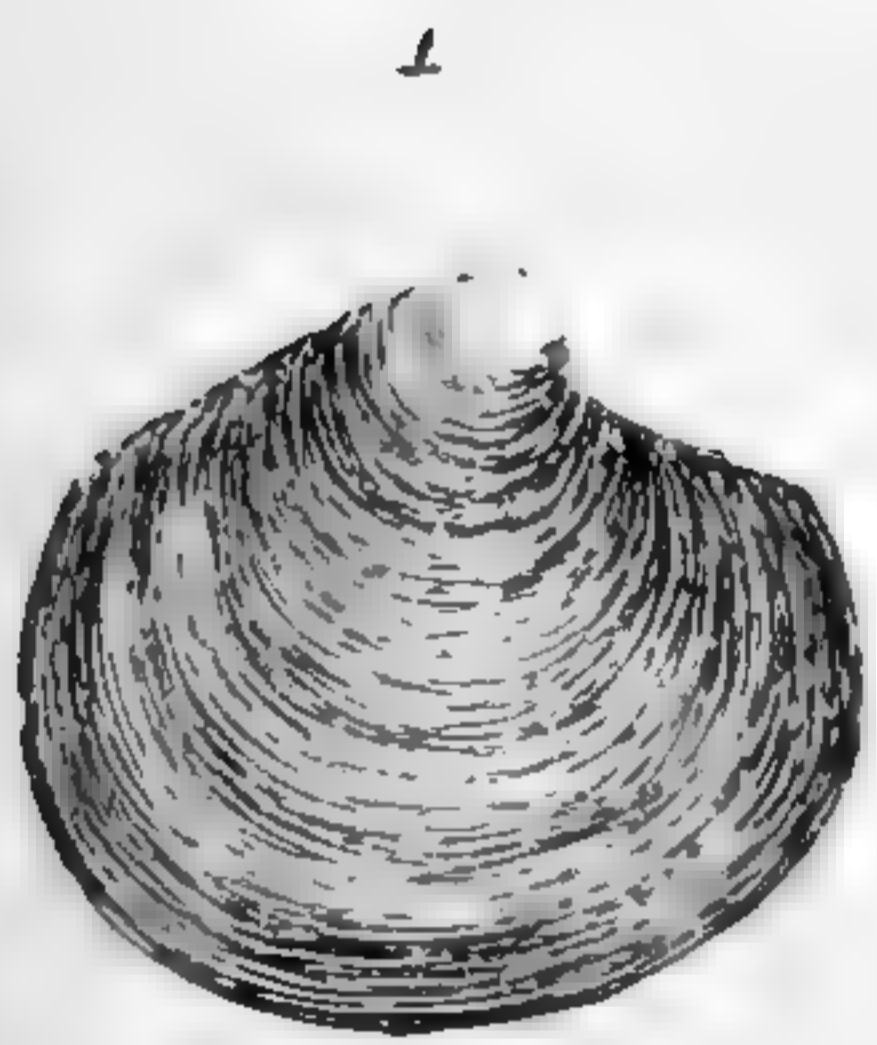
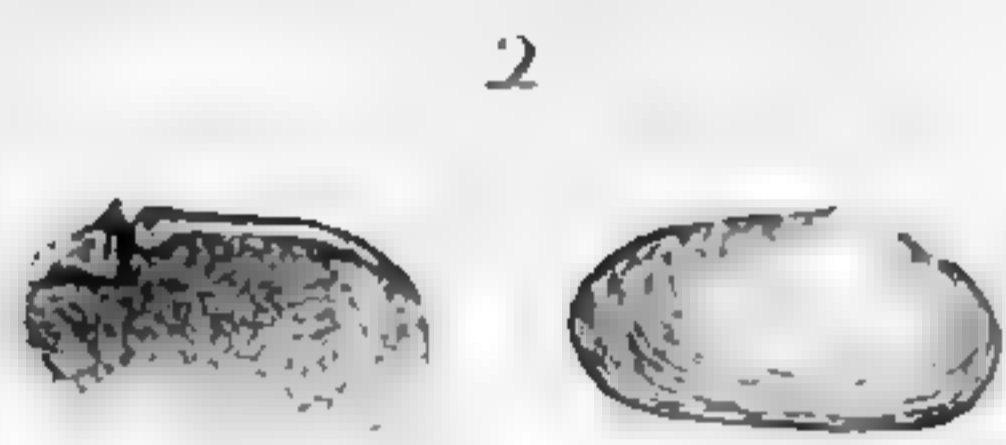
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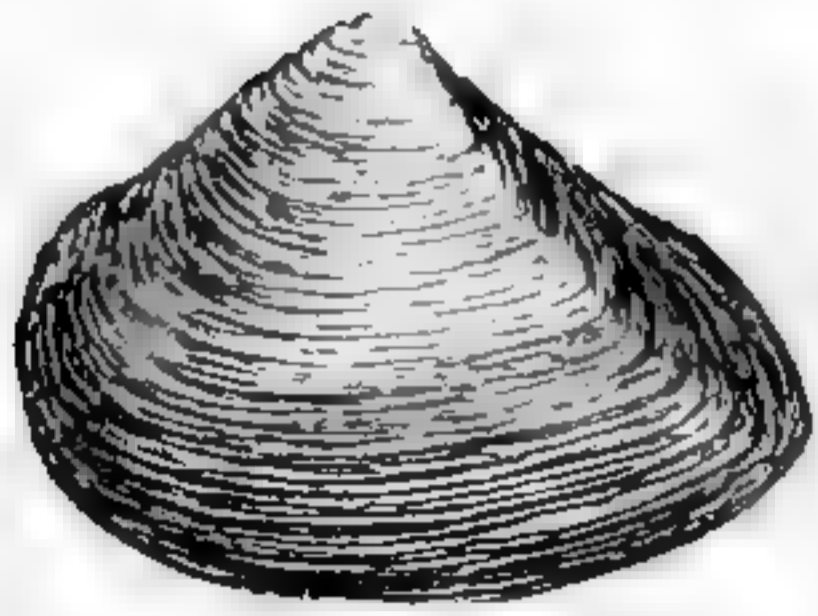




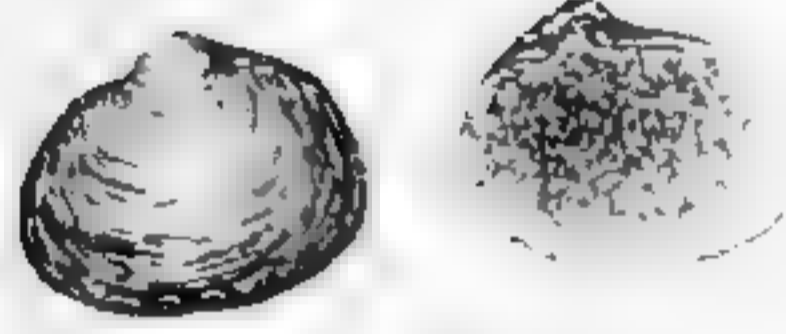


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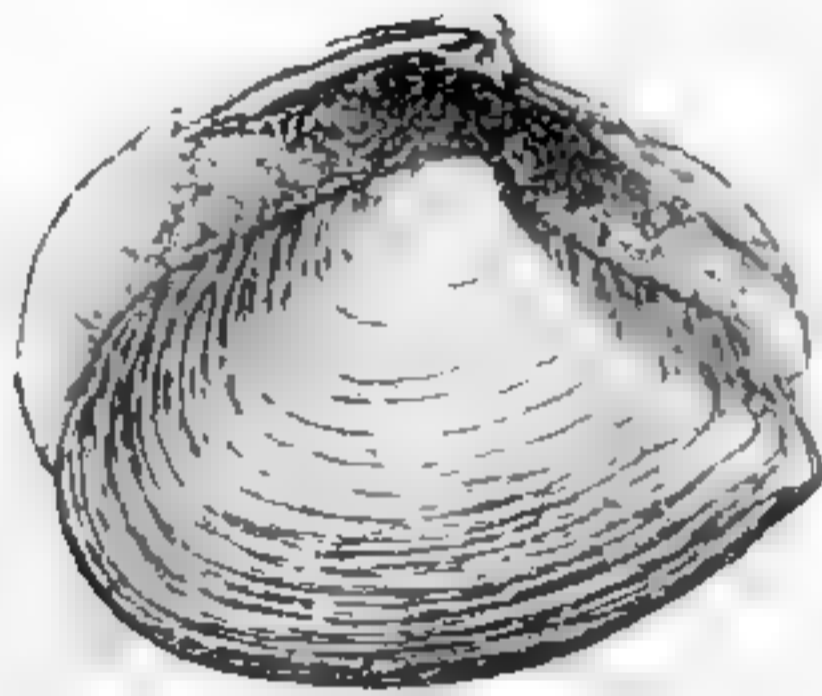


