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TESTACEA BRITANNICA

OR

Natural History

OF

BRITISH SHELLS,

MARINE, LAND, and FRESH-WATER,

including the most minute: systematically arranged and

EMBELLISHED with FIGURES,

BY

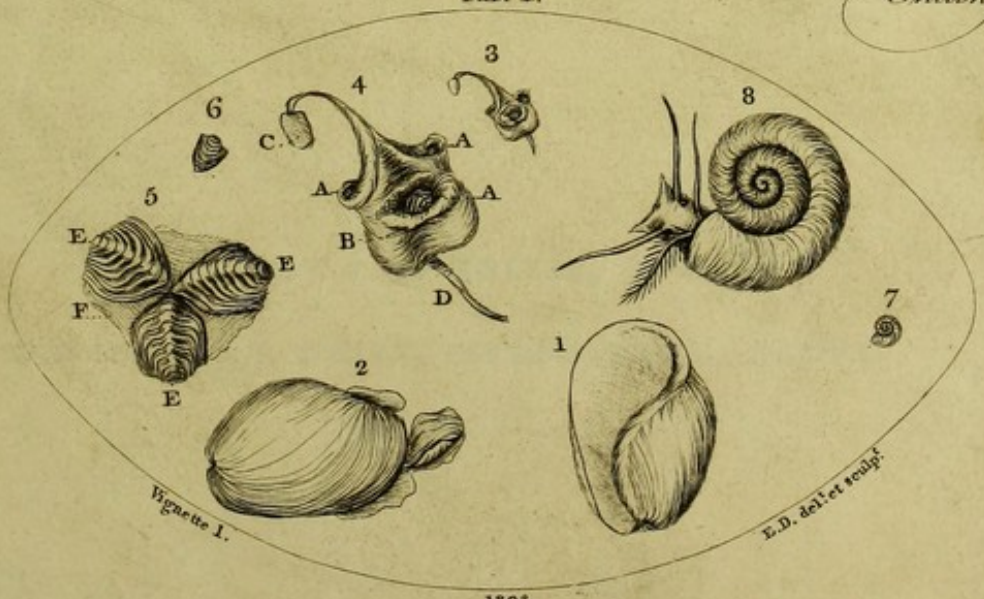
GEORGE MONTAGU. F.L.S.

CORK INSTITUTE

Each shell, each crawling insect holds a rank
Important in the plan of Him, who framed
This scale of beings; holds a rank, which lost
Would break the chain, and leave behind a gap
Which nature's self would rue.

Stillingfleet.

Part 1.



1803.

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TESTACEA BRITANNICA;

OR,

BRITISH SHELLS.

PART I.

PRINTED BY J. S. HOLLIS, ROMSEY:

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

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INTRODUCTION.

AS natural hiſtory has, within the laſt half century, occupied the attention and pens of the ableſt philoſophers of the more enlightened parts of the globe, there needs no apology for the following ſheets; ſince the days of darkneſs are now paſt, when the reſearches of the naturaliſt were conſidered as trivial and unintereſting.

In the preſent age, it is acknowledged, that every link in the great chain of nature is important, the ſtudy of which may tend not only to the comforts and luxuries of life, but to the love, adoration, and, admiration of that being, who alone was capable of forming the whole.

When the great LINNÆUS firſt began his ſyſtem of nature, he did not conſider conchology as worthy his notice, as ſhells are only the covering or exuviæ of animals; but as their extreme beauty, and variety, naturally attracted attention, and their durability enabled

them to be preſerved without trouble, no branch of natural hiſtory has been more ſought after.

If it were poſſible to add to the deſcription of each ſhell, that of the hiſtory of the animal inhabitant, it would, moſt undoubtedly, have been of great importance with reſpect to their arrangement: ſuch indeed has been partially attempted, but if we conſider the difficulty of obtaining the greater proportion of ſhells in a recent, or living ſtate, we ſhall at once perceive the impoſſibility of claſſing them by the animal.

Great as the difficulty may be, to define the numerous ſpecies according to the Linnæan, or any other method, by the order, ſituation, and number of teeth, and formation of the hinges, in bivalves; and the ſtructure of the mouth, or aperture, in univalves; yet we believe it is leſs perplexing, than it would be by the animal itſelf, from the impoſſibility of inveſtigating by diſſection, the anatomical parts of the more minute ſpecies: ſo that upon the whole, it muſt be confeſſed, though arbitrary, the only, method of throwing ſhells into diviſions or genera is, by their form and ſtructure.

Various have been the attempts of different authors with regard to ſyſtematic arrangement, but we do not think

think they have improved upon the Linnæan plan, or in the leaſt elucidated the ſubject: it muſt, however, be confeſſed, that ſome of the generic characters of that great naturaliſt, are not ſufficient diſtinctions, though we admit, it would perhaps be difficult to alter them for the better: and as to the animals, that inhabit the ſame genus of ſhells, being all the ſame, as has been generally ſuppoſed, we may venture to affirm, that ſimilar ſhells are ſometimes inhabited by very different animals; and that few of the Linnæan genera of teſtacea, are wholly inhabited by the ſame kind of animal. On this ſubject, however, much remains to be done, being as yet in conſiderable obſcurity.

Some new genera might probably be formed with advantage, as a vaſt variety of ſhells have been diſcovered ſince the laſt edition of the Syſtema Naturæ, which were wholly unknown to LINNÆUS; and amongſt them many productions of our own coaſts, which do not ſtrictly belong to any of the Linnæan genera. We have, however, pretty ſtrictly adhered to that arrangement, except in a few inſtances.

The genus Lepas, we have divided into two; after the plan of Doctor PULTENEY, as not poſſeſſing any ſimilitude, except in that of the animal inhabitants.

Thoſe

Thoſe of the ſeſſile kind, are termed Balanus; while the pedunculated are continued under their original title. In the Oſtrea, thoſe which are aurited, are ſeparated under the generic denomination of Pecten; and we have alſo added a new genus next to the Serpula, for ſuch as bear ſome affinity to that tribe, but do not come under the Linnæan characters of the genus, being independent, and not affixed by the baſe to other bodies; which we have called Vermiculum. Theſe laſt, indeed, were almoſt wholly unknown to LINNÆUS, and are entirely of the more minute kind.

In the ſpecies, as far as were known to that author, we have alſo retained his trivial names, wherever they could be clearly identified, except in a few inſtances, where thoſe of ſome engliſh authors were adopted, as better known to the britiſh conchologiſt; or where we had occaſion to place them in different genera.

It is not our intention to trace the hiſtory of conchology from the earlieſt writers on the ſubject, as we have chiefly quoted thoſe of more recent date, ſince that branch of philoſophy has been better underſtood.

Amongſt the foreign topical writers, MARTINI, CHEMNITZ, MULLER, SCHROETER, and GUALTIERI ſtand

ſtand high in reputation, to whom we have referred in general; eſpecially the copious works of the two former, whoſe numerous figures have, by the aid of GMELIN, enabled us to aſcertain many of the Linnæan ſpecies.

Of engliſh teſtaceological authors, there are few who have treated on the ſubject at large; amongſt theſe LISTER ſtands foremoſt, and who firſt attempted a deſcription of engliſh ſhells in 1678, in his Hiſtoria Animalium Angliæ; and afterwards his Synopſis, which contains, amongſt a vaſt variety of foreign ſpecies, all his engliſh ſhells, with additions. This work was finiſhed in 1694, and the laſt edition was publiſhed at Oxford in 1770, under the inſpection of Doctor HUDDESFORD.

After LISTER, PETIVER was the only one for ſome years, who added to conchology any thing new, except a few provincial hiſtorians, PLOT, MORTON, BORLASE, DALE and others. Nothing, however, appeared in the leaſt compleat on the ſubject, excluſively on engliſh ſhells, for near a century after the writings of LISTER, when Mr. PENNANT treated profeſſedly on that hiſtory, in the fourth volume of his Britiſh Zoology, publiſhed in 1777, to the no ſmall advantage of that ſcience, by the addition of a great number of well executed figures, and by far the greater part of what he deſcribed; in which he nearly adhered to the Linnæan ſyſtem.

In

In the year 1778, DA COSTA brought out his Hiſtoria Naturalis Teſtaceorum Britanniæ, or Britiſh Conchology, with copious deſcriptions, embelliſhed with 123 figures of diſtinct ſpecies, many of which were unknown to preceding writers. This author has profeſſedly entered upon a new ſyſtem, built upon his Elements of Conchology, before publiſhed; and it is to be lamented, that he did not at leaſt adopt the Linnæan ſpecific, or trivial names, to which the ear of the conchologiſt has been ſo long familiarized: his ſynonyms, however, are copious, which facilitates the identity of each ſpecies.

At this time, no one had thought the more minute ſhells of our coaſts, of ſufficient importance to give them a thorough inveſtigation, or at leaſt to deſcribe them, although ſomething of this nature had been attempted at Rome by PLANCUS in 1760, entitled Liber de Conchis minus Notis, in Littore Ariminenſi.

To the indefatigable reſearches of Mr. BOYS of Sandwich, this taſk was reſerved, by whoſe ample aſſiſtance Mr. WALKER was made acquainted with all the microſcopic ſhells of that coaſt, which enabled him in the year 1784 to publiſh a work, entitled Teſtacea minuta rariora; in which are deſcribed 87 minute ſpecies, accompanied with figures, the moſt part of which were entirely new. This undertaking laid open an entire new field

field in britiſh teſtaceology; and thoſe who have ſince paid any attention to the ſubject muſt own, that their labours are amply repaid by the ſuperior beauty and elegance of this diminutive tribe; and it muſt be confeſſed, that the hiſtory of ſhells cannot be compleat without them. From theſe probably ſome new genera might be, with propriety, formed; and to which alone we are indebted for ſeveral ſpecies of the Nautilus genus, a deſideratum before in the britiſh Fauna.

Since this period, a catalogue and deſcription of ſhells, found in Dorſetſhire by Doctor PULTENEY, has been given in HUTCHINS's hiſtory of that county; amongſt which are many new and rare ſpecies.

Mr. DONOVAN is alſo at this time publiſhing a Hiſtory of Britiſh Shells, with elegant coloured figures, which is to be concluded in ſixty numbers, making five vols. octavo, four of which have already been laid before the public; theſe, however, have not included the more minute ſpecies.

In the Linnæan Tranſactions Mr. ADAMS has entered upon the ſubject of minute ſhells, and has given figures of ſeveral perfectly new, from the ſouth coaſt of Wales.

Much, however, remains to be done; for when we conſider the locality of the productions of nature, and the ſmall portion of our extenſive coaſts, which have been examined with a microſcopic eye, it need not be feared that the ſubject will ſoon be exhauſted, or that we have yet a knowledge of one half of the ſmaller ſpecies, which elude the reſearches of the naked eye. In order, therefore, to make the hiſtory of britiſh conchology as compleat as the nature of things would admit, a work was wanting, that would bring the whole into one view, ſyſtematically arranged.

Such a work we have been induced to undertake, by the great variety of ſhells which have fallen to our lot to diſcover, many of which have never been deſcribed as engliſh, and ſome entirely new; which, together with thoſe already known, will make near four hundred and ſeventy different ſpecies; a number far exceeding any thing hitherto on the ſubject, and more than treble thoſe deſcribed by Da Costa; and we truſt it will be received with that candour uſually beſtowed on ſo intricate, and arduous an undertaking; as our beſt endeavours have not been wanting to elucidate a ſubject, the inveſtigation of which has been productive of ſo much pleaſure and amuſement, our reſearches having been extenſive;

tenſive; not confined to the cloſet, but have drawn the hidden treaſures from their native ſites.

The deſcriptions are as conciſe as poſſible, conſiſtent with the neceſſity of giving a full and perfect idea of each ſpecies; and figures are given of ſuch only as are entirely new, or have not appeared in any engliſh work, except in ſuch caſes where it was thought requiſite for the purpoſe of compariſon.* To which, in many inſtances, is added a ſhort deſcription of the animal inhabitant, a circumſtance of no ſmall importance in aid of diſcriminating ſome nearly allied ſpecies; though of no generic uſe in conchology. An attention to this alone, could have induced us to refer, in many inſtances to MULLER.

The ſynonyms are drawn from ſome of the beſt authors, and moſt topographical writers omitted, except in a few caſes, where the objects were in obſcurity.

 Should

* As it was impoſſible to be aware of the extent of Mr. DONOVAN's cabinet, or of the ſhells he intended to figure, duplicates will unavoidably occur in a few inſtances in our work, as ſome of the plates were engraved when little more than two volumes of that publication had made its appearance. Some ſpecies alſo originally intended to have been given in this work, have been anticipated by Mr DONOVAN, and thereby we are enabled to refer to good figures to illuſtrate our intentions, without multiplying repreſentations of the ſame ſubjects.

Should the following ſheets be deemed to poſſeſs any ſmall ſhare of merit, the public are indebted to the labours of a friend, who not only undertook the engraving, but in part alſo the colouring of the figures; executed from the objects themſelves, they are a faithful repreſentation, unadorned with the gaudy, high-coloured tints, which too often miſlead.

But for this aſſiſtance, ſo neceſſary in the ſmaller ſpecies, this work might never have ſeen the light; and it is only to be regretted, that it was found too large an undertaking for the hand that gave it exiſtence, to figure all the ſhells that could have been wiſhed.

As this friend of ſcience, however, may not undeſervedly feel the ſhafts of the critical artiſt, it may be right to diſarm them, by obſerving that, the feminine hand of the engraver was ſelf taught, and claims no other merit in the execution, than what reſults from a deſire to further ſcience by a correct repreſentation of the original drawings, taken by the ſame hand; both equally the works of amuſement, not labour for emolument. Further, it was not originally intended that any but coloured figures ſhould be given, and that only to a few copies, printed on ſuperior paper; but overpowered by the deſire of particular friends, plain impreſſions are

ſuffered

ſuffered to go into the world with the inferior copies, though executed only for the purpoſe of colouring.

To the naturaliſt therefore, and not to the artiſt an appeal is made; if the repreſentations are correct outlines of the objects, the deſign is accompliſhed; and we truſt ſcience will be conſidered as having reaped more advantage from ſuch, than from highly finiſhed engravings devoid of correctneſs and character.

The ſpecies hereafter deſcribed, with a few exceptions, are in our own cabinet, and have chiefly been collected from their native places by ourſelves, or by the hands of a few friends, whoſe conchological knowledge, and ſcientific reſearches are too well known to be doubted: but under every individual, the authority of its being britiſh will be found; and when any doubts are entertained, it is particularly ſpecified.

Aware that ſome ſhells have been given as engliſh which never originated there, we have been cautious of admitting any thing, but upon the beſt authority; and where we have expreſſed doubt, we beg it may not be conſidered as arrogance, or contempt of the opinion of others, but a wiſh to develop truth: we are all liable to

err;

err, but thoſe leaſt, who ſearch for nature where nature flows.

Subjoined will be found a ſuccinct deſcription of the ſeveral animals inhabiting ſhells as recorded by LINNÆUS and others: and a ſketch of the Mullerian arrangment of univalve ſhells, by their ſeveral inhabitants. To which is added a copious alphabetical as well as ſyſtematical index.

It now only remains for us to return our ſincere thanks to ſuch friends as have aſſiſted us through this undertaking with ſpecimens, and information on the ſubject; and we take this opportunity of publicly acknowledging their favours.

Amongſt theſe, particular obligations are due to our much eſteemed friend, and able conchologiſt, the late Mr. BOYS of Sandwich, by whoſe kind aſſiſtance we have been able to aſcertain almoſt the whole of the minute ſhells found on that coaſt, as publiſhed by WALKER, with many additions entirely new.* In theſe acknowledgments

* From this patron of ſcience, we alſo received a nomenclature by Doctor SOLANDER, of many minute ſhells he had ſent to Bullſtrode for the Dutcheſs of Portland; and others received from the Doctor at the ſame time, from her Grace's cabinet in return. This has been of conſiderable ſervice to us with reſpect to ſynonyms.

ledgments we beg leave to include our thanks to Mr. HENRY BOYS, ſon to our late worthy friend, for his joint aſſiſtance.

To that able naturaliſt, the late Doctor PULTENEY of Blandford, we are indebted for many rare ſpecimens from the coaſt of Dorſetſhire, and for his information and remarks; which were not of leſs aſſiſtance to us than his Catalogue, publiſhed in HUTCHINS's hiſtory of that county, and ſeparately for the uſe of his friends.

To Mr. SWAINSON and Mr. SOWERBY of London, we beg alſo to return our acknowledgments for their aſſiſtance in ſpecimens; and moreover for the ready acceſs to their cabinets: and for ſimilar acts of kindneſs, our thanks are equally due to the Rev. THOMAS RACKETT.

The very friendly aſſiſtance given us by that promoter of ſcience, and attentive obſerver of nature, Mr. BRYER of Weymouth, and in particular, for the permiſſion of ſelecting any thing from his little cabinet of ſome of the more rare ſhells, found on that coaſt, deſerves our warmeſt thanks; as it enabled us to add ſeveral nondeſcript ſpecies to this work.

And laſt, though not leaſt, our valuable and worthy friend, Doctor LATHAM of Romſey, claims our par-

particular acknowledgments, not only for the ready acceſs to his well ſtored library on natural hiſtory; but for the very great aſſiſtance of ſuperintending the preſs, and thereby contributing not a little to the furtherance of the deſign, which otherwiſe, for want of convenience, might have continued much longer in darkneſs.

We ſhall now conclude this introduction by remarking, that in the various purſuits of natural hiſtory, our notes on ſhells indigenous to Great Britain had ſome years paſt increaſed ſo conſiderably, and ſo far exceeded any thing extant upon the ſubject, that we had begun to throw them into ſome form, with intention of giving our diſcoveries to the world on ſome future day.

At this juncture, being informed by a valuable conchological friend, that ſuch a work was undertaken by an acquaintance who would be much obliged by any aſſiſtance, we did not heſitate to relinquiſh our deſign, wiſhing the ſubject in more able hands; and moſt chearfully communicated ſuch information as was thought conducive to ſuch a hiſtory; being always ready to lend our feeble aid to the friends of ſcience. Several plates were engraved for this work, but for what reaſon the letter preſs never made its appearance is not known; it was, however, not intended to take in the minute ſpecies.

As

As ſoon, therefore, as we were informed from the beſt authority, that this ſcheme was abandoned, (which we ſhould have the more regretted, if it had been intended to include the whole britiſh teſtacea) we again took the reſolution of giving our diſcoveries to the public in a ſyſtematical arrangement, which ſhould include ſhells of every deſcription, found within the iſland of Great Britain, and its circumfluent ſeas; the reſult of which, is the following ſheets, in which no pains have been ſpared either in collecting the ſynonyma of authors, or in pointing out the miſtakes into which they may have fallen. By thus conſulting the various writers referred to, the ſynonyms are founded upon ſtrict perſonal inveſtigation, and not copied from others; a circumſtance too frequently the cauſe of unneceſſary extenſion of ſpecies, and the perplexity of ſcience.

We do not pretend to aſſert that no errors are to be found in this work, on the contrary, it would be ſurpriſing if there were not many on a ſubject ſo intricate and abſtruſe; it muſt however be recollected, that in many inſtances where individuals have been deſcribed in a very laconic manner, reference to ſuch objects can only depend on individual opinion; for we may venture to affirm, that ſcarce two conchologiſts will be found to a-

gree, as to the identity of a large portion of the Linnæan Teſtacea: in order, therefore, to obviate theſe embaraſſments, authors have too frequently been induced to follow each other. Under theſe difficulties we have endeavoured to clear the way, as well as the nature of circumſtances would admit,

Whenever we have pointed out the errors of others, it has been wholly with a view to elucidate the ſubject, without the leaſt intention of diſparagement to ſuch works; and we truſt it will be found, that none of our illuſtrative remarks carry with it invective.

We, in our turn, expect ſimilar remarks by others, who may hereafter treat on the ſubject, when time and opportunity may have encreaſed the catalogue of engliſh ſhells: till then, we hope our endeavours will be rewarded by the approbation of the ſcientific reader, (at leaſt for the good intention,) with whom it remains to determine, whether we have fallen ſhort, or not, of the general plan.

GEORGE MONTAGU.

Knowle, Sep. 1, 1803.

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GENERIC

GENERIC CHARACTERS

OF

The ſeveral Animals inhabiting Shells,

Many of which are found independent, in a true Molluſca ſtate.

SHELL, is the natural covering of many animals for the protection, ſecurity, and defence of their ſoft and delicate bodies; and which grows, and enlarges as the encreaſing bulk of the animal requires: it muſt therefore be conſidered as much a part of the animal as the covering of a crab or a tortoiſe.

The animals hitherto diſcovered to inhabit the ſhells of Great Britain, which have been thoroughly defined, and reduced to ſyſtematic arrangement are

1 Doris
2 Triton
3 Aſcidia
4 Tethys
5 Limax
6 Spio
7 Amphitrite
8 Terebella
9 Nereis?

1 DORIS.

Body creeping, oblong, and flat beneath; mouth placed below on the fore part: vent behind, uſually on the back, and ſurrounded by a fringe: feelers two or four, ſeated on the upper part of the body in front, and retractile within their proper receptacles.

The *Doris* is the inhabitant of the *Chiton:* many elegant ſpecies are molluſca.

2 TRITON.

Body oblong; mouth with an involute ſpiral proboſcis: tentacula or arms twelve, fix on each ſide, divided nearly to the baſe, the hind ones cheliferous.

The *Triton* is found to inhabit *Balanus* and *Lepas:* and one ſingle ſpecies inhabits the ſea in a molluſca ſtate.

3 ASCIDIA.

Body fixed, roundiſh, and apparently iſſuing from a ſheath: apertures two, generally placed near the upper part, one beneath the other: adhere by their baſe to rocks, ſhells, and other marine ſubſtances; are more or leſs gelatinous, and ſeem to have no other powers of motion

tion than contracting and dilating themſelves alternately, by which means they eject the water taken in, with conſiderable force.