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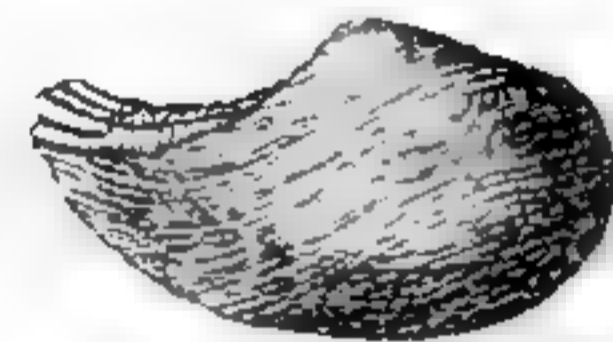
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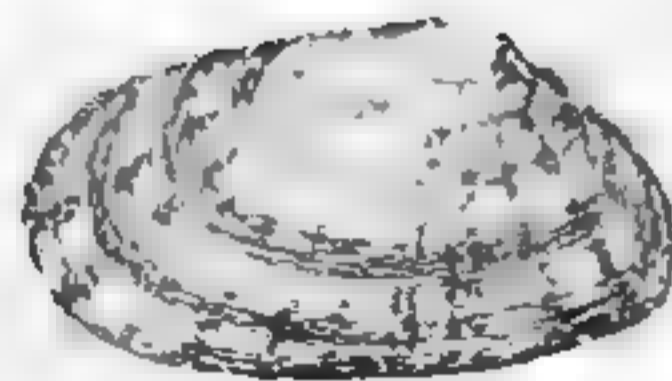
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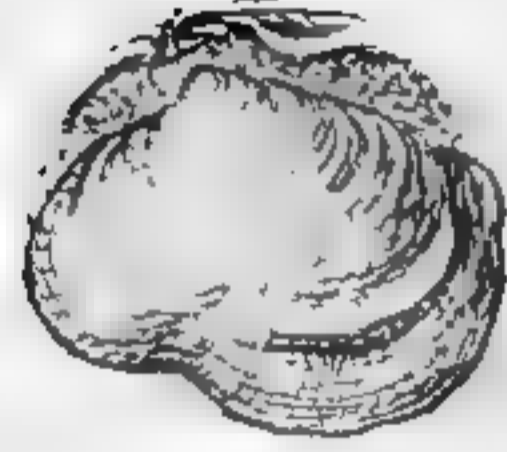
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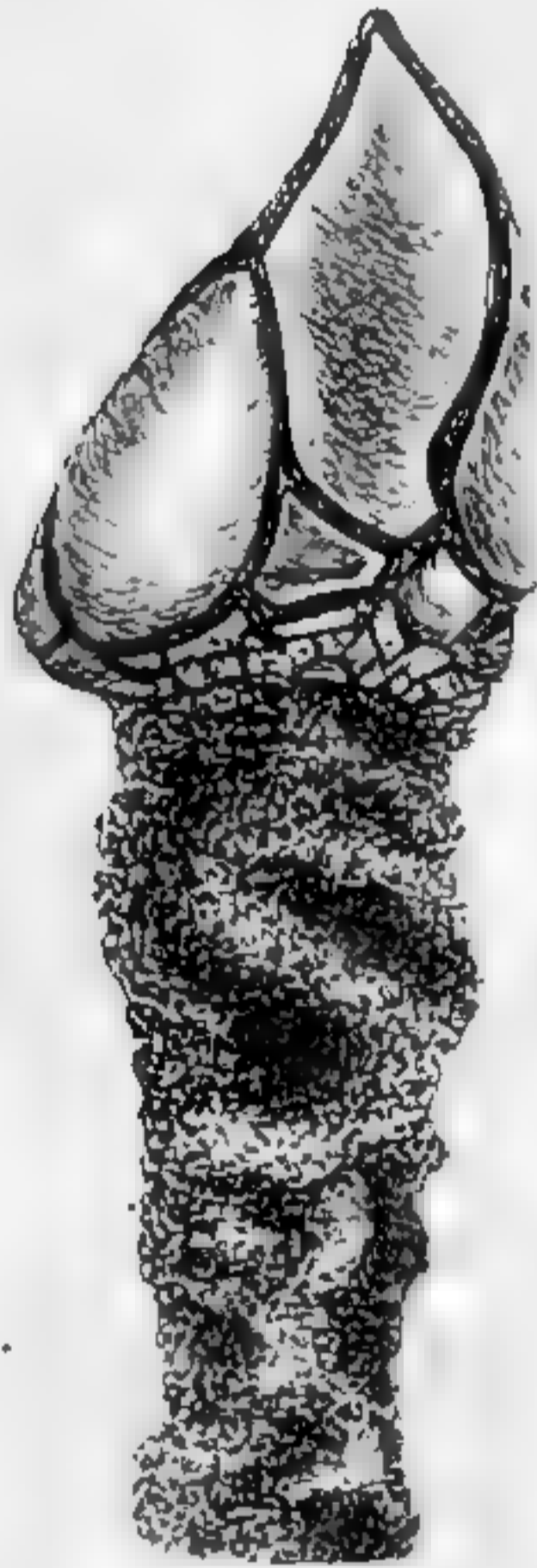
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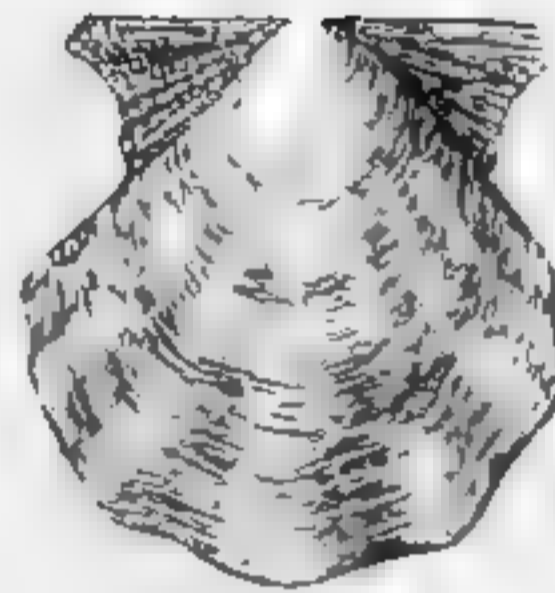
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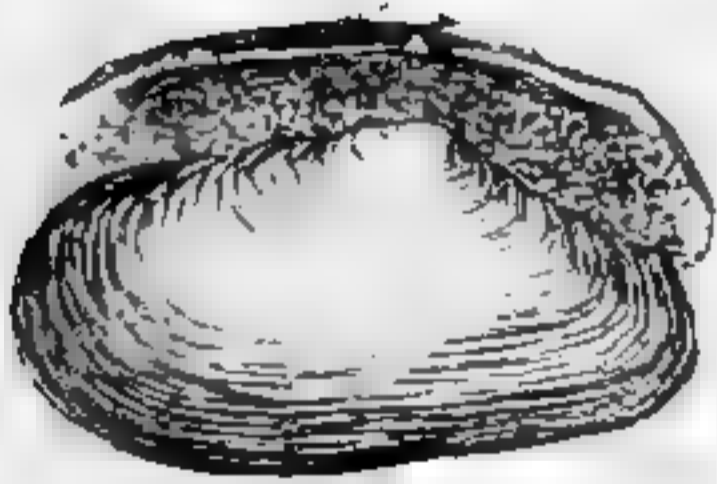
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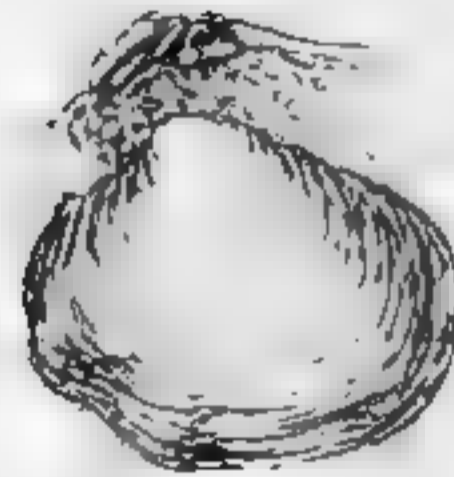
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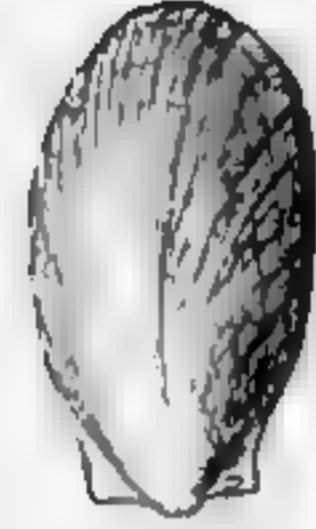




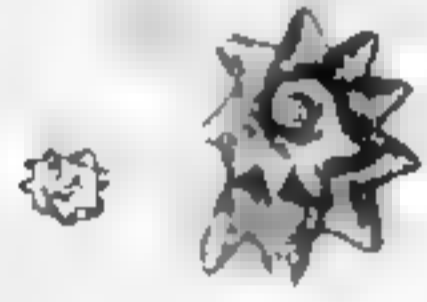
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*Elya B*

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*Pl. D.*













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