The *Aſcidia* is rather a numerous genus: is found to inhabit *Pholas*, *Solen*, ſome of the *Mya*, *Mactra*, and probably part of other bivalve teſtacea: many ſpecies are molluſca.

It is probable this, as well as moſt other aquatic animals poſſeſſed of little or no locomotion, are androgynous; the power of ſelf-propagation moſt likely extends to all the inhabitants of multivalve and bivalve teſtacea, but to few, if any, of the univalve, except *Serpula*, or ſuch as are ſeſſile.

4 TETHYS.

Body detached, rather oblong, fleſhy, without peduncles: mouth with a terminal, cylindrical proboſcis, under an expanded membrane or lip: apertures two on the left ſide of the neck.

The *Tethys* is not found in a molluſca ſtate in the Britiſh ſeas, but is ſuppoſed to inhabit the greater part of bivalve ſhells; according to LINNÆUS, the *Tellina*, *Cardium*, *Mactra*, *Venus*, *Oſtrea*, and others; this, however, is not without exceptions in many inſtances.

5 LIMAX.

Body oblong, creeping, with a fleſhy kind of ſhield above, and a longitudinal flat diſk beneath: aperture placed on the right ſide within the ſhield: feelers four, ſituated above the mouth, with an eye at the tip of each of the larger ones.

Theſe are what have been generally conſidered as the generic characters of the *Limax*, Slug, or Snail, and ſeem to correſpond with the formation of thoſe ſpecies which are found in a molluſca ſtate; but with reſpect to the various animals which have been conſidered as belonging to this genus, for the moſt part inhabiting the turbinated univalve ſhells, we fear tōo much latitude is required to bring the whole, or even the greater part of them, into the *Limax* genus. It is well known that moſt, if not all, freſh-water, as well as moſt marine univalve ſhells, are inhabited by an animal poſſeſſed of only two feelers, or tentacula, deſtitute of eyes at their tips, but placed at their baſe, varying in ſituation in different ſubjects: in ſome alſo the tentacula are long, and ſetaceous, in others ſhort, broad and flat.* It is alſo a queſtion whether the aperture on the right ſide would take in thoſe animals which have every other character of the true *Limax*, found to inhabit the heteroſtrophe, or reverſed ſhells,† all of which have the foramen, or aperture on the left ſide.

The

* From the number and formation of the tentacula; and the relative ſituation of the eyes, MULLER has formed many new genera out of the *Linnæan Limax*.

† For a definition of this appellation, ſee page 351.

The Linnæan characters certainly take in the whole of the land ſhells we are acquainted with, except theſe, and one or two others; but beſides the difference in the number of tentacula, and ſituation of the eyes, the circumſtance of the aquatic teſtacea being inhabited by animals of different ſexes, and not hermaphrodites, as in the molluſca *Limaces*, and ſuch as inhabit moſt land ſhells, have never been thoroughly attended to. Theſe, however various, have generally been conſidered to come indiſcriminately within the *Limax* genus; as ſuch we ſhall leave them at preſent, this work being profeſſedly on ſhells, and not on their animal inhabitants, more than is ſufficient for ſpecific purpoſes.

At the end of this, we have ſubjoined a plan of MULLER's arrangement of univalve teſtacea by the animal, in order to ſhew to what great variety the Linnæan *Limax* is extended.

6 SPIO.

Body projecting from a tube, jointed, and furniſhed with dorſal fibres: peduncles rough with briſtles, and placed towards the back: feelers two, long, ſimple: eyes two, oblong.

The *Spio* inhabits *Sabella*: one or two ſpecies on our coaſts very minute, the caſes, not deſcribed under the article *Sabella*, being inviſible to the naked eye.

7 AMPHI-

7 AMPHITRITE.

Body projecting from a tube and annulate: peduncles, or feet ſmall, numerous, with lateral faſciculi, and branchiæ: feelers two, approximate, feathered: no eyes.

The *Amphitrite* inhabits ſome ſpecies of *Serpula*, and *Sabella*, or holes in rocks.

8 TEREBELLA.

Body oblong, creeping, naked, furniſhed with lateral faſcicles or tufts, and branchiæ: mouth placed before, furniſhed with lips, without teeth, and protruding a clavated proboſcis: feelers numerous, ciliated, capillary, ſeated round the mouth.

The *Terebella* inhabits many ſpecies of *Serpula*, *Dentalium*, and *Sabella*; many are deſtitute of any natural covering, but fix themſelves in holes of rocks.

9 NEREIS.

Body long, creeping, with numerous lateral peduncles, or feet on each ſide, and faſciculi: feelers ſimple, rarely none: eyes two or four, rarely none.

The

The *Nereis* is ſaid to inhabit the *Sabella;* poſſibly in ſome inſtances this may hold good, but we ſuſpect the greater part are independent in a molluſca ſtate, inhabiting the ſand and mud at the bottom of the ſea, where they form themſelves cells; and are much more active than the other three preceding ſpecies.

Beſides the animals here enumerated, there are doubtleſs many whoſe habitations are teſtaceous, which at preſent are wholly unknown: that of the *Nautilus* ſeems to be very imperfectly underſtood: it is figured in *Rumpf. Mus.* tab. 17. fig. B. but no one appears as yet to have arranged it, or even ventured to give it a name.

It is moſt probable, many of the minute ſtraight *Nautili* are inhabited by animals very different from thoſe of the convoluted kinds.

Some ſpecies of *Serpula*, eſpecially thoſe of a concamerated ſtructure, are doubtleſs inhabited by animals of a different nature from thoſe which reſide in ſhells of a more ſimple form.

The *Vermicula* are probably inhabited by various animals, as their ſtructure is ſo variable; but it is likely we ſhall ever remain in ignorant conjecture with reſpect to the conformation, and anatomical definition, of ſuch diminutive creatures, ſo obſcured by their teſtaceous covering.

MULLER'S ARRANGEMENT

OF

UNIVALVE TESTACEA,

BY THEIR

SEVERAL ANIMALS.

MULLER has divided his *Vermes terreſtres & fluviatiles* into genera, by the number, and form of the tentacula, and ſituation of the eyes; by which the Linnæan arrangement of teſtacea is overthrown, and mixed indiſcriminately throughout the Mullerian ſyſtem: in this the molluſca Snails, or naked *Limaces*, are included, as the fourth column of the plan annexed will evince, where the Linnæan generic names are prefixed to thoſe of MULLER, enumerated in the third column.

WITHOUT SHELL.

		Mull. Syſt.	*Lin. Syſt.*
Tentacula linear 4	{eyes at the tip of the longeſt.}	Limax.	Limax.

UNIVALVE SHELL.

		Mull. Syſt.	*Lin. Syſt.*
Tentacula linear 4	eyes at the tip of the longeſt	Helix.	Helix.
Tentacula linear 2	eyes at the tip	Vertigo.	Turbo.
Tentacula ſetaceous 2	eyes at the baſe exterior	Nerita.	Helix. Turbo.
	eyes at the baſe interior	Planorbis.	Helix. Bulla.
	eyes at the baſe poſterior	Valvata.	Helix.
Tentacula truncated 2	eyes at the baſe interior	Ancylus.	Patella
	eyes at the baſe poſterior	Carychium.	Turbo.
Tentacula triangular 2	eyes at the baſe interior	Buccinum.	Helix.

TO THESE MAY BE ADDED,

Tentacula ſetaceous 2 Feelers 2 one plumoſe	eyes at the baſe	Turbo.

The laſt diviſion does not belong to the Mullerian ſyſtem, but is introduced for the purpoſe of ſhewing another ſtrong ſub-diviſion by the animal; and which would include the *Valvata* of MULLER. It is very extraordinary, that author did not avail himſelf of ſuch a ſtrong mark of diſtinction for his generic character of *Valvata;* whereas, he has only uſed it ſpecifically by calling the only ſpecies he knew *criſtata.* To this, however, might be added, his *Nerita piſcinalis,* the *Turbo fontinalis* of this work; which is alſo creſted or plumoſe.

Beſides what has already been remarked, that ſome of this claſs are hermaphrodite, and others of different ſexes; it will be found alſo that ſome are oviparous, and others viviparous: and it is remarkable, that all thoſe

with four tentacula, whoſe eyes are placed at the ſummit of the two longeſt, are hermaphrodite, and are all land ſpecies. Thoſe with two tentacula, and their eyes ſituated on the head, are of different ſexes; and except two known ſpecies at preſent (*Turbo elegans*, and *Carychium,*) are all aquatic.

Among this laſt diviſion, one or two are *viviparous*, a circumſtance not known amongſt the land ſpecies.

If under ſuch variations theſe animals are all to be conſidered as *Limaces*, the generic characters muſt be a little more extended than thoſe fixed by *Linnæus;* and ſhould at leaſt run thus to comprehend all the varieties.

Body oblong, creeping, with a longitudinal flat diſk beneath; aperture moſt uſually placed on the right ſide: tentacula two, or four: eyes two, placed either at the baſe of the tentacula on the head, or at the extremity of the two longeſt.*

That the Linnæan *Limax* ought to be divided there can not be the leaſt doubt; but we cannot agree with Muller, that it is capable of forming ſo many genera, by the mere circumſtance of the eyes being placed a little more or leſs behind, or to one ſide of the tentacula. There ſeems, however, to be two ſtrong natural diviſions;

* If the animal of *Turbo elegans* ſhould prove to be poſſeſſed of four eyes, which we ſuſpect, the characters muſt be further extended thus, eyes two rarely four, &c.

ſions: firſt, thoſe with ocellated tentacula; and ſecond, ſuch as have their eyes ſituated on the head: each of which might again be divided into two families; thus,

1 LIMAX.

Body oblong, creeping, with a longitudinal, flat diſk, or ſuſtentaculum, beneath: foramen, or aperture, moſt uſually placed on the right ſide: tentacula ocellated.

Terreſtrial, hermaphroditical.

* Tentacula four: eyes two, placed at the ſummit of the two longeſt.

** Tentacula two.

2 LUBRICA.

Body oblong, creeping, with a longitudinal flat diſk, or ſuſtentaculum, beneath: foramen, or aperture, moſt uſually ſituated on the right ſide: tentacula not ocellated: eyes two, placed on the head. Moſtly aquatic, and of different ſexes,

* Tentacula, or feelers, four, one of which is plumoſe.

** Tentacula two.

To the firſt diviſion of the *Limax* would belong all the molluſca tribe uſually termed Slugs: of theſe the *Limax cinereus*

cinereus and *agreſtis*, GMELIN p. 3100, and p. 3101,* appear to be the link between the teſtacea and molluſca, (being poſſeſſed of a ſhelly ſubſtance under the ſhield upon the back,) connecting theſe land animals together; as ſome of the marine *Bullæ* do that of the aquatic: *Bulla aperta*, *haliotoidea*, and *plumula*, equally conceal their ſhells.

The circumſtance of ſome of the naked *Limaces* poſſeſſing a ſhell internally, the anatomical enquiries of SWAMMERDAM and LISTER could not overlook; both theſe authors have deſcribed and figured it.†

That theſe animals therefore belong as much to the *Vermes teſtacea* as many of the *Bulla*, there is no doubt; but it was not thought neceſſary at preſent to form a new genus on purpoſe, for a ſhapeleſs ſhell of irregular growth.

It is uſually ſomewhat oval, ſometimes flat and thin, with a membranaceous margin; others are half as thick as they are broad, and rarely poſſeſſed of any concavity: colour ſilvery-white, or of a micaceous appearance; the upper ſide is a little convex, and ſlightly wrinkled concentrically to the ſmaller, or poſterior, end: the under part

* *Limax filans. Lin. Trans.* iv. p.85. tab 8. Both theſe *Limaces* are capable of ſuſpenſion, as well as others which are deſtitute of ſimilar internal conformation. *Limax parvus cinereus. Liſter Conch.* t. 101. f 101.—*Id.* t. *anat.* f. 5.

† *Hill. Swammerd.* p. 71. t. 8. f. 8.—*Liſt. Conch.* t. 5. *anat.* f. 5.—*Id. Angl.* p. 128. t. 2. f. 15.

part is ſometimes rough, and granulated with cryſtal-like, ſhining angles.

This ſhell is the *Lapis limacis* or Snail-ſtone of authors, and is ſaid to have been uſed for medical purpoſes: according to popular opinion, it cures the tertian ague, if faſtened to the patient's arm.*

Favanne has figured ſeveral ſpecies of *Limax* in his *Zoomorphoſe*, tab. 76, that appear to be the intermediate link between ſuch as poſſeſs an internal ſhell, and thoſe with teſtaceous covering; theſe have only a ſmall ſhell attached to the poſterior end. But as no ſuch have been diſcovered in *England*, we only mention it to ſhew the nice gradations in nature's work; and how utterly impoſſible it is to divide that chain, which ſhe has ſo admirably linked together.

* Encyclopædia Britannica.

ERRATA.

PART I.

Page 2, l. 4, for eight read *eighths*
9, 17, run r. *runs*
18, margin, Scalpellum, f. 4. r. f. 3
38, ditto, Inequevalvis r. *Inæquivalvis*
39, l. 14, entrance, r. *entrances*
41, margin, Prœtenuis, r. *Prætenuis*
108, Synonyms, Borl. Corn. t. 38 r. t. 28
152, l. 22, rockey, r. *rocky*
175, note,* antennæ was, r. were
215, l. 7, pinnatified, r. pinnatifid
217, l. 4, nd, r. *sand*
245, margin, Lrneatum r. *Lineatum*
249, Gualteri, r. *Gualtieri*
250, dele : after *anfractibus*
271, l. 1. month, r, *mouth*
272, l. 22, Sandwhich, r. *Sandwich*
288, l. 16, Anglica r. *Angliæ*

PART II.

Page 327, margin, for 37, read 41.
362, ditto, & p. 590 T. labiata r. *labiatus*
398, l. 23, Actinea, r. *Actinia*
409, 410, 412, spiculi, r. *spicula*
464, margin and p. 597, Helix Nautileus, r. *Nautilea*
482, l. 16, breath r. *breadth*
492, l. 13, heighth, r. *height*
524, l. 9, striata, r. *striatum*
529, l. 23, Pholas, r. *Pholades*
532, l. 7, acount r. *account*
552, l. 3, anterior, r. *posterior*
595 Index, omitted *Inæquistriata Tellina*, 567
597 Membranaceus Helix, r. *Turbo*
600 Striatum Ostrea r. *Ostreum*
601 Vulgare Ostrea, r. *Ostreum*

BRITISH SHELLS.

Div. I. MULTIVALVE.

II. BIVALVE.

III. UNIVALVE.

DIV. I.

MULTIVALVE SHELLS.

GEN. I.

CHITON.

Animal a DORIS.

SHELL, conſtructed of many plates or valves, placed tranſverſely on the back of the animal, and lying upon each other at the anterior edge.

1. MARGINATUS.

Chiton Marginatus. *Gmel. Syſt.* p. 3206. 26.
Br. Zool. t. 36. f. 2.
Pult. Cat. Dorſet. p. 25.
Turt. Lin. iv. p. 165.

C. with eight valves carinated along the back, projecting over each other in a point or beak on the dorſal elevation: when viewed with a glaſs appears like ſha-

green;

green, marginated: colours various, duſky, cinereous-brown, inclining to fleſh-colour, ſometimes mottled; ſhape oblong-oval; length five-eights of an inch; breadth three-eighths.

This ſeems to be the ſhell deſcribed by Mr. PENNANT, but we never could obſerve the margin ſufficiently reflected to become a character, or that the edge is more ſerrated than in moſt other ſpecies. It was originally found at *Scarborough*, by the above author: and Doctor PULTENEY mentions it on the *Dorſetſhire* coaſt.

We have not unfrequently taken it by dredging in *Salcomb bay*, in *Devonſhire*, affixed to oyſters, and other ſhells, as well as to ſtones: have alſo received it from *Sandwich* in *Kent*.

2.
LÆVIS.

Chiton Lævis. *Gmel. Syſt.* p. 3206. 27.
Br. Zool. t. 36. f. 3.
Turt. Lin. iv. p. 165.

C. with eight ſmooth valves, or very faintly ſtriated tranſverſely: back elevated: valves beaked; margin broad, finely reticulated, oblong; length half an inch, breadth a quarter.

This ſeems to be the C. lævis of Mr. PENNANT, who ſays it inhabits the ſhores of *Loch Broom*, in Weſt *Roſsſhire*.

ſhire. It is uſually of a fine deep rufous-brown; ſometimes mottled with yellowiſh-white, with a ſmall line of the ſame along the back; but this is not a permanent character, as it ſhould ſeem to be by Mr. PENNANT's deſcription.

We have frequently found it with the preceding ſpecies in *Salcomb bay*, from which it is principally diſtinguiſhed by not being ſo broad; in being ſmooth, and the margin being reticulated.

3.

C. with ſeven carinated valves, ſtrongly beaked; the five middle ones divided tranſverſely from the anterior baſe to the beak, the hinder compartment very fine ſhagreen, the other very ſmooth, or faintly ſtriated tranverſely: the extreme valve at each end rufous-brown, the reſt generally dark cinereous; beaks frequently rufous; margin moderately broad, and faintly reticulated: ſhape of the laſt deſcribed: length half an inch. Found in *Salcomb bay*, but rare. SEPTEMVALVIS.

4.

Chiton Cinereus. *Lin. Syſt.* p. 1107.—*Gmel. Syſt.* p. 3204. CINEREUS.
Pult. Cat. Dorſet. p. 25.
Turt. Lin. iv. p. 163.

C. with eight valves nearly ſmooth, compreſſed, oval, carinated: the valves projecting into a beak on the back,

and reflected a little at the poſterior angle at the baſe: margin moderately broad, edge ſlightly ciliated: colour cinereous: length a quarter of an inch.

Found rarely in *Salcomb bay*, in *Devonſhire*, on ſtones and old ſhells, like the preceding.

Doctor PULTENEY ſays on rocks, and on oyſters at *Weymouth*, and from *Poole*.

5.
ALBUS.

Chiton Albus. *Lin. Syſt.* p. 1107.—*Gmel. Syſt.* p. 3204.
Chem. Conch. viii. t. 96. f. 817.
Pult. Cat. Dorſet. p. 25.
Turt. Lin. iv. p. 162.

C. with eight ſmooth valves, white, oval, not carinated: firſt valve notched on the hinder edge. Smaller than the *C. cinereus*. Doctor PULTENEY ſays upon oyſter ſhells from *Poole:* and on other ſhells, but leſs common: alſo on the *Ulva inteſtina* and *latiſſima*.

6.
CRINITUS.

Chiton Crinitus. *Gmel. Syſt.* p. 3206.
Br. Zool. t. 36. f. 1.
Turt. Lin. iv. p. 161.

C. with ſeven valves, thick ſet with ſhort hairs: five-eighths of an inch long.

Such

Such is Mr. PENNANT's deſcription, who ſays it inhabits the ſea near *Aberdeen*. Mr. BOYS informed us he found it at *Sandwich*.

7.

Chiton Faſcicularis. *Lin Syſt.* p. 1106.—*Gmel. Syſt.* p. 3202. FASCICULARIS.
Chem. Conch. x. t. 173. f. 1688.
Muller. No. 3017.
Pult. Cat. Dorſet. p. 25.
Turt. Lin. iv. p. 162.

C. with eight valves, apparently ſmooth, but when examined with a glaſs, will be found to be rough like ſhagreen, except on the elevated dorſal ridge; margin ſurrounded with tufts of whitiſh hair, one at the junction of each valve, and two in the front, making eighteen in number; colour brown, or dark cinereous: length five-eighths of an inch, breadth rather more than two-eighths.

Doctor PULTENEY obſerves, this ſhell is not uncommon on oyſters from *Poole*. We have found it in conſiderable abundance in *Salcomb bay* in *Devonſhire*, with all the other ſpecies except the *albus* and *crinitus*, and is by far the moſt common; like the reſt it adheres to oyſters and other ſhells, as well as to ſtones; and with them inhabits the deep, ſo that it is only to be obtained by dredging. It is alſo found at *Sandwich* in *Kent*, where it ſeems to be not uncommon; as among a parcel of theſe ſhells we received from Mr. BOYS, the greater part were of this ſpecies. On the coaſt of *Barbary* it is of a much ſuperior ſize, not unfrequently above an inch long.

GEN.

GEN. II.

BALANUS.

Animal a TRITON.

SHELL, of many erect unequal valves, affixed by a broad base, or sessile.

1. COMMUNIS.

Lepas Balanus. *Lin. Syst.* p. 1107.—*Gmel. Syst.* p. 3207. *Turt. Lin.* iv. p. 165. *Lister. Conch.* t. 443. f. 286.—*Don. Br. Shells.* i. t. 30. f. 1. *Br. Zool.* t. 37. f. 4.

Lepas Cornubiensis. *Br. Zool.* t. 37. f. 6. var.

Balanus Porcatus. *Da. Costa.* p. 249.

Balanus Communis. *Pult. Cat. Dorset.* p. 25.

B. with a strong rugged shell, of a cinereous-brown colour; compartments unequal and frequently indistinct, composed of irregular longitudinal striæ or ridges: of a conic shape, detached shells frequently perfectly round at the base, and regularly sloping upwards: the aperture not large in proportion; operculum of four valves transversely striated, with a longitudinal furrow on the two longest. Diameter at the base, sometimes an inch, height nearly three quarters.

This

This ſpecies is not uncommon on many parts of our rocky coaſts, to which it adheres ſo ſtrongly as to render it difficult to ſeparate whole: moſt commonly in cluſters, by which they are diſtorted into various ſhapes.

2.

Lepas Balanoides. *Lin. Syſt.* p. 1108.—*Gmel. Syſt.* p 3207. BALANOIDES.
Turt. Lin. iv. 166.—*Br. Zool.* t. 37. f. 5.
Don. Br. Shells i. t. 36. f. 2. 3.
Balanus Vulgaris. *Da. Coſta.* p. 248. t. 17. f. 7.
Liſter. Conch. t. 444. f. 287.
Id. Angl. t. 5. f. 41.
Pult. Cat. Dorſet. p. 25.

B. with a ſub-conic, and ſometimes much depreſſed ſhell, uſually with ſix compartments divided by a deep longitudinal furrow, ſmooth, white, frequently deeply ſulcated at the baſe; the poſterior compartments the largeſt: aperture larger in proportion than in the laſt ſpecies: operculum of four valves; the two upper ſlightly ſtriated tranſverſely, the others ſmooth. Diameter at the baſe, a quarter, rarely half an inch.

This is by far the moſt plentiful ſpecies on all our rocks between high and low water mark, ſometimes entirely covering them: it is alſo found attached to wood, ſhells, and cruſtaceous animals.

Balanus

3.
PUNCTATUS.
TAB. 1. F. 5.

Balanus Punctatus. *Pult. Cat. Dorſet.* p. 25.

B. with a very rugged brown ſhell; compartments indiſtinct; frequently punctured; operculum of four valves, the upper one with a few longitudinal ridges or ſtriæ; the edges of the ſuperior and inferior valves cloſely united at the top, indented or notched, and lock into each other: theſe are often punctated like a thimble: the baſe ſpreads a very little, and is not much broader than it is high, which does not exceed a quarter of an inch, and uſually leſs. It is a very common ſpecies on the South coaſt of *Devonſhire*, covering whole rocks near high water mark; and on the *Patella Vulgata* cloſely cluſtered together. This has probably been confounded with the preceding ſpecies, but is readily diſtinguiſhed by its dull brown colour, and rugoſe appearance, and eſpecially by the *operculum*, which is ſo eſſentially different.

A variety conſiderably more elevated, cylindric, and with the aperture as large as the baſe is ſometimes met with; this has the valves of the operculum more punctated.

The figure is magnified; that of the natural ſize was accidentally omitted.

4.
RUGOSUS.

Balanus Rugoſus. *Pult. Cat. Dorſet.* p. 25.
Chem. Conch. viii. t. 97. f. 824.

B. with a ſub-cylindric ſhell, uſually divided into ſix compartments by furrows which become broad towards the

the top, where the ſhell ſpreads into angulated points, and is frequently as wide as at the baſe: the compartments are irregular, thoſe on the poſterior ſide broadeſt; theſe are ſometimes wrinkled or ſtriated longitudinally, others are more ſmooth, moſt times white; but a variety is of a purpliſh red; aperture large, inſide margin ridged tranſverſely: *operculum* of four rough valves but not ſtriated, angulated, erect, forming four diſtinct points a little reflexed. Height from half to three quarters of an inch; diameter at the baſe uſually much leſs.

A variety of this ſpecies with a more extended baſe, and not ſo much in height, has frequently been confounded with the *B. Balanoides:* but the breadth of the aperture, angulated margin, and quadrifurcated *operculum* are unerring marks of diſtinction. We ſhall here take the opportunity of remarking, that as the greater part of this genus is ſubject to great variety, and frequently run ſo much into each other as ſcarcely to be diſtinguiſhed by common obſervation, it is neceſſary to attend to the *operculum*, which we have hitherto found an unerring guide; at leaſt with reſpect to the *Britiſh* ſpecies, which in other reſpects approach each other in ſome of their varieties.

For want of that attention to this eſſential part, ſo much confuſion has ariſen, that it is difficult to place the Synonyms to many of this genus.

5. CLAVATUS.

Balanus Clavatus. *Pult. Cat. Dorſet.* p. 25.
Br. Zool. t. 37. A. 5.
Lepas Elongata. *Gmel. Syſt.* p. 3213.
Chem. Conch. viii. t. 98. f. 838.
Ellis. Zooph. p. 198. t. 15. 7. 8.

B. with a long clavated ſhell, ſlender at the baſe, dilated at the top, and uſually cloven into ſix diviſions: the compartments three wide, and three narrow, wrinkled longitudinally, and faintly ſtriated tranſverſely. Length two inches: diameter at the baſe three-eighths of an inch.

This ſpecies we believe is not common on our coaſt, as we have never been able to procure it alive, or with its *operculum*. Mr. PENNANT has given a figure of it, but ſuſpected it was only a variety of the *Balanoides*.

Doctor PULTENEY ſays it has been found in the ſea at *Weymouth*, in deep dredging. It is therefore probably a *pelagic* ſpecies. This gentleman alſo informs us, that it was firſt diſcovered by SIR JOSEPH BANKS, who brought it from *Newfoundland:* and that in *Iceland* it grows to the length of three inches.

6. TINTINNABULUM.

Lepas Tintinnabulum. *Lin. Syſt.* p. 1108.
Gmel. Syſt. p. 3208.
Liſter. Conch. t. 443. f. 285.
Chem. Conch. viii. t. 97. f. 828 to 831.
Br. Zool. p. 73. No. 8.
Turt. Lin. iv. p. 166.

Balanus Tintinnabulum. *Da. Coſta.* p. 250.
Pult. Cat. Dorſet. p. 25.

B. with a ſtrong ſhell, uſually divided into ſix raiſed and ſix depreſſed compartments, the former running to a point upwards and ſtriated longitudinally; the latter contracting to a point downwards, and tranſverſely ſtriated: aperture nearly as large as the baſe, angulated; colour purple. Length an inch and a half, or two inches; breadth rather leſs.

This ſpecies though admitted into *Britiſh* Conchology, is ſcarcely to be called an *Engliſh* ſhell. It is the produce of warm climates, and brought to us on the bottoms of ſhips, where they are frequently ſeen adhering in cluſters: and of courſe dead ſhells are ſome times found on our ſhores; but we doubt if they ever breed in this climate.

7.
COSTATUS.

Lepas Coſtata. *Don. Br. Shells.* i. t. 30. f. 2.
Turt. Lin. iv. p. 167.

B. with numerous equidiſtant ribs diverging from the aperture: ſhape ſomewhat conic.

Mr. DONOVAN informs us that this ſpecies was found by the late T. ADAMS, Eſq. of *Pembroke*, adhering to pieces of broken rock, and is in the poſſeſſion of the Rev.

T. RACKETT, of *Spetiſbury, Dorſet.* The figure above quoted is about three-eighths of an inch in diameter at the baſe, nearly round, and of a light colour.

8. CONOIDES.

Lepas Conoides. *Don. Br. Shells.* i. t. 30. f. 3.
Turt. Lin. iv. p. 16 7

B. with ſmooth valves pointed at the apex: aperture very ſmall. Found by Mr. BRYER, affixed to the *Lepas Anatifera.*

This ſpecies, which we preſume was found at *Weymouth,* is deſcribed as above by Mr. DONOVAN: the figure given is about three-eighths of an inch diameter at the baſe, of a conic ſhape; the compartments appear to be ſix, divided at the top; the three poſterior ones larger than the others; and all ſtriated longitudinally, and ſlightly tranſverſely; giving it a reticulated appearance: colour purpliſh.

9. STRIATUS.

Lepas Striata. *Br. Zool.* t. 38. f. 7.
Chem. Conch. viii. t. 98. f. 834.
Walker's Min. Shells. f. 87.
Lepas Verruca. *Gmel. Syſt.* p. 3212. 17.
Balanus Intertextus. *Pult. Cat. Dorſet.* p. 25.
Lepas Intertexta. *Don. Br. Shells.* i. t. 36. f. 1. *Turt. Lin.* iv. p. 166.
Balanus Striatus. *Da. Coſta.* p. 250.

B. with

B. with a compreſſed white ſhell, with the compartments ſtrongly ribbed in an oblique direction to each other, and finely ſtriated acroſs the ribs: the margin of the baſe irregularly ſerrated: aperture oblique, perfectly cloſed by an *operculum*, and ſo obſcured that it is difficult to find, except when alive. Diameter a quarter of an inch, rarely ſo much.

This ſingular and curious ſpecies, was firſt publicly noticed by Mr. PENNANT as an *Engliſh* ſhell, from the *Portland* Cabinet. Doctor PULTENEY ſays, he has ſeen it common on *oyſters*, but more frequently on the *Oſtrea Opercularis*, both from *Weymouth* and from *Poole*.

We have found it not uncommon upon various ſhells on the South coaſt of *Devon*, particularly in *Salcomb bay*; and ſometimes in cluſters on the roots of *algæ*.

It is not uncommon on the coaſt of *Sandwich* in *Kent*, from whence we have received it; and Mr. WALKER obſerves it is found on the roots of *Sea-weeds*; the fineſt ſpecimens on *lobſters*.

10.

Lepas Diadema. *Lin. Syſt.* p. 1198.—*Gmel. Syſt.* p. 3208. DIADEMA.
Chem. Conch. viii. t. 99. f. 843. 844.
Liſter. Conch t. 445. f. 288.
Gualt. t. 106. f. Q.
Ph. Tranſ. 1758. pt. 2d. t. 34. f. 1.

Lepas

Lepas Diadema. *Don. Br. Shells.* ii. t. 56. f. 1. 2.
Turt. Lin. iv. p. 166.
Balanus Balæna. *Da. Coſta.* p. 251. t. 17. f. 2. 2. 2.

B. with a ſub-compreſſed hemiſpheric ſhell, with twelve compartments; ſix depreſſed flat and ſtriated tranſverſely; the others which are alternate are prominent, with four, five, or ſix elevated longitudinal ridges, and tranſverſe ſtriæ; at the top is a deep cavity, funnel-ſhaped, hexagonal within, at the bottom of which is the aperture: the ribs are alſo furniſhed with openings at their ſummit: the baſe is concave, furniſhed with diviſions or cells in a radiated manner: in live ſhells this part is covered with a tough coriaceous membrane. It is uſually of a dirty-white colour, an inch in height, and two or three inches diameter towards the baſe; but commonly not half ſo large.

The animal figured by Mr. Ellis in the *Philoſophical Tranſactions* reſembles a cluſter of ſmall hooded ſerpents, iſſuing from the aperture and openings on the top of the ribs.

This ſpecies is rarely found in the Southern parts of this Kingdom, but is often met with on the ſhores of *Scotland* and the iſlands contiguous.

It appears to inhabit ſome ſpecies of *Whale*, by which it is ſaid that the natives of the Northern parts diſtinguiſh one kind from the reſt.

Whether this is really diſtinct from the *Balanus Balænaris*, which is found adhering to the pectoral wrinkles of the *Balæna Boops* is doubtful. GEN.

GEN. III.

LEPAS.

Animal a TRITON.

SHELL, with ſeveral unequal plates or valves connected by cartilages; affixed by a tubular fleſhy peduncle.

1.

Lepas Anatifera. *Lin. Syſt.* p. 1109.—*Gmel. Syſt.* p. 3211. ANATIFERA.
Chem. Conch. viii. t. 100. f. 853. 855.
Liſter. Conch. t. 439. f. 282.
Br. Zool. t. 38. f. 9.
Pult. Cat. Dorſet. p. 26.
Don. Br. Shells. i. t. 7.
Turt. Lin. iv. p. 169.
Balanus Anatiferus. *Da. Coſta.* p. 253. t. 17. f. 3.

L. with a compreſſed ſhell of five valves, the two lower ones large and ſomewhat of a triangular ſhape, longitudinally wrinkled, and obſoletely ſtriated in a radiated manner from the lower anterior angle; the two ſuperior valves long and tapering downwards to an obtuſe point, the upper part angulated on each ſide, top rounded: theſe are alſo

alſo faintly wrinkled longitudinally, and obſoletely ſtriated from the upper poſterior angle in a radiated manner. The dorſal valve is long ſlender and rounded, ſmooth down the middle, and ſulcated on each ſide; the cartilages that connect the valves, and the peduncle at the baſe are uſually of a reddiſh-orange colour. Length an inch and a half, and ſometimes more, breadth of the largeſt part an inch: colour blueiſh-white, and gloſſy.

This ſpecies is frequently found adhering to the bottom of ſhips in great quantity, cluſtered together of all ſizes, the ſmaller ones adhering by ſhort pedicles to the larger. It particularly attaches itſelf to wood; pieces of timber are not uncommonly thrown upon our ſhores covered with them: we obſerved one of *fir* above twenty feet long, drifted on the coaſt of *Devonſhire*, that was completely covered with *Bernacles*.

This is the ſhell which was formerly ſuppoſed to produce the *Bernacle Gooſe*, a curious account of which may be ſeen in *Gerarde's Herbal*.

2.

ANSERIFERA.

Lepas Anſerifera. *Lin. Syſt.* p. 1109.—*Gmel. Syſt.* p. 3210.
Chem. Conch. viii. t. 100. f. 856.
Gualt. t. 106. f. 2. 3.
Liſter. Conch. t. 440. f. 283.
Turt. Lin. iv. p. 168.

L. with a compreſſed ſhell of five valves, much reſembling the preceding ſpecies, but is readily diſtinguiſhed

guiſhed from it by being ſtrongly ſtriated in a radiated manner, the inferior valve from the lower anterior angle, and the ſuperior one from the upper poſterior margin; theſe are croſſed by very fine ſtriæ, which give a faint reticulated appearance: the angles of the valves are much more ſharp and pointed, and particularly the apex: the dorſal valve is compreſſed at the ſides, and brought to a fine carinated edge, whereas in the other it is rounded, and only ſub-carinated down the middle: This is a remarkable character, and ſufficient to diſcriminate the ſhell if all others were wanting: the ſuperior valves are alſo much more compreſſed, which makes the ſhell extremely thin or flat on the poſterior ſide. Length one inch: breadth not quite three quarters: colour bluiſh-white.

This ſpecies is rarely found with the former; we have taken it from a piece of drifted wood on the ſouth coaſt of *Devonſhire*, from half an inch in length to the ſize before mentioned; the connecting cartilages and pedicle bright orange-red.

3.

L. with a compreſſed ſub-triangular ſhell of five valves, the inferior ones wrought with fifteen ſtrong ribs diverging from the lower anterior angle; that which runs along the front is larger than the reſt, and forms a margin; the two ſuperior valves form a pointed apex, and narrow downwards to a point, furniſhed with ſeven or eight ribs SULCATA. TAB. 1. f. 6.

with ſmaller intermediate ones, diverging from the poſterior margin; the dorſal valve ſomewhat compreſſed, and ſtrongly ſtriated longitudinally, with a ſmooth ſub-carinated edge. Length a quarter of an inch, breadth nearly as much: colour dirty-white: pedicle ſhort, duſky: ſhape ſomewhat like the laſt, but ſhorter and more triangulated. This new and elegant ſpecies we found on *Gorgonia Flabellum* on the *Dorſetſhire* coaſt near *Portland Iſland:* the few that were on it were detached, not in cluſters; ſome not half as large as that deſcribed.

A figure of the natural ſize was accidentally omitted.

4.

SCALPELLUM. TAB. 1. f. 4.

Lepas Scalpellum. *Lin. Syſt.* p. 1109.—*Gmel. Syſt.* p. 3210. 11.
Chem. Conch. viii. vig. 17. f. *A.* and *a.*
Liſter. Conch t. 439. f. 281.
Gualt. t. 106. f. C.
Ph. Tranſ. 1758. vol. 2. t. 34. f. 4. *(Ellis.)*
Turt. Lin. iv. p 168.

L. with thirteen valves of a light brown colour, not poliſhed, but rather rough without any ſtriæ; faintly wrinkled in ſome parts, and covered with ſhort hairs; thoſe on the dorſal valve ſet in ſeries or rows tranſverſely: the three lower valves on each ſide, to which the peduncle is fixed, are very ſmall; the two next larger; the ſuperior one the largeſt, running a little oblique to the reſt, and is pointed at the top: the dorſal valve is compreſſed,

the

the edge rounded at the baſe and runs into a ſharp proceſs about half way up; from whence it turns in a diagonal line to cover the edge of the two ſuperior valves: the the whole ſhell is much compreſſed; the anterior and poſterior ſides are nearly parallel to each other for rather more than half way from the baſe; the upper part is truncated obliquely to the front; the apex turns a little backward.

The peduncle is large in proportion, cylindric, compoſed of many annulations of the ſame colour as the ſhell; is nearly of the ſame length, and covered with ſhort hairs.

This ſpecies is rarely above five-eighths of an inch long independant of the peduncle; and three-eighths broad. It is a rare ſhell, and ſeldom met with on our coaſt.

We firſt received it from Mr. BOYS of *Sandwich*, and ſince found it on a ſpecies of *Gorgonia*, to which it ſeems to be particularly attached. CHEMNITZ mentions the ſame circumſtance. Hitherto it has been only known as a production of the *Norwegian* ſeas, and even there accounted extremely rare. Ours were taken off *Plymouth* by trawling.

GEN. IV.

PHOLAS.

Animal an ASCIDIA.

SHELL, with two large valves open at each end, with ſmaller acceſſory valves or plates at, or near the hinge.

Hinge, folded back, united by a cartilage; tooth ſingle in each valve beneath the hinge, long, incurvated.

1. DACTYLUS.

Pholas Dactylus. *Lin. Syſt.* p. 1110. 20. *Gmel. Syſt.* p. 3214. 1.—*Turt. Lin.* iv. p. 172. *Chem. Conch.* viii. t. 101. f. 859. *Liſter. Conch.* t. 433. f. 276. *Id. Anat.* t. 19. f. 1. 2.—*Br. Zool.* t. 39. f. 10.

Pholas Muricatus. *Da. Coſta.* p. 244. t. 16. f. 2. 2.

Pholas Hians. *Pult. Cat. Dorſet.* p. 26. *Borlaſe Corn.* t. 28. f. 31.

P. with a rough ſhell ſtriated tranſverſely, and ſlightly longitudinally, or from the hinge; the anterior end ſtrongly

ſtrongly muricated, extending into a beak, forming a large *rictus* or gape.

Hinge reflexed and forms ſeveral cells on the back, which are covered with two ſtriated valves connected longitudinally; below the hinge another long plate-like valve affixed to the connecting membrane: teeth, one in each valve projecting inwards; long, curved, flat: colour white. Length an inch and a quarter: breadth ſometimes as much as four inches.

This ſhell has been conſidered by ſome as diſtinct from the *Dactylus* of LINNÆUS: GMELIN however has quoted the figure of CHEMNITZ and LISTER which is evidently this ſhell.

The *Pholades* are all *Borers:* this is frequently found in hard clay, marl, and wood: the largeſt we ever ſaw was on the north ſhore at *Poole.* It is not uncommon on many parts of our coaſt from eaſt to weſt: and we have picked it up of a large ſize on the ſands of *Caermarthenſhire.*

At *Salcomb* on the coaſt of *South Devon,* it is found in great abundance together with the *P. Candidus* and *Parvus* burrowed in the ſtumps of old trees, which formerly grew there, but now covered with the tide except at very low water. Theſe are taken by the fiſhermen and uſed with ſucceſs for baiting their hooks.

2.

PARVUS. Pholas Parvus. *Br. Zool.* t. 4. f. 13.

TAB. 1. f. 7. 8. *Da Coſta.* p. 247.

P with a rough white ſhell tranſverſely and longitudinally ſtriated, except at the ſmaller end; the larger end declines into a kind of beak, where it is muricated: hinge reflex without cells: plate at the back one, connected by a membrane to the valves; no acceſſory plate below the hinge; teeth, one in each valve, ſlender, curved, furniſhed with a knob at their baſe. Length half an inch; breadth one inch.

This ſpecies was originally given by Mr. PENNANT, but has ever ſince been confounded with the *Dactylus* and *Criſpatus*.

From the former it may be readily known by not having any cells on the reflected margin of the hinge; from the latter in not having the longitudinal furrow; and from both by the knob at the baſe of the tooth.

It is longer in proportion to its breadth than the *Dactylus*, and ſhorter than the *Criſpatus*.

If this ſhould be the ſhell deſcribed in the *Britiſh Zoology* of which we can but little doubt, it is unfortunate that the eſſential characters were omitted, eſpecially as it is ſtated to be like the *Criſpatus* externally, but never found larger than a hazel nut. From this circumſtance probably

probably DA COSTA was led to believe it was no other than the young of that ſhell.

In this ſtate of uncertainty we are rather inclined to give credit to ſo able a naturaliſt, than to add ours as a new ſpecies, with a greater probability of its being the ſame. The *Parvus* ſeems to be a very local ſpecies: is found in great abundance in decayed wood, below the town of *Salcomb* on the coaſt of *South Devon*, the only place we ever met with it: and where the *Criſpatus* is never found, but the *Dactylus* and *Candidus* equally plentiful. The *Pholades* are all ſlightly connected at the hinge, and rarely found perfect except when alive, as the acceſſory valves ſoon ſeparate. In a live ſtate theſe ſmaller valves or plates are evident and diſtinguiſhing characters.

6.
CRISPATUS.

Pholas Criſpata. *Lin. Syſt.* p. 1111. 25.
Gmel. Syſt. p. 3216. 6.
Chem. Conch. viii. t. 102. f. 872. to 874.
Don. Br. Shells. ii. t. 62.
Pult. Cat. Dorſet. p. 27.
Turt. Lin. iv. p. 173.
Pholas Criſpatus. *Br. Zool.* t. 40. f. 12.
Pholas Bifrons. *Da. Coſta.* p. 242. t. 16. f. 4. 4.
Liſter. Conch. t. 436. f. 279. & t. *Anat.* 19. f. 3.
Id. Angl. t. 5. f. 38.
Pholas Parvus. *Don. Br. Shells.* ii. t. 69. *young.*

P. with a ſtrong, gibbous, opaque ſhell, ſub-oval, obtuſe, and very open at both ends: tranſverſely ſtriated; half the

the ſhell reticulated, and ſeparated from the plain ſide by a broad furrow down the middle, extending from the *umbo* or beak to the oppoſite margin: hinge reflex, ſmooth, forming a cavity or furrow at the anterior end: this end is truncated obliquely to the front margin, which forms a ſort of beak or angle at the end next to the hinge.

Inſide ſmooth, gloſſy; an elevation acroſs the middle cauſed by the furrow on the outſide: tooth long, flat, much curved: colour whitiſh, or tinged ferruginous. Length ſometimes, nearly two inches; breadth above three, but more commonly much leſs.

This ſpecies is found on various parts of our coaſt, burrowed in clay or lime-ſtone; but ſparingly on the weſtern ſhores, and thoſe ſmall and dead ſpecimens; indeed we believe it is no where plentiful of a large ſize.

Donovan has figured the young of this ſpecies for the *Pholas Parvus*, but has followed Da Costa in expreſſing a doubt of its being diſtinct from the *Criſpata*. Had theſe authors ever ſeen the true *Parvus* ſuch doubts never could have ariſen.

4. Candidus.

Pholas Candidus. *Lin. Syſt.* p. 1111. 23.—*Gmel Syſt.* p. 3215. 4.
Chem. Conch. viii. t. 101. f. 861. 862.
Liſter. Conch. t. 435. f. 278.—*Id. Ang.* t. 5. f. 39.

Pholas

Pholas Candida. *Pult. Cat. Dorſet.* p. 26.—*Turt. Lin.* iv. p. 173.

Pholas Candidus. *Br. Zool.* t. 39. f. 11.
Da Coſta. p. 246.

P. with a thin, fragile, ſemipellucid, oblong, yelloviſh-white ſhell, rounded at both ends; ſtriated tranſverſely, croſſed by finer ſtriæ in a radiated manner from the *umbo:* a few of the radii at the larger end muricated, or ſet with ſhort ſpines: hinge reflected, ſmooth, forming a *ſinus* at the back: acceſſory valve one at the hinge, none on the connecting membrane below the hinge. Inſide ſmooth, gloſſy-white: tooth in each valve ſlender, incurvated, above which on the margin of one valve is an erect tooth-like proceſs. Length three-quarters of an inch; breadth two inches.

This appears to be a very local ſpecies on our coaſts.

Da Costa certainly could never have examined a perfect ſpecimen of this ſhell, or he would not have expreſſed a doubt of its being a diſtinct ſpecies. If every other character was wanting, the erect tooth-like proceſs is ſufficient to diſcriminate it; but it is alſo readily diſtinguiſhed from all the preceding ſpecies, by the valves ſhutting cloſe at the larger end.

Lister met with it at the mouth of the river *Tees,* but ſays it is ſcarce. Doctor Pulteney ſpeaks of it as a ſhell of the *Dorſetſhire* coaſt.

We have only found it alive at *Salcomb* on the ſouth coaſt of *Devonſhire*, where it is ſufficiently plentiful in decayed wood at low-water mark, in company with the *Dactylus* and *Parvus*.

3. STRIATUS.

Pholas Striata. *Lin. Syſt.* p. 1111.
Gmel. Syſt. p. 3215. 3.—*Turt. Lin.* iv. p. 172.
Chem. Conch. viii. t. 102. f. 864. 866.
Pholas Nanus. *Pult. Cat. Dorſet.* p. 27.
Pholas Conoides. *Phil. Trans.* lv. p. 1. t. 1.

P. with a conoid white ſhell, the larger end ſtrongly reticulated, the reſt irregularly ſtriated: at the front margin the lip ſeems to fold back, and forms a ſmooth ſurface on the reticulated part: the plate or ſhield at the hinge is large, of a ſub-oval ſhape, beneath which is a narrow plate joined to the membrane which connects the valves: in the front is another narrow plate and membrane, which ſeems to prevent the ſhell from opening, except at the ends: at the ſmaller end it gapes conſiderably, the larger end nearly cloſed: tooth long, ſlender, and much curved. Length half an inch, breadth three-quarters.

Whether this ſpecies can ſtrictly be ſaid to be *Engliſh* may be doubted; it is however not uncommonly found burrowed in the planks at the bottoms of ſhips, returned from

from the *Mediterranean*, and probably other ſouthern latitudes.

Whether it has bred in our ſeas and become naturalized, is not aſcertained. In a piece of timber now before us, perforated by this and the *Teredo Navalis*, it is remarkable how effectually they deſtroy the planks of a ſhip by their conjoint actions: the *Pholas* perforates the wood acroſs the grain, while the *Teredo* inſinuates itſelf with the grain in all directions.

DIV. II.

BIVALVE SHELLS.

GEN. V.

MYA.

Animal an ASCIDIA.

SHELL, moſt commonly gaping at one end.

Hinge, for the moſt part furniſhed with a ſtrong, thick, and broad tooth not inſerted into the oppoſite valve.

1. PHOLADIA.

Mya Dubia. *Br. Zool.* t. 44. f. 19.—*Turt. Lin.* iv. p. 179.
Chama Parva. *Da. Coſta.* p. 234.
Pholas Faba. *Pult. Cat. Dorſet.* p. 27.

M. with a thin, brittle, opaque ſhell, of a light colour, and oval ſhape, marked with fine concentric ſtriæ: the beak is ſmall, but prominent, placed at one end: the valves, when

when ſhut, have a large oval gape or opening in front, oppoſite the hinge. Inſide white: hinge furniſhed with a ſmall plate, or rudiment of a tooth, projecting inwards.

There ſeems to have been various opinions, with reſpect to the claſs in which this ſhell ſhould be placed.

Mr. PENNANT, who firſt gave it to the public, met with it in the *Portland* Cabinet; and ſeemed to be doubtful with regard to the genus in which it ought to be placed, by the trivial name of *Dubia* he affixed to it.

DA COSTA has placed it with his *Chama*, which conſiſts chiefly of *Linnæan Myæ*. Doctor PULTENEY has made it a *Pholas*; we preſume under the authority of Doctor SOLANDER. It does not however appear that there ever were ſufficient grounds for placing it in the *Pholas* genus. Even Doctor PULTENEY himſelf remarks, that he has ſeen ſeveral of theſe ſhells, but had not ſeen one with the acceſſory valves, the eſſential part of the character of that genus.

Mr. PENNANT and DA COSTA mention its poſſeſſing a tooth, or the rudiment of one. This circumſtance perhaps has more inclined us to fix it in the *Mya* genus; others may perhaps hereafter remove it to the *Mytilus*; for the ſmall elevation of the hinge is ſcarcely to be denominated a tooth.

In

In its general habits, it certainly appears very nearly allied to the *Pholades*, but the want of the acceſſory valves forbids its being placed in that claſs: though, if we admit of the exiſtence of a tooth, it is the link that connects the *Pholas* and *Mya*. This hitherto ſeems only to have been found at *Weymouth*, or on the *Dorſet* coaſt, by thoſe who have deſcribed it. We have found it not uncommon on the *Devonſhire* coaſt, at *Torbay* and at *Plymouth*, burrowed in detached pieces of lime-ſtone; but always dead ſhells, though in good condition. It rarely exceeds three-quarters of an inch in length; and is frequently tinged with rufous-brown.

2.
ARENARIA.

Mya Arenaria. *Lin. Syſt.* p. 1112.
Gmel. Syſt. p. 3218. 2.
Br. Zool. t. 42. f. 16.
Chem. Conch. vi. t. 1. f. 3. 4.
Turt. Lin. iv. p. 175.—*Don. Br. Shells.* iii. t. 85.
Chama Arenaria. *Da. Coſta.* p. 232.

M. with an oval ſhell, moderately concave, generally of a rugged appearance, but ſome are more ſmooth with numerous ſmall concentric ſtriæ; in ſuch the ſhells are not ſo thick and ſtrong as in the more rugoſe variety: the hinge is not very remote from the centre, but neareſt the larger end: the *umbo* is rather prominent: one valve furniſhed with a broad, thick, erect tooth, by which it is joined to the

the other or toothleſs valve, by the connecting cartilage. Inſide white, gloſſy. This ſpecies is a *gaper*, the ſmaller end is incapable of cloſing, and reflects outwards, particularly in that valve which has the tooth.

It may be rather conſidered as a local, but not a ſcarce ſhell. DA COSTA mentions having received it from *Kent*, and the *Iſle of Wight*. We have received it alſo from *Kent* and from *Portſmouth*, and have ſeen it in great abundance in the gravelly parts of the ſhores of *Southampton* river, at low water, buried at the depth of ſix or ſeven inches, with the gaping end upwards; and ſo ſtrongly wedged in by the ſhingle, that it is difficult to get them up without a pointed iron inſtrument.

In this ſituation the ſhells are always very rugged, but thoſe which are found in ſand are more ſmooth and regularly grown, and covered with a brown epidermis, which being removed the ſhell is white: thoſe of a ruſty or blackiſh colour are only ſtained by the mud or ochreaceous clay. The fiſhermen about *Southampton* call them *old-maids*, and ſometimes collect them for food. They are diſcovered by a ſmall hole on the ſurface, through which they eject a quantity of water if preſſed. The common ſize is about three inches wide; ſometimes though rarely above four; and two inches and a half long from hinge to margin.

3.
TRUNCATA.

Mya Truncata. *Lin. Syſt.* p. 1112.
Gmel. Syſt. p. 3217. 1.
Br. Zool. t. 41. f. 14.—*Turt. Lin.* iv. p. 174.
Pult. Cat. Dorſet. p. 27.—*Don. Br. Shells.* iii. t. 92.
Lifter. Conch. t. 428. f. 269.—*Id. Angl.* t. 5. f. 36.
Chem. Conch. vi. t. 1. f. 1. 2.
Chama Truncata. *Da Coſta.* p. 233. t. 16. f. 1.

M. with a ſub-oval ſhell, truncated at the ſmaller end, where it gapes conſiderably more than the *Arenaria:* it is wrought with concentric wrinkles, covered with a yellow tough epidermis, extending half an inch or more beyond the open end, like a thick membrane, through which the animal extends itſelf: the valves are very concave and reflect at the ſmaller end; the tooth like the preceding ſpecies, very broad and erect. Inſide white.

This ſpecies is found lodged under gravel near low-water mark, on ſome of our coaſts; but dead ſhells are more frequently found with the epidermis worn off: in that ſtate they are nearly white, or tinged with yellow. In this country it ſeems to be extended from *South* to *North*, as it is ſaid to be found in the *Orknies:* we are alſo informed that in *Greenland* it is the food of man, and other animals.

We

We have taken it alive on the coaſt of *Devonſhire* meaſuring two inches and a half in length, and three inches and a half in breadth. In this ſtate the epidermis of the ſhell joins to the tube or proboſcis of the animal, and becomes on that part a tough, thick, dark-coloured, coriaceous ſkin for its protection: and is greatly wrinkled when contracted.

The animal is capable of extending this tube to the diſtance of nine or ten inches, and of contracting it to about three, but cannot withdraw it into the ſhell.

4. MARGARITIFERA.

Mya margaritifera. *Lin. Syſt.* p. 1112.
Gmel. Syſt. p. 3219.
Br. Zool. t. 43. f. 18.
Da. Coſta. p. 225. t. 15. f. 3.
Liſter. Conch. t. 149. 4.—*Id. Angl. app.* t. 1. f. 1.—*Shroet. Fluſscon.* t. 4. f. 1.
Chem. Conch. vi. t. 1. f. 5.
Turt. Lin. iv. p. 176.

M. with a thick, ſtrong, ovate-oblong ſhell, ſomewhat indented or arcuated oppoſite the hinge; covered with a black epidermis: rugged and decorticated, particularly about the *umbo*, and frequently perforated with ſmall round holes. Inſide of a greeniſh pearly hue: ſometimes of a deep bronze all over, or only in patches on the elevated parts; for the inſide is frequently rugged and worn,

as if the animal was conſtantly throwing off part of its ſhell, both externally and internally. Teeth ſtrong; in one valve a ſingle tooth, locking into a bifurcated tooth in the oppoſite valve. Length two inches and a half, breadth five inches.

Inhabits only the rapid rivers, particularly thoſe of the moſt mountainous parts, and rocky torrents: not uncommon in the northern parts, and in *Wales:* is alſo common in the rivers of *Devonſhire*, which take their ſource from the mountains of *Dartmoor*, particularly the *Aun* or *Avon.*

This ſpecies has long been famous for producing *pearls*, of a good colour, and of conſiderable ſize: and was formerly ſought after for that purpoſe. *Conway* was noted for them: and we are informed by CAMDEN that Sir JOHN HAWKINS had a patent for fiſhing them in the river *Irt*, in *Cumberland.*

5.
OVALIS.

Mya Ovalis. *Pult. Cat. Dorſet.* p. 27.
Mya Pictorum. *Br. Zool.* t. 43. f. 17.
Liſter. Conch. t. 146. f. 1.—t. 147. f. 2. 3.
Id. Angl. t. 2. 30.
Da Coſta. p. 228 t. 15 f. 4.—*Don. Br. Shells.* iii. t. 89.—*Shroet. Fluſscon.* t. 3. f. 2. 3,

M. with a ſtrong oval ſhell, of a duſky-green colour, almoſt black at the ſmaller end, marked with ſeveral concentric

centric wrinkles; *umbo* placed near to the larger end: hinge furniſhed with one tooth, which locks into a bifurcated tooth in the oppoſite valve; theſe are ſtrong and crenated; beſides which it has lateral laminæ, two in one valve, and one in the other. Inſide pearlaceous: Length ſometimes near two inches; breadth four. A variety is frequently found of an olive-green, thin and ſemipellucid, with a few faint radiated ſtriæ from the *umbo:* the teeth not near ſo ſtrong, and the inſide reſplendent like mother-of-pearl.

This variety has been conſidered by ſome as a diſtinct ſpecies: but as they are to be found in all gradations in ſubſtance and colour, ſuch muſt be conſidered as varieties only. The thin ſhells, and thoſe which are covered with a green or yellowiſh epidermis, are moſt commonly found in *ponds;* whereas the dark and ſtrong ſhells inhabit *rivers.*

This ſpecies has been deſcribed and figured by many authors for the *M. Pictorum* of LINNÆUS. Doctor PULTENEY conſiders it perfectly diſtinct from that ſhell, and indeed we cannot but aſſent to his opinion. It is moſt probable LINNÆUS was not acquainted with this ſpecies: and GMELIN has certainly confounded the two, if we may judge from his ſynonyms, for he has quoted both LISTER and CHEMNITZ for the *Pictorum,* whereas the former has not given a figure of that ſhell, but evidently two varieties of this; the latter has figured the true *Pictorum.*

The *ovalis* and *margaritifera* rarely if ever inhabit the ſame waters; this being found only in the ſlow rivers, and never in rapid torrents.

The large and thick variety has, we underſtand, been alſo ſeparated by ſome conchologiſts, and called *Mya ſolida;* but certainly without foundation; for there is no leading character of diſtinction; the ſhape, hinge, teeth, and every other part is the ſame; and the only difference is in the ſubſtance of the ſhell, a circumſtance not alone ſufficient to admit of its being a diſtinct ſpecies.

This very ſtrong variety is not uncommon in the *Avon*, that runs through the north of *Wiltſhire* and *Somerſetſhire*, inhabiting the deeper parts of the river.

6.
PICTORUM.

Mya Pictorum. *Lin. Syſt.* p. 1112.
Gmel Syſt. p. 3218.
Chem. Conch. vi. t. 1. f. 6.
Turt. Lin. iv. p. 175.
Shrcet. Fluſscon. t. 3. f. 2. t. 3. f. 45.—t. 4. f. 6.

M. with a ſub-oval, ſub-arcuated ſhell, moderately thin, of an olive-green colour, ſometimes darker at one end, inclining to duſky; wrought with concentric wrinkles: beak or *umbo* placed near to one ſide; hinge nearly ſtrait, from which it declines alike to both ends, which are equally rounded: the front margin either ſtraight or a little indented. Inſide gloſſy, ſmooth, pearly; in each valve

valve a ſingle broad crenated tooth, with two lateral laminæ in one valve and one in the oppoſite, locking into each other.

This ſhell is not very unlike the *ovalis* in the form and ſtructure of the teeth, but very eſſentially in ſhape and ſize. Doctor PULTENEY in his Catalogue of *Dorſetſhire* ſhells, does not conſider the *Mya Pictorum* of LINNÆUS as an *Engliſh* ſhell; and at our requeſt favoured us with foreign ſpecimens of what is conſidered the *Linnæan Pictorum*, which were in every reſpect like our ſhell. It ſeems that Doctor SOLANDER conſidered this as the true *Pictorum*, but not found in *England*; and named the *ovalis* as a diſtinct ſpecies in the *Portland* Muſeum. We believe this is a rare, or at leaſt a very local ſhell in *England;* it is however not uncommon in the river *Kennet*, above the town of *Newbury* in *Berkſhire*, where we diſcovered it, but have never found it in any other place. It is common in *Holland* and many other parts of the Continent, and is generally uſed by painters for holding their colours, whence the name.

The *ovalis*, which is common in moſt parts of this kingdom, is uſed for the ſame purpoſe, but greatly exceeds the *Pictorum* in ſize, which ſeldom is more than an inch from the hinge to the oppoſite margin, and an inch and three-quarters wide.

7.

INEQUEVALVIS. Cardium ſtriatum apicibus reflexis. *Walk. Min. Shells.* fig. 85.

M. with a ſub-triangular. ſtrong, thick, opaque, white ſhell, frequently covered with a brown epidermis : under-valve deep; beak central, prominent, ſtanding high above the hinge, furniſhed with one ſtrong, erect tooth ſomewhat recurved: Inſide ſmooth, the margin appearing as if ground to an edge.

Upper valve not half the ſize of the other, ſmooth, but radiated with a few obſolete ſtriæ from the beak ; at the hinge a notch to receive the tooth of the oppoſite valve. When cloſed the margin of the under valve projects conſiderably.

The ſingular formation of this ſhell is not well defined by WALKER, poſſibly he had never ſeen the perfect ſhell : indeed the ſuperior valve might readily be miſtaken for a diſtinct ſpecies : he has alſo erred in making it a *Cardium.*

This ſhell is by no means uncommon ; but rarely to be obtained alive, or with connected valves ; we have found it on the coaſts of *Cornwall* and *Devonſhire,* and in a living ſtate dredged from *Salcomb-bay.* Mr. BOYS favoured us with the under-valve from *Sandwich* for WALKER's ſhell here quoted. Diameter rarely above three-eighths of an inch.

M. with

8. SUBORBICULARIS.

M. with a ſub-pellucid, ſub-orbicular ſhell, of a yellowiſh-white colour, frequently covered with a brown epidermis; faintly ſtriated tranſverſely, ſomewhat gloſſy; margin oppoſite the hinge nearly ſtrait; ſides nearly equal, rounded: hinge central: beak ſmall, pointed, turning to one ſide: in one valve a ſingle tooth immediately under the beak, locking into a double one in the oppoſite valve; with a laminated tooth behind the beak in each, ſomewhat remote. Inſide gloſſy-white: valves ſhut cloſe. Length rather exceeding three-eighths of an inch; breadth half an inch.

We firſt diſcovered this ſpecies in hard lime-ſtone at *Plymouth*, fragments of which were thrown upon the beach perforated in all directions; the entrance of theſe excavations were much ſmaller than the ſhell, ſo that it muſt have entered in a younger ſtate; and from which it never could recede. It is ſometimes dredged up in *Salcomb-bay*, detached from any other ſubſtance, ſo that it does not ſeem to be a *Borer* in all ſituations; perhaps it does not enter any thing but lime-ſtone, which is not to be found in this laſt place.

This ſhell is ſo much like the *Cardium corneum* in ſhape, that it might readily be miſtaken for a variety, except attention is paid to the hinge, and that this is marine, whereas the other is only found in freſh-water. A variety is highly gloſſed, with a reſplendent pearly hue.

Mya

9.

PUBESCENS.

Mya pubeſcens. *Pult. Cat. Dorſet.* p. 27.
Mya declivis. *Br. Zool.* No. 15 ?
Turt. Lin. iv. p. 175.
Don. Br. Shells. iii. t. 82.

M. with a very thin brittle, oval, white, ſhell, truncated at the ſmaller end: in the larger ſpecimens the outſide appears, through a magnifier, ſomewhat like ſhagreen, and is very rough to the touch; ſlightly ſtriated concentrically: behind the cartilage ſlope one valve turns upwards in a ſingular manner, and embraces the edge of the other valve: the beak is nearly central, pointed, and turns a little ſideways: hinge furniſhed with one broad tooth-like plate projecting inwards in each valve, to which the connecting cartilage is fixed. Inſide white and gloſſy. In young ſhells the teeth are not very conſpicuous, nor the outſide ſo rough.

This ſpecies is not uncommon, of a ſmall ſize, taken up with ſand from *Falmouth Harbour:* ſometimes met with on the *Devonſhire* coaſt; one we received from *Plymouth,* taken by dredging was two inches broad, and one inch and a quarter long. Doctor PULTENEY (who ſays this ſhell was firſt noticed by the late *Dutcheſs Dowager of Portland*) ſpeaks of having ſeen it two inches and a half long, and three inches and three-quarters wide: dredged up at *Weymouth.*

We

We have reaſon to believe the full grown ſhell of this ſpecies is the *Mya declivis* of Mr. PENNANT, which he deſcribes to be frequent about the *Hebrides*, and that the fiſh is eaten by the gentry. The figure given by the ſame author for *Tellina fragilis* t. 47. f. 26. is ſo extremely like in ſhape to the ſmaller ſhells of the *M. pubeſcens*, that we ſhould not have had the leaſt doubt of its being the the ſame, had it not been placed with the *Tellens;* the deſcription too, anſwers ſo well to our ſhell, that we are almoſt inclined to think the hinge might not have been ſtrictly attended to; and certainly it is not the *T. fragilis* of LINNÆUS.

Doctor PULTENEY likens the *T. fragilis* of the *Britiſh Zoology* to the *Mya prætenuis;* but that ſhell is never ſo much truncated as the figure given in that work; whereas the *M. pubeſcens* is always of that form.

In the broad tooth of the larger ſpecimens of this ſhell, is a ſmall proceſs or denticle, which is not obſervable in younger ones.

10.

Mya prætenuis. *Pult. Cat. Dorſet.* p. 28.
Chama prætenuis. *Petiv. Gaz.* t. 94. 4.

PTŒTENUIS.
TAB. 1. f. 2.

M. with an oval, thin, brittle, flat ſhell, of a whitiſh colour, marked with a few fine concentric ſtriæ; *umbo* very ſmall, pointed, turned to one ſide, but placed

 nearly

nearly central; valves not capable of closing at the smaller end. Inside white: a broad tooth in each valve hollowed in the middle, projecting horizontally inwards; the teeth when closed cover each other, and by which they are held together by the connecting cartilage. Length above half an inch, breadth one inch.

We are informed that PETIVER received his shell from *Poole*. It has been called *White Spoon-hinge*, from the tooth resembling the bowl of a spoon. Doctor PULTENEY mentions having found it on the *North* shore near *Brownsea Isle*, and on the shore between *Weymouth* and *Portland;* and remarks with some doubt whether it is not the young of the *pubescens*.

We have no doubt of its being perfectly distinct, and conceive if the Doctor had met with the young of the *pubescens* to have compared, such doubts would never have existed.

This shell is not truncated, is much more flat, and has not that singular flexure of the dexter valve; besides which the tooth is essentially different.

It is not uncommonly dredged from *Falmouth Harbour*, but mostly single valves: is also found on the *South* coast of *Devon*, where we have taken perfect shells.

11.
DISTORTA.
TAB. 1. f. 1.

M. With a sub-pellucid, thin, fragile, white shell, rugged and distorted into various shapes; the valves are convex

convex, moſtly of a ſub-oval form; but riſes high at the *umbo*, where it projects beyond the margin or *commiſſure;* the beak is ſmall, placed nearly central, and does not turn to either ſide. In the broader ſpecimens the hinge is placed nearer to the larger end; ſuch are not in general ſo uneven and rugoſe as thoſe of a more ſub-orbicular ſhape; but all are more or leſs ſinuous and indented at the margin. Inſide white: hinge furniſhed with a broad ſub-triangular tooth in each valve, hollowed in the middle, projecting horizontally inwards, much like the *pubeſcens:* theſe teeth, like the two preceding ſpecies, cover each other when cloſed, and by which the valves are connected with a cartilage. This ſhell, which has ſomething of the habit of the two preceding ſpecies, is much more convex than the *prætenuis*, and the tooth not ſo long and rounded; it differs alſo from the *pubeſcens* in the ſhape of the tooth, and in not being truncated; and from both in its rugged and diſtorted ſhape.

We firſt noticed this ſpecies at *Falmouth*, amongſt the ſand dredged from the harbour for manure, and have ſince found it lodged in hard lime-ſtone at *Plymouth*, into which it had bored like the *Pholas;* probably the occaſion of its diſtorted growth. It is alſo found on other parts of the coaſt of *South Devon*, but not plentiful.

The largeſt ſpecimen we have met with is not above three-quarters of an inch long and an inch wide; others are as long as they are broad. This and the two pre-

ceding ſpecies though perhaps not ſtrictly belonging to the *Mya* genus, cannot be placed with more advantage in any other of the *Linnæan* genera. Doctor PULTENEY informs us, that had Doctor SOLANDER lived to finiſh his ſyſtematic deſcription of the *Portland* Cabinet, it was his intention to have conſtituted a new genus, in which the *Mya pubeſcens* and *prætenuis* together with the *Solen bullatus* and other ſhells in that Cabinet, were to have been included.

Had ſuch a new genus been formed, this ſpecies would doubtleſs have been placed in it; but we did not think ourſelves warranted to make ſuch an addition in a work profeſſedly local, for the ſake of one or two ſpecies.

12.
BIDENTATA.

M. with a ſub-oval, thin, compreſſed, dirty-white ſhell, deſtitute of ſtriæ or markings of any kind, but not gloſſy: moſt times covered with extraneous matter that gives it a roughiſh appearance: *umbo* ſmall, placed near to one end, a little reclined.

Inſide ſmooth without any tongue or *cicatrix:* hinge with two broad erect laminated teeth in one valve, none in the other; theſe are placed each ſtanding obliquely outwards from the beak, and not very cloſe together; and between them immediately under the beak is a ſlight cavity for the connecting cartilage.

Length one eighth of an inch, rather more in breadth.

We

We have ſeen this ſhell not uncommon, burrowed in old thick oyſter ſhells from *Salcomb bay*, and have reaſon to believe it to be partly the cauſe of thoſe ſmall round perforations ſo frequently obſerved on that ſhell.

The hinge of this ſpecies does not ſtrictly belong to any one of the preſent genera in conchology; the teeth though large, and ſtand very high in proportion, have not the appearance of what are uſually termed *primary;* they are broad, flat, more than uſually diſtant for central teeth, and equally diverge. The oppoſite valve is deſtitute of either *primary* or lateral teeth and has only a ſlight cavity under the beak.

Whether this ſhell grows to a larger ſize remains to be diſcovered: thoſe we have found are commonly leſs than above deſcribed. That it is perfectly diſtinct from any thing we are acquainted with there is no doubt; and as it ſeems more nearly allied to the *Mya* genus than to any other, it is there placed for the preſent.

GEN. VI.

SOLEN.

Animal an ASCIDIA.

SHELL oblong, open at both ends.

Hinge furniſhed with a reflex ſubulated tooth, often double, not inſerted into any groove in the oppoſite valve.

1. SILIQUA.

Solen Siliqua. *Lin. Syſt.* p. 1114.—*Gmel. Syſt.* p. 3223. 2.
Br. Zool. t. 45. f. 20.
Da. Coſta. p. 235. t. 17. f. 5.
Pult. Cat. Dorſet. p. 28.
Liſter. Conch. t. 409. f. 255.
Id. Angl. t. 5. f. 37.
Chem. Conch. vi. t. 4. f. 29.
Gualt. teſt. t. 95. C.
Don. Br. Shells. ii. t. 46.
Turt. Lin. iv. p. 180.

S. with a ſtrait ſub-cylindric ſhell, truncated at one end, a little rounded at the other; colour olivaceous-brown

brown; ſtriated tranſverſely, each ſtria turning longitudinally acroſs the ſhell; towards the back a diagonal line from the hinge to the oppoſite end, that marks the turn of the longitudinal ſtriæ; beneath the epidermis the ſhell is cinereous and white, with ſtreaks of a purpliſh hue: hinge ſituate at one end: teeth in one valve ſingle, with a remote lateral lamina; in the other valve two, with a lateral inclined tooth, correſponding with the oppoſite laminæ. Length from hinge to margin an inch; breadth eight inches.

This ſhell is common on moſt of our ſandy ſhores, found buried to the depth of a foot or more near low water-mark; it frequently elevates one end a little above the ſurface, and protrudes its body in ſearch of food; upon being diſturbed it ſuddenly recedes. This place is known by a ſmall depreſſion on the ſurface. In many places it is ſought after for food, by the common people.

2.

NOVACULA.

S. with a ſtrait ſub-cylindric ſhell, in every reſpect like the *Siliqua* except in the hinge, in which it is eſſentially different, being furniſhed with one ſtrong blunt curved tooth in each valve at one end, deſtitute of lateral laminæ: theſe teeth turn contrary ways, and when cloſed claſp or hook into each other. This ſpecies may poſſibly have been confounded with the foregoing from its external ſimilitude, for we do not find it noticed by any conchologiſt.

chologiſt. It is found on the ſandy ſhores of *Caermarthenſhire*, near *Laugharne*, together with the *Siliqua* of a large ſize. We have taken it full an inch long, and eight inches broad, but is extremely rare.

3.
ENSIS.

Solen Enſis. *Lin. Syſt.* p. 1114.—*Gmel. Syſt.* p. 3224. 3.
Br. Zool. t. 45. f. 22.
Pult. Cat. Dorſet. p. 28.
Da. Coſta. p. 237.
Chem. Conch. vi. t. 4. f. 30.
Favan. t. 55. A. 3.
Liſter Conch. t. 411. f. 257.
Don. Br. Shells. ii. t. 50.—*Turt. Lin.* iv. p. 180.

S. with a ſub-cylindric arcuated ſhell, ſtriated and coloured like the *Siliqua:* hinge at one end; a ſingle tooth and a lateral lamina in one valve; which lock into two teeth and double laminæ in the oppoſite valve.

This ſpecies is not uncommon upon many of our ſhores; is readily diſtinguiſhed from the *Siliqua* which is invariably ſtrait; whereas this is always more or leſs arcuated, but moſt ſo in younger ſhells. It rarely exceeds three-quarters of an inch in length, and five inches in breadth.

4.
VAGINA.

Solen Vagina. *Gmel. Syſt.* p. 3223. 1.
Br. Zool. t. 46. f. 21.
Chem. Conch. vi. t. 4. f. 26. to 28.
Favan. t. 55. B. 1.
Turt. Lin. iv. p. 180.
Solen marginatus. *Pult. Cat. Dorſet.* p. 28.

S. with

S. with a ſtraight cylindric ſhell, rather truncated at both ends; that end next the hinge a little reflected; ſtriated tranſverſely, each ſtria turning longitudinally acroſs the ſhell, but not marked with a diagonal line: hinge cloſe to one end, furniſhed with a ſingle ſmall compreſſed tooth in each valve, which lie by the ſide of each other when cloſed: no lateral laminæ: colour orange-yellow. Length about three-quarters of an inch, and rarely more than four inches broad.

This ſeems to be rather a ſcarce ſpecies; at leaſt we have never met with it but on the ſandy ſhores of *Caermarthenſhire* near *Laugharne*. Mr. PENNANT ſays it inhabits *Red Wharf, Angleſea*. Doctor PULTENEY mentions it being dredged up at *Weymouth*, but rare.

5.

Solen pellucidus. *Br. Zool.* t. 46. f. 23. *Turt. Lin.* iv. p. 181.

PELLUCIDUS.

S. with an oblong ſub-arcuated, pellucid, fragile ſhell; compreſſed, and rounded at each end, covered with a greeniſh epidermis: hinge near to one end, furniſhed with a ſingle ſmall tooth in one valve, locking into two in the oppoſite, with a lateral proceſs in each. Length a quarter of an inch: breadth little more than an inch.

This ſhell which was firſt noticed by Mr. PENNANT, was totally neglected by DA COSTA, who might perhaps

never have ſeen it, and conſidered it as a variety of the *Enſis* in a young ſtate. The *pellucidus* is not much more than one third as broad as that ſhell in proportion to its length; it alſo differs in the hinge. We have found it in *Cornwall*, and have received it from *Sandwich*. Mr. PENNANT found it to inhabit *Red Wharf, Angleſea*. It is however a rare ſpecies.

6.
LEGUMEN.

Solen Legumen. *Lin. Syſt.* p. 1114.—*Gmel. Syſt.* p. 3224. 4.
Br. Zool. t 46. f. 24.
Liſter Conch. t. 420. f. 264.
Chem. Conch. vi. t. 5. f. 32. to 34.
Don. Br. Shells. ii. t. 53.—*Da Coſta.* p. 238.
Gault. t. 91. f. A.—*Turt. Lin.* iv. p. 181.

S. with a ſtraight, oblong, ſub-oval ſhell, thin and ſub-pellucid; colour white, but moſtly covered with a yellowiſh epidermis, and wrought with fine concentric ſtriæ: hinge near the middle, furniſhed with two ſmall teeth in one valve, receiving a ſingle one from the oppoſite; with a hook-like proceſs in each valve, pointing towards the cartilage. This ſpecies is mentioned as rare, or at leaſt very local by ſeveral authors, and not to exceed two inches and a half in breadth. We have found it on the coaſt of *Caermarthenſhire*, nearly an inch long, and four inches broad; and very little inferior in ſize in *Biddeford bay*, on the coaſt of north *Devon*, where it is in great abundance, and by far the moſt common ſpecies.

Mr. PEN-

Mr. PENNANT mentions it from *Red Wharf, Angleſea;* DA COSTA from the ſhore near *Chriſtchurch, Hampſhire.*

7.

Solen fragilis. *Pult. Cat. Dorſet.* p. 28. FRAGILIS.

S. with a very thin, pellucid, fragile, gloſſy, white ſhell, ſomewhat depreſſed in the middle from the hinge to the oppoſite margin; oblong, rounded at both ends; hinge near the middle, furniſhed with a ſmall ſubulate tooth in one valve; in the other two, one of which is ſubulate, the other broad, both recurved.

This is a very rare ſpecies; we received it from the Rev. Mr. RACKETT, and believe it was found on the *Dorſet* coaſt. This ſpecimen is nearly an inch and a half broad, and half an inch long.

Doctor PULTENEY ſpeaks of it as belonging to the *Portland* cabinet, named by Doctor SOLANDER. We confeſs this ſhell has hitherto eſcaped our notice on the various parts of the coaſt we have examined, but can have no doubt of its being *Engliſh*, as the Doctor found it himſelf on *Studland* beach. This author mentions that it is marked with one or two reddiſh ſtripes, in an oblique direction from the hinge towards the margin; our ſpecimen has no ſuch markings.

8.

ANTIQUATUS.

Solen antiquatus. *Pult. Cat. Dorſet.* p. 28.
Solen Cultellus. *Br. Zool.* t. 46. f. 25.
Chama Solen. *Da Coſta.* p. 238.
Liſter Conch. t. 421. f. 265.

S. with a thin, ſub-pellucid, white ſhell, moderately gloſſy, wrought with fine concentric ſtriæ; recent ſhells are covered with a yellowiſh-brown epidermis: the ends are rounded and gaping: hinge placed near the centre: teeth, a ſingle one in one valve, locking in between two in the oppoſite; theſe are erect, and project beyond the *commiſſure* or margin, and ſtand rather oblique. Inſide ſmooth gloſſy white. Length near an inch, breadth two inches:

Mr. PENNANT, who firſt gave this ſpecies as a *Britiſh* ſhell, has erred with reſpect to the number of teeth, giving only a ſingle tooth in each valve. DA COSTA, and Doctor PULTENEY have fallen into the ſame error. It ſhould ſeem from this circumſtance, that the teeth are eaſily deſtroyed, and indeed we have found it to be the caſe, but by the aſſiſtance of a glaſs readily diſcover the fractured part. We have received it perfect from *Looe* in *Cornwall;* but more frequently with the loſs of one or two teeth. Mr. PENNANT ſpeaks of its being found at *Weymouth.* DA COSTA received it from *Dorſetſhire* and *Hampſhire.* It may however be ranked among our ſcarcer ſhells.

As this ſpecies is certainly not the *Cultellus* of LINNÆUS, we have followed Doctor PULTENEY inthe name here

here prefixed, and by which it was called by Doctor SOLANDER in the *Portland* cabinet.

9.
MINUTUS.
TAB. 1. f. 4.

Solen minutus *Lin. Syſt.* p. 1115. 42.
Gmel. Syſt. p. 3226. 11.
Chem. Conch. vi. t. 6. f. 51. 52.
Liſter Conch. t. 426. f. 267 ?
Turt. Lin. iv. p. 182.

S. with an opaque whitiſh ſhell, rugoſe or wrinkled tranſverſely ; ſub-oval, truncated at one end cloſe to the hinge : valves generally diſſimilar, each furniſhed with two rows of concave ſpines running from the *umbo ;* one along the upper or hinge ſide; the other in a diagonal direction the whole length of the ſhell. The under valve projects a little over the other, except at the truncated end cloſe to the hinge. Length a quarter of an inch ; breadth half an inch.

This very rare ſpecies, never before noticed as *Britiſh*, we found burrowed in hard lime-ſtone at *Plymouth*, and can therefore with certainty add it to the liſt of *Engliſh* ſhells. It is a northern ſpecies, has been found to inhabit *Coral* rocks in *Norway* and *Greenland*.

LINNÆUS makes it to be the ſize of a cucumber ſeed; ſome we found were not ſo large, but one in particular far exceeded that ſize, the figure of which is given.

Solen

10. VESPERTINUS.

Solen veſpertinus. *Gmel. Syſt.* p. 3228. 20.
Chem. Conch. vi. t. 7. f. 59. 60.
Tellina depreſſa. *Br. Zool.* t. 47. f. 27.—*Turt. Lin.* iv. p. 186.
Tellina variabilis. *Pult. Cat. Dorſet.* p. 29.
Don. Br. Shells. ii. t. 41. f. 2.
Turt. Lin. iv. p. 188.—*Favan.* t. 49. D. 1. 2.

S. with an ovate-oblong, depreſſed ſhell, moderately thick; white, or fleſh-colour, marked with concentric ſtriæ, and radiated with carnation from the *umbo* in all directions to the margin; beak nearly central, ſmall; teeth erect, two in one valve, one in the other; with a ſtrong projecting lamina in each, to which the connecting cartilage is fixed. Inſide ſmooth, gloſſy; margin plain. In young ſhells the colours are much ſtronger: ſome are quite purple, others pale pink or orange, more or leſs rayed, frequently with one or two ſtronger rays at the *umbo;* and ſometimes the interior margin is prettily ſtreaked. Full grown ſhells are an inch and a quarter long; and near two inches and a half wide.

Doctor PULTENEY mentions this ſpecies to be found on the *Dorſet* coaſt at *Poole* and *Weymouth.* It ſeems to have been named *Tellina variabilis* in the *Portland* Cabinet by Doctor SOLANDER; and the above author ſtates he has ſome reaſon to believe, that Doctor SOLANDER intended to remove it from the *Tellens.*

We have found this ſhell at *Falmouth* in *Cornwall;* and not uncommon of a ſmall ſize at *Kingsbridge* in *Devonſhire,* and other parts of that coaſt: but live ſpecimens are only taken by dredging.

GEN.

GEN. VII.

TELLINA.

Animal a TETHYS.

SHELL, generally ſloping, or ſomewhat curved on one ſide.

Hinge moſt commonly with three teeth: the lateral teeth in one valve flat or nearly obſolete.

1. FERVENSIS.

Tellina fervenſis. *Gmel. Syſt.* p. 3235. 31.
Turt. Lin. iv. p. 191.
Tellina ferroenſis. *Chem. Conch.* vi. t. 10. f. 91.
Pult. Cat. Dorſet. p. 29.
Tellina incarnata. *Br. Zool.* t. 47. f. 31.
Tellina radiata. *Da. Coſta.* p. 209. t. 14. f. 1.
Liſter. Conch. t. 394 f. 241.
Petiv. Gaz. t. 94. f. 9.
Tellina trifaſciata. *Don. Br. Shells.* ii. t. 60.

T. with a flat, oblong-ovate ſhell, three-quarters of an inch long, and an inch and a half broad, finely ſtriated tranſ-

tranſverſely; and elegantly radiated with red and white: *umbo* very ſmall, placed nearly central: teeth two in each valve, no lateral ones: from the *umbo* an oblique elevated ridge runs to one end, where it forms an angle, and renders all the ſtriæ at that part angulated and more rugoſe. Recent ſhells are frequently covered with a thin yellowiſh epidermis. Inſide white, or more frequently of a roſy hue, ſmooth and gloſſy: margin plain. This does not appear to be a plentiful ſpecies. It is ſparingly found at *Poole* and *Weymouth* in *Dorſetſhire:* DA COSTA ſays at *Scarborough* in *Yorkſhire.* We have found it in *Cornwall,* particularly at *Falmouth* dredged from the harbour; and on ſeveral parts of the coaſt of *South Devon.*

Certainly not the *trifaſciata* of GMELIN.

2.
SQUALIDA.

Tellina ſqualida. *Pult. Cat. Dorſet.* p. 29.
Telina depreſſa. *Gmel. Syſt.* p. 3238. 55?
Gualt. 88. L. M.

T. with a thin, flat, ſub-oval ſhell, faintly ſtriated concentrically; the cartilage end running into a beak: *umbo* ſmall, central; teeth two in one valve, in the other three, one of which is a little remote, laminated at the baſe, ſharp at the point: the ſmall end of one valve reflects a little outwards and forms a depreſſion on the ſurface; the other turns inwards to correſpond: colour pale orange-yellow, ſometimes almoſt white. Recent ſhells are frequently covered with a thin brown epidermis; beneath

neath which it is gloſſy. Inſide ſometimes yellow, in others white; margin remarkably ſharp. Length an inch; breadth an inch and three-quarters. Dr. PULTENEY ſays it is found on the north ſhore at *Poole*, and at *Weymouth* ſparingly.

We have found it in *Cornwall* and on ſeveral parts of the ſouth coaſt of *Devon*,

3.

LÆTA.

Tellina læta. *Pult. Cat. Dorſet.* p. 29.
Tellina punicea. *Gmel. Syſt.* p. 3239.—*Turt. Lin.* iv. p. 194.
Born. Mus. t. 2. f. 8.
Chem. Conch. x. t. 170. f. 1654. 55.

T. with an ovate-oblong, flat, and moderately ſtrong ſhell, marked with ſtrong, regular, concentric ſtriæ: equivalve, and nearly equilateral: *umbo* ſmall, pointed; hinge furniſhed with three teeth; the outer one on the anterior ſide bifid, the other exterior one broad, more diſtant, ſtanding obliquely tranſverſe, and is a ſort of medium between a primary and a lateral tooth; in each valve one lateral laminated tooth very remote: margin ſharp.

Engliſh ſpecimens are uſually of a plain yellowiſh-white, without any of the coloured markings obſerved in exotics, which are roſe or carnation, and frequently with lighter and darker ſhades in concentric bands. In ſize

alſo ours are inferior to foreign ones, rarely exceeding three quarters of an inch in length, and an inch and three-eighths in breadth.

This ſpecies bears ſome reſemblance to the *T. ſqualida*, but is not ſo pointed at the ſmaller end; it differs alſo in the teeth, and ſtrong defined ſtriæ.

We were firſt indebted to our late worthy friend Doctor PULTENEY for a knowledge of this ſpecies as an *Engliſh* ſhell, who informed us it was found on the ſandy beaches in various parts of the *Dorſetſhire* coaſt; and we have ſince been favoured with a ſpecimen from Mr. BRYER, who aſſures us he has more than once picked it up on the ſands between *Weymouth* and *Portland*.

4.
DONACINA.

Tellina Donacina. *Lin. Syſt.* p. 1118.—*Gmel. Syſt.* p. 3234. 26. *Pult. Cat. Dorſet.* p. 29.—*Turt. Lin.* iv. p. 190.
Gualt. t. 88. N?
Chem. Conch. vi. t. 12. f. 119?
Tellina trifaſciata. *Br. Zool.* No. 33?

T. with a thin, ſub-oval, compreſſed, ſemi-pellucid ſhell, faintly marked with concentric ſtriæ, of a yellowiſh colour, prettily radiated with red: theſe rays in ſome are broken, and make the ſhell appear ſpotted, or zoned in belts parallel to the margin: *umbo* ſmall, placed neareſt to

to one end; the cartilage end is ſhort and much ſloped from the hinge, ſo as to have a ſub-truncated appearance, like the genus *Donax:* the hinge is furniſhed with two teeth in one valve; that behind the beak extends into a lateral lamina; a ſingle tooth in the other valve. Inſide ſmooth, gloſſy, yellow, rayed like the external part but more faint. Some ſpecimens are almoſt white, but rarely without a red mark at the *umbo*, at which part, and on the margin of the umbonal regions, the colour is ſtrongeſt in all. Length rarely more than half an inch, breadth three-quarters of an inch.

We have found this elegant ſpecies in *Falmouth* harbour; and in *Salcomb* bay, in *Devonſhire:* have alſo received it from our worthy friend and able conchologiſt Mr. BOYS of *Sandwich*, on the ſhores of which place it is not uncommon. Doctor PULTENEY ſpeaks of its being found at *Weymouth* ſparingly. Mr. PENNANT, who probably intended this for his *trifaſciata*, has been miſtaken in quoting that ſhell of LINNÆUS: we believe that ſpecies has never been found in *England*.

5.

TENUIS.

Tellina tenuis. *Da Coſta.* p. 210.
Don. Br. Shells. i. t. 19. 3 lower figures.
Tellina planata. *Br. Zool.* t. 48. f. 29.—*Turt. Lin.* iv. p. 188.
Tellina polita. *Pult. Cat. Dorſet.* p. 29.
Liſter Conch. t. 405. f. 250. 251.
Chem. Conch. vi. t. 11. f. 101.
Gualt. 77. M.

T. with a thin, brittle, flat, ſub-pellucid, ſub-oval, gloſſy ſhell, with a few fine concentric ſtriæ; *umbo* ſmall, placed nearly central; the cartilage end ſomewhat pointed: colour various; white, yellow, carnation, of all ſhades, more or leſs zoned with a lighter colour. Length half an inch, breadth three-quarters.

This ſpecies is plentiful on moſt of our ſandy ſhores. It has been conſidered by Doctor PULTENEY, as well as Doctor SOLANDER to be diſtinct from the *planata* of LINNÆUS, and which accords with our opinion. DA COSTA had followed Mr. PENNANT in quoting that ſhell.

The ſynonyms of GMELIN's *planata*, certainly do not accord with our ſhell; and yet it appears ſomewhat extraordinary that ſo common a ſpecies as this on our ſhores, ſhould not have been known to thoſe great naturaliſts.

6.
STRIATA.

Tellina ſtriata. *Gmel. Syſt.* p. 3238.—*Turt. Lin.* iv. p. 194.
Chem. Conch. vi. t. 12. f. 117.
Gualt. teſt. t. 89. C.

T. with a ſub-oval, flat, thin, ſub-pellucid ſhell, of a roſy-white colour, darkeſt towards the beak; ſomewhat gloſſy, but marked with very fine concentric ſtriæ: when examined with a lens ſome minutely fine markings appear, as if it was longitudinally ſtriated; but theſe are chiefly veins in the body of the ſhell: *umbo* very ſmall, pointed, not quite central; cartilage-ſlope indented.

Inſide

Inſide roſy, white round the margin: teeth two, with ſtrong laminated ones in each valve placed remote, one on each ſide. Length one inch, breadth five-eighths of an inch.

The ſhell above deſcribed, which appears to be the *T. ſtriata* in a depauperated ſtate, we were favoured with by Mr. BRYER, who found it on the beach between *Weymouth* and *Portland*,

CHEMNITZ has given a good figure of nearly the ſize of ours, and has with doubt called it the *Tellina balauſtina* of LINNÆUS, but it is certainly not that ſhell.

We believe this ſpecies has never before been noticed as *Britiſh;* but poſſibly from ſimilitude to the *T. tenuis* it may have been confounded; it is however at once diſcriminated by the fine regular tranſverſe ſtriæ, and ſtrong lateral teeth on each ſide. Whereas the *tenuis* has no lateral tooth in one valve, and only one in the other, and that not very remote.

7.
FABULA.

Tellina Fabula, *Gmel. Syſt.* p. 3239. 61.
Turt. Lin. iv. p. 194.
Don. Br. Shells. iii. t. 97.
Tellina diſcors. *Pult. Cat. Dorſet.* p. 54.

T. with a thin, pellucid, compreſſed, oval, white ſhell, with uſually a tinge of bluſh, or yellow at the *umbo;* and ſometimes the whole ſhell is of a dull yellow, or yellowiſh-white,

white, gloſſed with a pearly hue, as viewed in ſome particular lights; *umbo* placed nearly central, very ſmall, pointed, and turned a little to one ſide: the anterior ſide ſlopes very conſiderably to an obtuſe point; the oppoſite end is much larger and perfectly rounded. Inſide ſmooth, gloſſy-white, with uſually more or leſs tinge of yellow towards the beak: hinge furniſhed with three teeth in one valve, one of which is lateral, not very remote: in the other valve only two ſmall central teeth.

The remarkable character of this ſhell is, that the valve poſſeſſed of three teeth, or (as Doctor PULTENEY expreſſes it) the left valve, is finely, regularly, and elegantly ſtriated in a diagonal direction; but not very conſpicuous without the aſſiſtance of a lens: the other valve is quite plain, except the uſual concentric wrinkles, which are faint; this valve turns a little inwards, at the point of the produced end, to correſpond with the other which reflects at that part. It is ſubject to ſome variety, with reſpect to the diagonal ſtriæ peculiar to the ſiniſtral valve; in ſome theſe run all over, except down the cartilage ſlope; in others only half way from the ſmaller end, the larger end being only marked with concentric wrinkles.

This ſpecies might readily be confounded with the *T. tenuis*, but is broader in proportion to its length, and more produced and pointed at the ſmaller end: it is indeed more like the *T. læta* in ſhape, but greatly inferior in ſize.

We

We have received it from our worthy friend Mr. BOYS of *Sandwich*, where it is not uncommon, of a much ſuperior ſize to thoſe found on other parts of our coaſts; meaſuring five-eighths in length, and one inch in breadth: whereas thoſe on the *Dorſetſhire* coaſt are ſtill ſmaller by Doctor PULTENEY's account, who ſays they have been found on the beach at *Studland*.

It is alſo found on the ſouth coaſt of *Wales*, particularly near *Tenby;* but we have never met with it more plentiful than in the ſand heaps about *Kingsbridge* in *Devonſhire*, which is brought from *Salcomb bay*, for the purpoſe of manure.

It ſeems this ſhell was known to Doctor SOLANDER, by whom it was named *ſemiſtriata*.

GMELIN ſays, it inhabits the *Norwegian*, *Mediterranean*, and *American* ſeas.

8.

SOLIDULA.

Tellina incarnata. *Lin. Syſt.* p. 1118. 58?
Gmel. Syſt. p. 3234. 25?
Chem. Conch. vi. t. 12. f. 110.
Lifter Conch. t. 405. f. 250. 251.
Id. Angl. t. 4. f. 25.
Turt Lin. iv. p. 190.
Tellina carnaria. *Br Zool.* t 49. f. 32.
Tellina rubra. *Da. Coſta.* p. 211. t. 12. f. 4.
Tellina ſolidula. *Pult Cat. Dorſet.* p. 29.

T. with

T. with a ſtrong, convex ſhell, of a ſub-orbicular ſhape; the poſterior end in ſome projecting into a ſhort beak ſomewhat compreſſed: colour various; white, yellow, red, with intermediate ſhades; ſome are plain, others are banded or zoned: *umbo* placed near the middle; hinge furniſhed with two ſmall teeth in each valve. Length three-quarters of an inch: breadth rather more. The inſide of this ſhell is generally of a ſtronger and much finer colour than the outſide: in ſome it is of a deep red.

This ſpecies is found common on moſt of the *Britiſh* coaſts, particularly the ſandy bays and inlets, buried four or five inches beneath the ſurface.

This is certainly not the *carnaria* of LINNÆUS, as was ſuppoſed by Mr. PENNANT; but there ſeems little doubt that it is the *incarnata* of that author; and what rather confirms us in this opinion is, that the ſynonyms of GMELIN in moſt inſtances correſponds with ours.

9.
FAUSTA.

Tellina Remies. *Lin. Syſt.* p. 1119. 62?
Gmel. Syſt. p. 3239. 66.
Turt. Lin. iv. p. 195.
Chem. Conch vi. t. 12. f. 112. 113.
Lifter. Conch. t. 266. f. 102.
Tellina fauſta. *Pult. Cat. Dorſet.* p. 29.

T. with a ſub-orbicular, ſomewhat compreſſed, ſub-pellucid, white ſhell, with numerous fine concentric ſtriæ:

ſtriæ: at the poſterior end a flexure from the *umbo* to the margin: *umbo* ſmall, nearly central, and not turning to either ſide: hinge furniſhed with ſtrong lateral teeth, that on the cartilage ſide very remote: one of the primary teeth in each valve bifid. Inſide ſmooth, white; margin plain. This ſhell is nearly as long as it is broad; the ſides ſlope conſiderably, and occaſion the *umbo* to be much produced. In ſome points of view many fine opaque radii are obſerved, as it were within the body of the ſhell.

Doctor PULTENEY, who firſt gave this ſpecies as *Britiſh*, ſtates it to have been found one inch and three-quarters wide, dredged up at *Weymouth*; and adds that ſmall ones are found on the ſhore.

10.
CRASSA.

Venus craſſa. *Gmel. Syſt.* p. 3288. 90.
Tellina craſſa. *Br. Zool.* t 48. f. 28.
Turt. Lin. iv. p. 186.
Pectunculus depreſſior. *Da. Coſta.* p. 194. t. 13. f. 4. right hand.
Tellina rigida *Pult. Cat. Dorſet.* p. 30.
Liſter Conch. t. 299. f. 136.
Favan. t. 48. O.

T. with a ſtrong, thick, ſub-orbicular ſhell, with fine cloſe-ſet, concentric ſtriæ, interrupted by a few coarſer ridges: colour white, with broad and narrow rays of pink, moſt conſpicuous towards the margin: ſome are plain white, others of a yellowiſh caſt: the valves unequal; the left or lower valve is conſiderably convex, the

other much more compreſſed : *umbo* placed a little to one ſide, point ſmall, turning forwards : hinge furniſhed with two teeth in each valve, one of which is bifid : in the deep valve two lateral teeth, one more remote than the other. Inſide white, with a tinge of bluſh colour. Length an inch and a half, breadth two inches ; ſometimes larger.

Da Costa, who gives this ſhell by the title of *Pectunculus depreſſior*, ſays he received it from *Cornwall*. He does not chooſe to give Mr. Pennant credit for his *Tellina craſſa*, but makes that ſhell his *Trigonella plana*.

There is no doubt however that Pennant knew this ſhell by his deſcription, and ſpeaks of it as diſtinct from his *Venus borealis*, the *Trigonella plana* of Da Costa.

Doctor Pulteney notes it as rare at *Weymouth*, and on the north ſhore at *Poole*.

We have found it plentiful at *Falmouth* and at *Helford* in *Cornwall*, dredged up with the ſand from thoſe harbours, but rarely double or live ſhells.

Alſo on ſome parts of the ſouth coaſt of *Devon*, particularly *Salcomb bay ;* and on the coaſt of *Caermarthenſhire* in *Wales*.

11. Proficua.

Tellina proficua. *Pult. Cat. Dorſet.* p. 29.
Petiv. Gaz. t. 93. f. 18.
Chem. Conch. vi. t. 12. f. 118.

Tellina

Tellina reticulata. *Lin. Syſt.* p. 1119. 63.
Gmel. Syſt. p. 3240. 67 ?
Turt. Lin. iv. p. 195.

T. with a ſub-orbicular, ſub-diaphanous ſhell, beſet with numerous fine, regular, elevated, concentric ridges; the interſtices or furrows croſſed with minute ſtriæ, ſcarce diſcernable but by the help of a glaſs: *umbo* ſmall. prominent, placed nearly central, and turns a little to one ſide: hinge with two ſmall central teeth, and broad laminated lateral ones, projecting above the margin; from the apex a furrow runs on the inner ſide of the poſterior lateral tooth, in which the connecting cartilage is fixed; colour yellowiſh-white. Inſide ſmooth, gloſſy yellow: the tongue or *cicatrix* to which the animal is affixed, is broad, and runs into the middle of the ſhell; margin plain, beneath which is a depreſſed punctured line, parallel with the outer edge, not very conſpicuous in younger ſhells. Length an inch and a quarter, breadth ſomewhat more.

We were favoured with this ſpecies by the Rev. Mr. RACKETT, who ſaid it was found rarely in *Dorſetſhire*. Doctor PULTENEY ſays on the north ſhore at *Poole*, and at *Weymouth*.

CHEMNITZ has given a very good figure of this ſhell, and quoted the *Tellina reticulata* of LINNÆUS. GMELIN has not quoted CHEMNITZ's figure, nor has he given any ſynonyms.

12.
RADULA.
TAB. 2. f. 1. 2.

Favan. t. 48. f. 3.

T. with a convex, ſub-orbicular, white ſhell; beſet with numerous fine ſharp-edged ſtriæ concentrically: extremely rough to the touch like a raſp: *umbo* central, ſmall; apex turned to one ſide, very little projected; umbonal region much depreſſed, and marked with an oblong cordiform cavity; a flexure, at the poſterior end, running from behind the *umbo* to the front angle, not quite parallel with the cartilage ſlope: hinge with two ſmall teeth in each valve ſtanding a little oblique, no lateral ones. Inſide white, not gloſſy; a border round the margin more perfectly white than the reſt: *cicatrix* narrow, running downward, nearly parallel with the margin.

This ſpecies has much the habit of the *proficua*, but is eaſily diſtinguiſhed from it externally by the beak being leſs produced, by the cordiform depreſſion; by the flexure at the poſterior end, and by the ſuperior convexity and want of the longitudinal ſtriæ. Internally by not having any lateral teeth or groove; in the ſhape and ſituation of the tongue or *cicatrix;* and in being invariably white.

With theſe ſtrong and eſſential characteriſtic diſtinctions, it is hardly poſſible to conceive theſe two ſhells can have been confounded, and yet it is ſomewhat extraordinary, that a ſhell ſo abundant as this is on ſome of our coaſts, ſhould have remained ſo long unnoticed by thoſe who have written profeſſedly on the ſubject; for we cannot affix

affix any ſynonyms to it. The uſual ſize is about an inch and a half broad, and ſcarcely the eighth of an inch leſs in length. We have found it not uncommon on ſome parts of the coaſt of *South Devon;* leſs frequent on the *Caermarthenſhire* coaſt about *Laugharne*, and in great abundance in *Cornwall*, particularly at *Falmouth*, amongſt the ſand dredged from the harbour for the purpoſe of manure; by which means it is common in the arable fields about that place.

13. BIMACULATA.

Tellina bimaculata. *Lin. Syſt.* p. 1120. 67.
Gmel. Syſt. p. 3240. 71.
Chem Conch. vi. t. 13. f. 127. var. 132. a. b.
Pult. Cat. Dorſet. p. 30.
Don. Br. Shells. i. t. 19. f. 1. & two purple figures.
Lifter Conch. t. 385. f. 232.—t. 389. f. 228?
Da Coſta. p. 213.
Turt. Lin. iv. p. 196.

Tellina variegata. *Gmel. Syſt.* p. 3237. 43?
Turt. Lin. iv. p. 192.

T. with a roundiſh, ſub-triangular ſhell, faintly ſtriated tranſverſely; whitiſh, with two deep-red or purple ſpots or ſtreaks at the beak; in ſome ſpecimens this mark runs more than half way acroſs the ſhell, but never quite; is much ſtronger marked within than on the outſide: *umbo* nearly central; apex turned a little to one ſide; primary teeth large; lateral ones ſtrong, remote. Length half an inch; breadth five-eighths. It is ſometimes found quite plain,

plain, others are marked with a few interrupted rays of pale purple, which appear like ſpots in the ſhape of arrow-heads, beſides the broad purple or red ſtreaks; but in ſome the broad marks are entirely wanting, and the pale-purple ſpots or rays only viſible, which variety is probably the *Tellina variegata* of GMELIN. DA COSTA ſays he received this ſpecies from the ſhores of *Lancaſhire* and *Hampſhire*. Doctor PULTENEY ſays ſparingly on the coaſt at *Poole* and at *Weymouth*.

We believe it to be amongſt the rare ſhells of *Great Britain*, though we are informed by Mr. BRYER that it is not uncommon on the ſhore between *Weymouth* and *Portland;* ſpecimens of which he favoured us with, and amongſt them a variety entirely white.

14.
LACTEA.
TAB. 2. f. 4.

Tellina lactea. *Lin. Syſt.* p. 1119. 65.
Gmel. Syſt. p. 3240. 69.
Pult. Cat. Dorſet. p. 30.
Chem. Conch vi. t. 13. f. 125?
Petiv. Gaz. t. 93. 18.
Gualt. t. 71. D.
Turt. Lin. iv. p. 195.

T. with a thin, orbicular, convex, white ſhell, with fine concentric irregular wrinkles: *umbo* ſmall, turning to one ſide, central; hinge furniſhed with two teeth in one valve, one in the other; theſe are very ſmall, but what at once diſtinguiſhes this ſhell is a deep ſulcus or groove by

by the ſide of the teeth in each valve, running from the *umbo*, into which the connecting cartilage is fixed.

This ſpecies is not in general gloſſy in a recent ſtate, and moſt commonly has the ſtriæ interſperſed with a few antiquated ridges. Diameter three quarters of an inch. It is found on many parts of the coaſt, chiefly in bays and inlets. We have met with it ſparingly at *Falmouth*, about *Kingsſbridge* in *Devonſhire*, at *Poole* in *Dorſetſhire*, and have received it from *Kent:* but it does not appear to be common any where, and live ſhells are very rare.

15. ROTUNDATA. TAB. 2. f. 3.

Tellina undata. *Pult. Cat. Dorſet.* p. 30?

T. with a thin, ſub-pellucid, orbicular, white ſhell, rather convex, wrought with fine (almoſt obſolete) ſtriæ concentrically; moderately gloſſy: *umbo* ſmall, rather prominent, and turned to one ſide, placed near the middle: teeth two in each valve, one of which is bifid, the other a little diverging. Inſide ſmooth, gloſſy white. This ſpecies varies a little in ſhape, in ſome the front margin is a little ſtraitened, and makes one end rather ſmaller than the other, in which caſe the breadth rather exceeds the length. Its largeſt diameter is ſeldom more than an inch, and few equal that ſize.

This ſhell has much the habit of the *Venus undata*, and may readily be confounded with it; the material diſtinction

on is, that it is not ſo much produced at the *umbo*, the hinge not ſo ſtrong, and in not having three teeth in either valve, the eſſential character of that ſhell: nor has it any *cicatrix* within.

We believe Doctor PULTENEY has given this for the *Venus undata* of PENNANT under the title of *Tellina undata;* for we have no doubt if the Doctor had been fortunate enough to have found the *Venus undata*, he would not have placed it in the *Tellen* genus. This laſt author mentions having found it at *Poole* not uncommon. We have picked it up on the ſhores of that harbour; alſo on the coaſt of *Devonſhire*, and at *Falmouth* in *Cornwall*, but rarely live or double valves.

16.
FLEXUOSA.

Venus ſinuoſa. *Don. Br. Shells.* t. 42. f. 2.

T. with a thin, pellucid, fragile, convex, ſub-orbicular, white ſhell: from behind the *umbo* to the lower angle of the margin, a ſulcus runs parallel with the cartilage ſlope, and forms a ſinus or flexure at the edge. It is finely, but irregularly ſtriated concentrically, and is not very gloſſy: *umbo* placed central, much produced, and turns to one ſide at the apex: hinge with an obſolete tooth; along the margin, from behind the *umbo*, a groove in which is fixed the connecting cartilage: Inſide ſmooth, gloſſy white. Mr. DONOVAN has given a figure of a variety of this ſhell, as the *Venus ſinuoſa* of PENNANT, in which

which we conceive he has erred. We believe this ſingular ſpecies was firſt noticed by us in *Cornwall*, from which place we ſent ſeveral ſpecimens to Mr. RACKETT, from whoſe collection DONOVAN ſtates to have taken his figure.

Mr. PENNANT's ſhell is certainly in obſcurity, but it is impoſſible he could have intended this for it, for independent of the figure given in the *Br. Zoology*, which is not in the leaſt like this ſhell in ſize or ſhape, the placing it as a *Venus* precludes the poſſibility of their being the ſame. The *Tellina flexuoſa* is indeed ſometimes a little indented on the front margin; but this muſt be conſidered as an accidental diſtortion; and in no caſe is it found without the ſulcus and ſinus at the poſterior end, the ſtrong ſpecific character.

This ſhell ſeldom exceeds three-eighths of an inch in diameter, and never arrives at half an inch; and in length is rather more than in breadth.

It is plentiful in the ſand of *Falmouth* harbour, and not uncommon on the ſouth coaſt of *Devonſhire*.

17. CARNARIA.

Tellina carnaria. *Lin. Syſt.* p. 1119.
Gmel. Syſt. p. 3240. 70.
Chem. Conch. vi. t. 13. f. 126.
Pult. Cat. Dorſet. p. 30.
Liſter Conch. t. 339. f. 176.

Tellina carnaria. *Don. Br. Shells.* ii. t. 47.
Turt. Lin. iv. p. 195.
Cardium carneoſum. *Da Coſta.* p. 181.

T. with a ſub-orbicular, ſub-pellucid, flattiſh ſhell, with one ſide rather longer than the other, ſtriated in three directions; the middle area is rather oblique from the *umbo* to the margin; the poſterior end in an oblique direction the contrary way; thoſe on the anterior margin tranſverſe and undulated; theſe ſtriæ are extremely fine as if cut with an engraving tool: colour moſt commonly white, with a roſy hue; others are pink or carnation, and ſometimes banded with paler and darker ſhades: *umbo* nearly central, ſmall, and turns a little to one ſide: hinge furniſhed in one valve with two ſmall teeth, one of which is biſid, in the other one tooth: lateral laminated teeth remote. Inſide ſmooth, gloſſy, moſt commonly of a fine roſe colour. Length rarely more than three-quarters of an inch; breadth about an eighth of an inch more.

Doctor PULTENEY ſays, this elegant ſpecies is found ſparingly at *Poole* and at *Weymouth.* DA COSTA mentions having received it from *Scarborough* and other places in that county, and likewiſe in plenty from *Devonſhire* and *Cornwall.* We muſt however remark a ſuſpicion that DA COSTA was miſled with reſpect to this ſhell being plentiful in the laſt mentioned counties, as we have examined thoſe coaſts frequently, without ever finding even a ſingle valve.

18.

Tellina inæquivalvis. *Lin. Syſt.* p. 1118. INÆQUIVALVIS.
Gmel. Syſt. p. 3233. 23.
Chem. Conch. vi. t. 11. f. 106. a. b. c. d.
Don. Br. Shells. ii. t. 41. f. 1.
Turt. Lin. iv. p. 189.

T. with an oblong, ſub-oval, ſub-pellucid, white ſhell; one valve is nearly flat, the other convex: arcuated along the cartilage ſlope, and extending into a conſiderable obtuſe beak at that end; the other end rounded: teeth two; no lateral teeth. Length half an inch, breadth one inch.

This ſpecies, which is an inhabitant of the *Mediterranian* and *Norwegian* ſeas, has been given by Mr. DONOVAN as an *Engliſh* ſpecies; whether it is ſtrictly ſo is at preſent to be doubted; though he aſſures us it is found on the coaſt of *Guernſey*.

19.

T. teſta ſubovata craſſiuſcula, decuſſatim ſtriata, maculis irregularibus. *Adams Min. Shells. Lin. Trans.* iii. p. 252. MACULATA.

This ſpecies, which appears not to have been deſcribed before, Mr. ADAMS adds the following obſervation upon.

It is remarkable in this ſpecies, that although the figure of the ſpots in different ſpecimens is quite diſſimilar, yet in both the upper and under ſhell they are perfectly ſimilar.

Found at *Tenbigh*.

GEN. VIII.

CARDIUM.

Animal a TETHYS.

SHELL bivalve, equivalve, convex, for the moſt part longitudinally ribbed.

Hinge with two teeth near the beak, a larger placed remote on each ſide, locking into the oppoſite valve.

1. EDULE.

Cardium edule. *Lin. Syſt.* p. 1124. 90.
Gmel. Syſt. p. 3252. 20.
Chem. Conch. vi. t. 19. f. 194.
Liſter Conch. t. 334. f. 171.—*Id. Ang.* t. 5. f. 34.
Br. Zool. t. 50. f. 41.—*Turt. Lin.* iv. p. 205.
Pult. Cat. Dorſet. p. 30.—*Gualt.* t. 71. F.
Cardium vulgare. *Da Coſta.* p. 180. t. 11. f. 1. 1.

C. with about twenty-ſix antiquated ribs, of a yellowiſh-white colour; the poſterior end a litttle elongated, and generally of a darker colour. Greateſt diameter rarely exceeds an inch and three-quarters.

This

This ſpecies is very common in moſt of our inlets and bays, near the mouths of rivers, where the ſhore is ſandy, buried three or four inches under the ſurface; where it is taken for the table, and is vulgarly called *Cockle*.

A variety is frequently found quite equilateral, not ſo large, and perfectly white; ſuch has been conſidered as a diſtinct ſpecies, but we believe without foundation.

2.
ACULEATUM.

Cardium aculeatum. *Lin. Syſt.* p. 1122. 78.
Gmel. Syſt. p. 3247. 7.
Chem. Conch. vi. t. 15. f. 155. 157.
Gualt. t. 72. A.—*Br. Zool.* t. 50. f. 37.
Turt. Lin. iv. p. 201.—*Da Coſta.* p. 175.
Don. Br. Shells. i. t. 6.—*Favan.* t. 52. A.
Liſter Conch. t. 321. f. 158?
Cardium tuberculatum. *Pult. Cat. Dorſet.* p. 30?

C. with a very convex ſhell; the anterior ſide rounded, the other nearly ſtraight, or as it were truncated, and more elongated at the front marginal angle; ribs about twenty one, with a depreſſed line down the middle; the round end beſet with large compreſſed tubercles, the other part towards the margin with ſpines, which increaſe in length at the oppoſite ſide: colour yellowiſh brown, faſciated and blotched with rufous, and ſometimes blackiſh. Inſide gloſſy purpliſh, or fleſh colour, with flat ribs, the furrows on the outſide becoming raiſed within; interſtices between the ribs white.

Mr. PEN-

Mr. PENNANT has given a very good figure of this ſhell, and ſays it is found off the *Hebrides* and *Orknies*.

We have found it on ſeveral parts of the coaſt of *South Devon*, particularly on *Dawliſh Warren*, and at *Tor-croſs*. Diameter from the beak to the projecting angle of the longeſt ſide four inches, circumference about eleven.

3.
ECHINATUM.

Cardium echinatum. *Lin. Syſt.* p. 1122. 79.
Gmel. Syſt. p. 3247. 8.
Br. Zool. No. 28.
Da Coſta p. 176. t. 14. f. 2.
Pult. Cat. Dorſet. p. 30.
Chem. Conch. vi. t. 15. f. 158.
Gualt. t. 72. B.—*Favan.* t. 52. C. 1. 2.
Liſter Conch. t. 324. f. 161.
Id. Ang. t. 5. f. 33.—*Turt. Lin.* iv. p. 201.

C. with a very convex ſhell, having about eighteen ribs furniſhed with numerous, cloſe-ſet, convex ſpines; colour ruſty-orange yellow.

This ſpecies differs from the *aculeatum* in being more round, the ribs more raiſed, which with the furrows are more wrinkled; the ſpines are more numerous and contiguous, but not ſo long; the ſhell is ſtronger, the teeth larger; and in ſize rarely exceeds two inches and a half in diameter. Inſide white, gloſſy; the ribs not ſo much raiſed at the upper part towards the beak. Mr. PENNANT ſays this ſhell has ſixteen ribs: LINNÆUS gives it twenty;

twenty ; in this particular both may be right, for in ſome the ſide ribs are ſcarcely defined but by rudiments of the ſpines.

This is common on moſt of our ſhores, and very numerous in ſome places, moſtly worn and bleached white: live ſhells are rarely obtained but by dredging: in this manner we have taken very fine ſpecimens from *Salcomb bay*. At *Falmouth* in *Cornwall* a ſhell very ſimilar to this in ſhape is common on the ſhore, and in the ſand dredged from the harbour: theſe have neither ſpines nor tubercles, vaſtly ſtronger and thicker, the ribs more convex, on which ſometimes are a few rudiments of tubercles; colour dark ruſty-brown: inſide furrowed only about half an inch from the margin.

We dare not venture to give this as a diſtinct ſpecies, never having been able to procure it in a recent ſtate, although we have picked up ſome hundreds ; and what is remarkable, none of the thinner ſhells are to be met with at that place. It is however ſometimes found on ſome parts of the *Devonſhire* coaſt with the other, and we have taken it on the coaſt of *Caermarthen*.

The young of the *echinatum* have the ridges, or ribs ſo much more angulated or ſharp, as to have been confounded with the *ciliare*

4.

Cardium ciliare. *Lin. Syſt.* p.1122.80.—*Gmel. Syſt.* p.3248.9. *Br. Zool.* t. 50. f. 39. CILIARE.

Cardium

Cardium ciliare. *Pult. Cat. Dorſet.* p. 31.
Don. Br. Shells. i. t. 32. f. 2.
Chem. Conch. vi. t. 17. f. 171. 172.
Liſter Conch. t. 325. f. 162.—*Gualt.* t. 72. C.
Turt. Lin. iv. p. 202.
Cardium parvum. *Da Doſta.* p. 177.

C. with an orbicular, thin, delicate ſhell; with about eighteen ſharp ribs, furniſhed with very compreſſed pointed ſpines; the grooves or furrows flat at the bottom, and ſomewhat gloſſy: colour generally white, but ſometimes partly yellowiſh.

This elegant ſpecies is rather ſcarce in *England*, though it has been noticed on ſeveral of our ſhores. We have found it ſparingly in *Cornwall* and *Devonſhire*. Diameter rarely above three-quarters of an inch.

5.
LÆVIGATUM.

Cardium lævigatum. *Lin. Syſt.* p. 1123. 88.
Gmel. Syſt. p. 3251. 18.
Br. Zool. t. 51. f. 40.—*Petiv. Gaz.* t. 93. f. 12.
Da Coſta. p. 178. t. 13. f. 6. 6.
Pult. Cat. Dorſet. p. 31.—*Gualt.* t. 82. A.
Don. Br. Shells. ii. t. 54.
Chem. Conch. vi. t. 18. f. 85. 86.
Liſter Conch. t. 332. f. 169.—*Id. Angl.* t. 5. f. 32.
Cardium oblongum. *Gmel. Syſt.* p. 3254. 34?
craſſum. *Id.* p. 3254. 35?
fluviatile. *Id.* p. 3255. 40.

C. with

C. with a ſub-oval ſtrong ſhell, ſtriated longitudinally; covered by a gloſſy yellowiſh-brown *epidermis*, which renders the ſtriæ nearly obſolete; a few irregular, concentric wrinkles are alſo obſervable: beneath the *epidermis* the ſhell is of a fleſh colour. Inſide ſmooth, gloſſy, white; margin denticulated. Length two inches and a half; breadth two inches. Young ſhells beautifully poliſhed and mottled with reddiſh-brown, or pink; inſide pink, except at the margin, where it is broken into ſpots in ſome, in others plain white.

This ſpecies is found on many parts of our coaſt, but is not commonly met with in a living or recent ſtate.

We have frequently taken it by dredging in *Salcomb bay*.

6. NODOSUM.

C. with a flat, ſub orbicular ſhell; colour ruſous-white, with twenty four ribs covered with cloſe-ſet, obtuſe tubercles. Inſide white, gloſſy; margin ſtrongly denticulated.

We found this new ſpecies ſparingly amongſt ſand from *Falmouth* harbour. Diameter three-quarters of an inch.

Although this ſhell bears ſome reſemblance to the young *echinatum*, it muſt not be confounded; the young of that ſpecies is always more globoſe, or convex; the ribs are more ſharp, and the tubercles more pointed and diſtant.

7. ELONGATUM. C. with a compreſſed, ſub-oval, ſub-angulated ſhell, of a yellowiſh-white or light rufous colour; with twenty one ribs, faintly wrinkled and rounded; *umbo* not central; poſterior ſide ſomewhat elongated, and angulated. Diameter a quarter of an inch.

We found this new ſpecies by dredging in *Salcomb bay*, but ſparingly.

8. EXIGUUM.

Cardium exiguum. *Gmel. Syſt.* p. 3255. 37.
Liſter Conch. t. 317. f. 154.
Walk. Min. Shells. f. 83.
Cardium pygmæum. *Don. Br. Shells.* i. t. 32. f. 3.
Turt. Lin. iv. p. 207.

C. with a very convex, ſub-triangular, ſub-cordated, white ſhell, with about twenty tuberculated ribs, the interſtices ſtrongly ſtriated tranſverſely: anterior ſide much ſloped, running into an angle nearly oppoſite the *umbo*. Old ſhells loſe the tubercles and become wrinkled all over. Inſide ſmooth, white, frequently rufous at the angulated ſide; margin denticulated. Length from the beak to the projecting angle of the front margin rather more than half an inch; breadth nearly the ſame.

We have found this ſpecies in great abundance at *Falmouth* in ſand from the harbour; and not uncommon at *Salcomb*, in *Devonſhire*. Have alſo received it from Mr. BOYS, fonnd on the coaſt of *Sandwich* ſparingly.

Cardium

9.

Cardium medium. *Lin. Syſt.* p. 1122.—*Gmel. Syſt.* p. 3246. MEDIUM.
Turt. Lin. iv. p. 200.
Chem. Conch. vi. t. 16. f. 162—164.
Liſter Conch. t. 316. f. 153.
Gualt. t. 83. f. B.
Don. Br. Shells. i. t. 32. f. 1.

C. with a ſub-triangular, ſub-cordated ſhell, with about thirty ſix ſmooth ribs, of a white colour, ſpotted and variegated with cheſnut-brown: ſomewhat truncated on one ſide, and running into an angle at the front margin; the other ſide is ſhorter and rounded. Inſide white, uſually coloured with ferruginous or cheſnut about the truncated ſide: primary teeth one in each valve, which with the lateral ones are ſtrong and elevated: margin crenated.

On the authority of Mr. DONOVAN we have given this as a *Britiſh* ſhell, as he informs us it has been found near *Hartlepool*, on the coaſt of *Durham*. The figure given by that author is ſcarce an inch in length: foreign ſpecimens are more than double that ſize.

Said to be found in the *Mediterranean* and *American* ſeas. It has much the ſhape of the *Cardium exiguum*.

10.

Cardium læve apice minuto. *Walk. Min. Shells.* 86 ? RUBRUM.

C. with a convex, ſmooth, gloſſy, pellucid, red ſhell: hinge not quite central; rather broader than it is long, rounded at both ends: *umbo* prominent; hinge with nearly

obſolete primary teeth; lateral ones very conſpicuous. Inſide gloſſy red; margin plain.

Not uncommon in ſand from *Falmouth*, and ſome parts of the *Devonſhire* coaſt, particularly about *Kingsbridge*. A minute ſpecies not exceeding the eighth of an inch in breadth.

From the deſcription in WALKER's Minute Shells, we have little doubt but this is the ſhell there deſcribed; and that either the ſize was forgot to be placed with the figure, or that it is found of a ſuperior ſize on the coaſt of *Kent*.

11.
DISCORS.

Tellina piſiformis. *Gmel. Syſt.* p. 3241 ?
Turt. Lin. iv. p. 196 ?

C. with a very convex, ſub-orbicular, gloſſy, white ſhell, finely ſtriated in an oblique direction, curved at the anterior ſide, the poſterior end in a contrary direction, forming an acute angle with the others; theſe are ſo fine as ſcarcely to be obſerved by the naked eye: *umbo* ſmall, central, and turns a little to one ſide. Inſide gloſſy white; margin plain; hinge furniſhed with one tooth; in the oppoſite valve two, one of which is very ſmall, with remote lateral teeth-like laminæ. Size of a ſmall pea, or rather more than a quarter of an inch long, and not quite ſo broad.

We

We heſitate to determine this ſhell to be actually *Engliſh*, having only found one dead ſpecimen in ſand at *Falmouth*, taken from the harbour.

12.

Cardium ſubcordatum antice muricatum. *Walk. Min. Shells.* f. 84.—*Adams. Microſc.* t. 14. f. 44. MURICATULUM.

C. with a heart-ſhaped, opaque, white ſhell, margin muricated.

A microſcopic ſpecies, minutely ſmall, found at *Sheppy* iſland, not uncommon.

13.

C. with a thin, fragile, ſemi-pellucid, orbicular, white ſhell, finely and regularly ſtriated tranſverſely in an arcuated manner, as if cut with an engraving tool, with a few irregular concentric furrows; not gloſſy: beak or *umbo* central, pointed at the apex, and turning to one ſide; hinge furniſhed with one primary tooth in each valve; laminated teeth remote: on the ſide of the middle tooth a ſulcus or groove in which the connecting cartilage is fixed. Inſide white, a little gloſſy, very concave; margin ſlightly crenated. Diameter not quite half an inch. ARCUATUM. TAB. 3. f. 2.

This ſhell has ſomewhat the habit of the *Tellina divaricata* of LINNÆUS.

We found this elegant ſpecies in *Falmouth* harbour, dredged up with ſand for manure; but not common.

Tellina

14.
CORNEUM.

Tellina cornea. *Lin. Syſt.* p. 1120. 72.
Gmel. Syſt. p. 3241. 76.
Chem. Conch. vi. t. 13. f. 133. a. b.
Turt. Lin. iv. p. 197.
Liſter Conch. t. 159. f. 14.—*Id. Ang.* t. 2. f. 31.
Don. Br. Shells. iii. t. 96.
Br. Zool. t. 49. f 36.
Lin. Trans. iii. t. 13. f. 39. 40.
Tellina rivalis. *Muller verm* 387—*Gualt.* t. 7. B. C.
Cardium Nux. *Da Coſta.* p. 173. t. 13. f. 2.
Cardium corneum. *Pult. Cat. Dorſet.* p. 31.
Cardium amnicum. *Id.* p. 31?

C. with a thin, pellucid, ſub-orbicular, convex ſhell, marked with fine concentric ſtriæ; *umbo* central, obtuſe, with the middle teeth very ſmall, lateral laminated ones remote, prominent. Inſide ſmooth, gloſſy blueiſh-white: ſize commonly about three-eighths of an inch in length, and ſomewhat broader.

In the river *Thames* it is found of extraordinary magnitude, frequently above half an inch long, and nearly three-quarters wide. Is in a recent ſtate always covered with a thin gloſſy *epidermis* of a lighter or darker horn-colour.

Common in moſt ſlow rivers and ſtagnant pools.

15.
AMNICUM.

Tellina amnica. *Gmel. Syſt.* p. 3242.—*Turt. Lin.* iv. p. 197.
Muller. verm. p. 205. No. 389.

Tellina

Tellina amnica. *Chem. Conch.* vi. t. 13. f. 134.
Gualt. t. 7. CC.—*Shroet Fluſsconch.* p. 193. No. 12.—p.194. No.17. 18. t.4. f.7. a. b.
Tellina rivalis. *Lin. Trans.* iii. p. 44. t. 13. f. 37. 38
Turt. Lin. iv. p. 187.
Don. Br. Shells. ii. t. 64. f. 2.

C. with a thin, ſub-pellucid, ſub-oval, convex ſhell, ſulcated tranſverſely; *umbo* placed neareſt to one ſide; hinge furniſhed with one central tooth, and two lateral teeth on each ſide in one valve, ſtanding parallel one within the other, the outer of which is very ſmall; in the other valve two primary teeth approximating, and ſtanding oblique, with one lateral tooth on each ſide: colour like the preceding ſpecies; ſize much inferior. Length rarely three-eighths of an inch, breadth half an inch.

This ſhell had long been confounded in *England*, until Doctor MATON defined the diſtinction in the *Linnean Tranſactions*. The Doctor remarks, that he generally found it on the chalky parts of the bed of the *Avon*, and in rivulets communicating with it near *Saliſbury*.

We have found it not uncommon in the northern *Avon*, in *Wiltſhire*, a different river from that before mentioned, running through the north of that county, and diſcharging itſelf into the *Briſtol* channel; whereas the other flows through *Hampſhire*, and diſembogues near *Chriſtchurch*.

It has alſo occurred to us in other places, particularly in the water-courſes in the meadows near *Wareham* in *Dorſetſhire;* but by no means ſo plentiful as the *C. corneum.*

There can be no doubt but this is the *Tellina amnica* of MULLER, which he deſcribes very well in the following words, *teſta ſubcordiformis tranſverſim ſulcata, umbone obtuſo.* It is rather unfortunate that the name of *Tellina rivalis* has of late been adopted for this ſhell, as it is likely again to produce confuſion, MULLER having previouſly given that name to the *T. cornea* of LINNÆUS.

It is indeed at once diſtinguiſhed from that ſhell by its more oval ſhape, ſtrongly ſulcated appearance, and by the *umbo* not being in the centre: the hinge is alſo much ſtronger, and the teeth though ſomewhat ſimilar, are much larger and more conſpicuous.

Our late worthy friend Doctor PULTENEY, does not ſeem to have ſufficiently defined the diſtinction in his *Cardium amnicum,* to make us conſider it other than a variety of the *C. corneum.*

A minute ſhell not above a line in length, ſimilar to this in ſhape, but ſomewhat more cordiform, and tumid, and with teeth as ſtrong in proportion, is very common in almoſt all the waters inhabited by either of the two preceding ſpecies; and frequently plentiful in the mud or ſediment of rivulets, ponds, and even ditches where none of a ſuperior ſize are found; but we cannot determine whether

whether it is really diſtinct. It is however proper to remark, that the young of the *amnicum* extracted from the parent ſhell, though not much inferior in ſize, are always more compreſſed.

16.

Tellina lacuſtris. *Gmel. Syſt.* p. 3242.—*Turt. Lin.* iv. p.197. LACUSTRE.
Muller. verm. p. 205. No. 389.
Chem. Conch. vi. t. 13. f. 135.
Shroet Fluſsconch. p. 191. No 12.

C with a ſub-rhomboidal, thin, pellucid, ſmooth ſhell, of a pale horn-colour, ſometimes covered with a dark brown *epidermis*; rather compreſſed, particularly round the margin: *umbo* central, ſmall, but extremely prominent, projecting beyond the commiſſure, and when the valves are cloſed, and the ſhell viewed ſideways, exhibits a cordiform ſhape; hinge ſlight, teeth ſmall, in each valve a primary tooth, one of which is plain, the other bifid; with lateral teeth in both valves, one on each ſide the hinge, and two additional very minute laminæ in one valve, ſituated as in the preceeding ſpecies. Length three-tenths of an inch; breadth four-tenths.

We were firſt favoured with this by Mr. SWAINSON, in whoſe cabinet of *Britiſh* ſhells were ſeveral under the title of *Tellina compreſſa*. This gentleman informed us it was found in a river near *Bulſtrode*, and that he had taken it in the river near *Longford*, but that it was ſcarce.

Since that period we have taken it in a ditch, or water-courſe ſubject to be overflown by the river *Aun*, near *Hatch*, in *Devonſhire*; and in the *Avon*, at *Lackham*, in *Wiltſhire*, ſparingly; and lately in great abundance in a ſmall pond under the downs, cloſe to the village of *Wedhampton*, in the laſt county; where neither the *corneum* nor *amnicum* were to be found. It is remarkable this pond, which affords one or two other of the more rare ſhells, eſpecially the *Helix nautiloides*, has no communication with any other water, but ſtands expoſed at a very conſiderable diſtance from any, and much higher than any in the neighbourhood.

It is ſcarcely poſſible this ſhell can be confounded with the *C. corneum*, if the ſmalleſt attention is paid to the remarkable produced *umbo*, and the compreſſed ſpreading margin, independent of the ſub-rhomboidal ſhape, moſt conſpicuous in full grown ſpecimens.

There is no doubt this is the *Tellina lacuſtris* of MULLER, though he ſays it has ſix lateral teeth, and no middle ones. CHEMNITZ obſerves that a good magnifying glaſs is required to find all the teeth MULLER has given it, but that it has middle teeth, though they are very ſmall.

In the larger, or full grown ſhells, there is no difficulty in diſcovering by the aſſiſtance of a good pocket lens, or *hand megalaſcope*, the ſix teeth deſcribed by MULLER, as well as the central ones: but younger ſhells are ſo extremely

tremely thin that the central and ſmaller lateral teeth are not ſo readily diſcovered.

The animal of this, as well as the two preceding, are viviparous, producing from ſix to twelve at a time, and are probably either androgynous or hermaphrodite, as all thoſe we have diſſected in the early part of the month of June contained perfect young. It is a *Tethys*, of a pellucid white colour, with a very long tongue-ſhaped foot, or *ſuſtentaculum*, ſituated at the poſterior end, exceeding the length of the ſhell when extended; by this it moves backwards by jerks, dilating and contracting it alternately: at the anterior end are two tubes cloſe together, the longeſt is neareſt the hinge, and is about one-fourth the length of the ſhell.

GEN. IX.

MACTRA.

Animal a TETHYS.

SHELL: bivalve: valves equal, inæquilateral.

Hinge: middle tooth complicated with an adjacent groove, or pit; lateral teeth remote, inſerted into the oppoſite valve.

1.
SOLIDA.

Mactra ſolida. *Lin. Syſt.* p. 1126.—*Gmel.* Syſt. p. 3259. 13.
Br. Zool. t. 51. f. 43. A.—t. 52. f. 43.
Chem. Conch. vi. t. 23. f. 229. 230.
Liſter Conch. t. 253. f. 87.—*Id. Angl.* t. 4. f. 24
Pult. Cat. Dorſet. p. 31.
Don. Br. Shells. ii. t. 61.
Turt. Lin. iv. p. 211.
Trigonella zonaria. *Da Coſta* p. 197. t. 15. f. 1. 1.
Trigonella Gallina. *Id.* p. 199. t. 14. f. 6. 6.

M. with a ſtrong ſub-triangular ſhell, of a yellowiſh-white colour; with a few concentric ridges, ſides equal; *umbo*

umbo central; lateral teeth large, prominent. Inſide gloſſy white. Length an inch and a half; breadth an inch and three-quarters. Worn ſhells frequently become deeply furrowed or zoned, with grey, or ſlate-colour, and ſometimes yellow. In this ſtate it is figured in the *Britiſh Zoology*, as well as the perfect ſhell.

Da Costa has given the figure of a worn ſhell for his *Trigonella zonaria;* and the perfect ſhell he makes diſtinct by the name of *Trigonella Gallina;* and ſays that, it is by the common people of *Cornwall* called *Hens*. He is perhaps right with reſpect to the vulgar name, as we find it ſo called in ſome parts of *Devonſhire*. It is therefore perfectly clear that the *Mactra Solida* of Pennant, and the *Trigonella zonaria*, and *Gallina* of Da Costa are nothing more than this ſpecies in various ſtates.

It is one of the moſt common ſhells on the ſouth coaſt of *Devon*, and frequently taken by the common people about *Dartmouth* for culinary uſe.

2.
Subtruncata.

Trigonella ſubtruncata. *Da Coſta.* p. 198.
Mactra Stultorum. *Br. Zool.* t.52. f.42.

M. with a ſtrong, ſub-triangular, yellowiſh-white ſhell, tranſverſly ſtriated, with ſometimes a few ridges; rounded on one ſide, the other more pointed and longer; *umbo* large, prominent, the ſides near the beak much turned inwards, eſpecially the anterior, which is depreſſed into a

cordiform

cordiform ſhape, when the whole ſhell is viewed ſideways. Hinge not quite central; teeth ſimilar to the preceding ſpecies. Inſide ſmooth, yellowiſh-white.

This has frequently been ſuppoſed a mere variety of the *M. ſolida*, and has been generally placed as ſuch in cabinets. DA COSTA's deſcription of it is very good. It is found in *Hampſhire*, and we have picked it up on ſeveral parts of the ſouth *Devon* coaſt. It ſeldom grows to half the ſize of the *ſolida*. Length rarely more than three-quarters of an inch; breadth an inch, and commonly much leſs.

When compared with the *Mactra ſolida* of the ſame ſize, it will be found to be more convex and angulated: the *umbo* larger: ſides from the beak more ſtraight, and turned inwards, and one end more produced.

Mr. PENNANT has given a very good figure of this ſhell; but has erroneouſly made it the *Mactra Stultorum* of LINNÆUS.

3. STULTORUM.

Mactra Stultorum. *Lin. Syſt.* p. 1226. 99.
Gmel. Syſt. p. 3258. 11.
Chem. Conch. vi. t. 23. f. 224. 226.
Liſter Conch. t. 251. f. 85.
Pult. Cat. Dorſet. p. 31.—*Turt. Lin.* iv. 211.
Tellina radiata. *Br. Zool.* t. 49. f. 30.
Trigonella radiata. *Da Coſta.* p. 196. t. 12. f. 3. 3.

M. with

M. with a thin, ſub-triangular, ſemi-pellucid ſhell, faintly ſtriated tranſverſely; covered with a thin *epidermis*, of a light rufous-brown colour, irregularly rayed with broad and narrow whitiſh lines; ſometimes of a reddiſh hue: *umbo* central, prominent, frequently of a purpliſh caſt: ſides nearly equal. Inſide pale purple, which commonly gives a tinge of the ſame colour on the outſide, when the *epidermis* is worn off. Length one inch and a half; breadth one and three-quarters.

According to Doctor PULTENEY, this ſpecies is found at *Poole* and at *Weymouth*. DA COSTA ſays *Dorſetſhire*, *Cornwall*, *Cheſhire*, and at the mouth of the *Merſey*; alſo on the coaſt of *Aberdeenſhire* and other ſhores of *Scotland*. We have found it on the coaſt of *Caermarthenſhire*, *Kent*, and *Devonſhire*, but not common.

This is not the *Tellina radiata* of LINNÆUS. Mr. PENNANT was miſtaken with reſpect to his Synonyms.

4.
DEALBATA.
TAB. 5. f. 1.

Mactra dealbata. *Pult. Cat. Dorſet.* p. 31.
Mactra pellucida. *Chem. Conch.* vi. t. 24. f. 234.
Gmel. Syſt. p. 3260. 21.
Turt. Lin. iv. p. 213.

M. with a thin, fragile, pellucid, oval, white ſhell, very finely ſtriated, with a few coarſer concentric wrinkles; the ſmaller end gaping a little: *umbo* not quite central, but rather neareſt the larger end: middle tooth

in

in one valve broad, bifurcated, angulated close to the beak; lateral teeth not very remote. Inside glossy white, moderately concave; margin plain, edge sharp.

Doctor PULTENEY first noticed this species as a *British* shell: it was found by Mr. BRYER at *Weymouth*.

We have seen specimens rather larger than that mentioned by the Doctor, said to be found on the same coast. Length one inch; breadth one and a half.

From the circumstance of this shell not closing at one end, there can be very little doubt but it is the *Mactra pellucida* of CHEMNITZ, and not the *fragilis* as some have thought; indeed the description and figure given by him answers perfectly well.

5.

COMPRESSA.

Mactra compressa. *Pult. Cat. Dorset.* p. 31.
Trigonella plana. *Da Costa.* p. 200. t. 13. f. 1. 1.
Venus borealis. *Br. Zool.* No. 52.
Mactra Listeri. *Gmel.* p.3261. 26.—*Turt Lin.* iv. p.213. *List. Con.* t.253. f.88.—*Id. Ang.* t.4. f23.
Tellina borealis. *Don. Br. Shells.* ii. t. 64. f. 1.

M. with a flat, thin, semi-pellucid, sub oval, sub-triangulated shell; of a yellowish-white colour; sometimes light ferruginous, and often blackish, or banded with these colours, occasioned by the soil it is found in: is rather wrinkled irregularly than striated, and not glossy: *umbo* small,

ſmall, central; hinge without lateral teeth; cartilage cavity large, triangular; primary teeth ſmall; a ſingle one locking into a bifid tooth in the oppoſite valve. Inſide ſmooth, gloſſy, white; margin plain. Length one inch and a half; breadth two.

There is no doubt Mr. PENNANT was acquainted with this very common *Britiſh* ſpecies, though he has miſtaken it for the *Venus borealis* of LINNÆUS: his other ſynonyms confirm this opinion. DA COSTA has erroneouſly conſidered the *Tellina craſſa* and *Venus borealis* of the *Britiſh Zoology* to be the ſame ſhell; whereas the deſcriptions given by PENNANT, though conciſe, are ſufficient to note the diſtinction.

It is remarkable, that it does not appear LINNÆUS was acquainted with this ſhell: and GMELIN has evidently taken it from LISTER, as he ſays "*Habitat ad oſtium fluvii Angliae Tees;*" and calls it *Liſteri* in compliment to that author.

This is one of the moſt plentiful *Britiſh* ſpecies, and may almoſt be termed a ſub-marine ſhell, being chiefly found at the mouths of rivers, or inlets not remote from freſh water; and though never beyond the flux of the tide, yet it delights in ſituations where freſh water is occaſionally flowing over. It principally inhabits ſludge or muddy places, buried to the depth of five or ſix inches.

Doctor PULTENEY conſiders this to be the *Piperata Chama* of the *Latins*, *Mactra piperata*, *Gmel. Syſt.* p. 3261. a ſhell well known in the *Mediterranean*, and greatly reliſhed as food. It is not eaten in any part of *England* that we know of: and indeed, thoſe we have taſted were extremely bitter.

The animal has two ſlender tubes of a yellowiſh colour, placed near together at the anterior end; one, about three inches long, is thrown about in ſearch of food, ſuch as inſects; which may be ſeen paſſing up this tranſparent ſyphon, with the current of water it is continually taking in, and diſcharging at the ſhorter tube, placed nearer to the hinge; retaining only the nutritious matter: but it occaſionally ejects the ſuperabundant water with conſiderable velocity from both tubes, particularly the longeſt.

6.
BOYSII.
TAB. 3. f. 7.

Mactra Alba. *Lin. Trans.* vi. t. 16. f. 9. to 12. *(Wood.)*

M. with an oval, flat, thin, pellucid, gloſſy, white ſhell, almoſt ſmooth, or with a few diſtant, obſolete, concentric ſtriæ: *umbo* placed neareſt to the leſſer end, very ſmall, and a little turned at the apex: primary teeth one in each valve, ſmall; cartilage cavity broad; lateral teeth in one valve only, broad, elevated. Inſide ſmooth, gloſſy, white; cicatrix nearly obſolete, large, running from the ſmaller end two thirds acroſs the ſhell, parallel with the margin. Length rather more than half an inch; breadth exceeds three-quarters.

This

This new ſpecies was firſt diſcovered by Mr. Boys at *Sandwich*, who favoured us with ſeveral ſpecimens: we have ſince found it, rarely in ſand, from *Salcomb bay*, and *Biddeford bay* in *Devonſhire;* and alſo on *Studland beach*, in *Dorſetſhire*, but none ſo large as thoſe on the *Kentiſh* coaſt.

7. TRIANGULARIS. TAB. 3. f. 5.

M. with a ſtrong, ſub-triangular, opaque, white ſhell; *umbo* prominent, obtuſe; ſides a little unequal: hinge ſtrong; primary tooth in one valve large, bifid; in the other two ſmall teeth, with a triangular cavity between; lateral ones depreſſed. Inſide white, not very gloſſy, margin ſtrongly crenated. Length one eighth of an inch; breadth rather leſs.

There are no perceptible ſtriæ on this ſhell, yet it has very little gloſs. The hinge does not ſtrictly correſpond with the characters of the genus, but we could not with more propriety place it elſewhere. It is a ſingular ſhell, and cannot be confounded for the young of any other ſpecies.

We have found it in ſand from *Falmouth harbour* alive, but not common; and more plentiful, in ſand, on various parts of the coaſt of *South Devon.*

8. LUTRARIA.

Mactra lutraria. *Lin. Syſt.* p.1126.—*Gmel. Syſt.* p.3259. 14.
Chem. Conch. vi. t. 24. f. 240. 241.
Liſt. Con. t.415. f.259.—*Id. Ang.* t.4. f.19.
Br. Zool. t. 52. f 44.

Mactra lutraria. *Lin. Trans.* vi. t. 16. f. 3. 4. *(Wood.)*
Pult. Cat. Dorſet. p. 32
Don. Br. Shells. ii. t. 58.
Turt. Lin. iv. p. 211.—*Schroet Fluſſch.* t. 2. f. 1.

M. with an oblong-oval, yellowiſh-white ſhell; with irregular concentric ſtriæ; ſometimes almoſt ſmooth, with only a few ſmall ridges; others more ſtrongly ridged, eſpecially at the ſhorter end: *umbo* ſmall, placed nearer to one end, from which both ſides ſlope a little: tooth in one valve triangular, no lateral teeth. Inſide gloſſy white; gaping a little at both ends.

This ſpecies has frequently been confounded with the *Mactra hians.* It is not uncommon on many parts of our coaſt, eſpecially near the influx of rivers: is found remarkably large near *Laugharne* on the coaſt of *Caermarthen,* and in great abundance: alſo in ſome parts of *Cornwall,* but more rare on the ſouth coaſt of *Devon,* and in *Dorſetſhire.* Not unfrequently taken above two inches and a half long, and five broad. It is rarely obtained alive, except by digging, and that only when the tide is unuſually low: their place of concealment is generally known by a dimple on the ſurface, through which they eject water to a conſiderable height; though the ſhell is frequently buried two feet beneath. The animal of this and the following ſpecies, being an *Aſcidia,* makes a deviation from the generic character in that reſpect; it is large, and protrudes ſeveral inches at the ſmaller end in ſearch of food; frequently not leſs than ſeven or eight.

9.

Mactra hians. *Pult. Cat. Dorſet.* p. 32. HIANS.
Lin. Trans. vi. t. 16. f. 5. 6. *(Wood.)*
Chama magna. *Da Coſta.* p. 230. t. 17. f. 4.
Mya oblonga. *Gmel. Syſt.* p.3221. 10.—*Turt. Lin.* iv. p.177.
Chem. Conch. vi. t. 2. f. 12.—*Gualt.* t. 90. A.

M. with a ſtrong, oblong ſhell, with rugoſe, concentric wrinkles, moſt ſo at the end remote from the hinge; opaque, dark-brown, with frequently a rufous tinge; ſometimes dark cinereous, and when recent, covered with a thick, duſky *epidermis: umbo* ſmall, placed near to one end; the upper margin next to the hinge ſomewhat arcuated; hinge furniſhed with one flattiſh tooth, grooved on the fore part, locking in between two in the oppoſite valve, the ſmalleſt of which is bifid; the cavity to which the connecting cartilage is fixed, is large and triangular; no lateral teeth. Inſide white, with a ſtrong, elevated ridge along the upper ſide of the cicatrix: the longer end very conſiderably gaping. Length two inches and a quarter; breadth five inches.

It is very remarkable, ſhells ſo materially different as the *Mactra lutraria* and this, ſhould have been ſo confounded. DA COSTA has given a figure of the *M. hians* with moſt of the ſynonyms of the *lutraria*, and has not deſcribed that ſhell at all. GMELIN expreſſes a doubt, whether it is not a variety of the *Mya arenaria*. Moſt aſſuredly that author had never examined this ſhell, or he could not have expreſſed ſuch a doubt, as no two can be more diſtinct; and had he not quoted a tolerably good figure in

CHEMNITZ,

CHEMNITZ, we could not have ſuppoſed he intended this ſhell.

This ſpecies was given the name prefixed to it by Doctor SOLANDER, as we are informed by Doctor PULTENEY, who has very well defined the diſtinction between this and the *lutraria*, by obſerving, that the hinge is placed much nearer to the poſterior ſide; is always ſinuous, or much hollowed on the margin below the hinge, towards the anterior or long ſide. It is a much more rude and rough ſhell; and is diſtinguiſhed farther, by a ſtrong thick rib on the inſide, running in a curved direction from the edge, towards the hinge. And adds, that the markings of the cicatrix of the animal, is of a different figure from that of the *M. lutraria:* a circumſtance not ſufficiently adverted to, as yet, in the deſcription and diſtinction of ſhells. We may add to this definition, that the tooth is not triangular, as in that ſpecies.

This appears to be a local ſhell; it is not uncommon in the river between *Truro* and *Falmouth* in *Cornwall;* and is frequently brought up with the ſea-ſand to the former place, which is there collected for manure. We have alſo found it in *Falmouth* harbour not ſo common, and rarely double valves: live ſhells are ſeldom taken; from which we conclude it penetrates deep in the ſand. Doctor PULTENEY ſpeaks of it as not uncommon on the *Dorſet* coaſt; and ſingle valves are ſometimes found on the ſhores of *Devonſhire*.

GEN.

GEN. X.

DONAX.

Animal a TETHYS.

Shell: bivalve: anterior margin very obtuſe.

Hinge: with two teeth in the middle, and one lateral tooth remote.

1.

Donax Trunculus. *Lin. Syſt.* p.1127.—*Gmel. Syſt.* p.3263.4. TRUNCULUS.
Br. Zool. t. 55. f. 45.
Pult. Cat. Dorſet. p. 32.—*Gualt.* t. 88. O.
Lin. Trans. vi. t. 16. f. 13.—16. *(Wood.)*
Chem. Conch. vi. t. 26. f. 253.
Favan. t. 49. E 2.
Liſter Conch. t. 376. f. 217.—*Id. Angl.* t.5. f. 35.
Don. Br. Shells. i. t. 29. f. 1.
Turt. Lin. iv. p. 214.
Cuneus vittatus. *Da Coſta* p. 207. t. 14. f. 3.

D. with an oblong, ſmooth, gloſſy ſhell, finely ſtriated longitudinally, covered with a thin *epidermis*, moſt times of

of a light yellowiſh colour, faſciated with purple, with two or three faint white rays from the beak: ſome are wholly yellow, with darker faſciæ; *umbo* ſmall, placed neareſt to the leſſer end: teeth ſmall, lateral one not very remote. Inſide partakes of the colour of the exterior; thoſe banded with purple are of that colour within, the others quite yellow like the outſide; margin crenated; valves not very concave.

This is not an uncommon ſpecies on many of our ſandy ſhores: plentiful between *Laugharne* and *Tenby* in *Wales*, and on *Dawliſh Warren* in *Devonſhire*; more rare weſtward, and in *Cornwall*. In *Dorſetſhire* not common. Length moſt generally five-eighths of an inch; breadth one inch and a quarter; ſometimes, though rarely, an inch and a half.

2.

DENTICULATA.

Donax denticulata. *Lin. Syſt.* p.1127.—*Gmel. Syſt.* p.3263.6.
Br. Zool. t.55.f.46 — *Turt. Lin.* iv.p.215.
Pult. Cat. Dorſet. p. 32.
Liſter Conch. t. 376 f. 218. 219.
Gualt. t. 89. D.—*Favan.* t. 49. E.3.
Chem. Conch. vi. t. 26. f. 256.
Cuneus truncatus. *Da Coſta.* p. 205.
Donax crenulata. *Don. Br. Shells.* i. t. 24.

D. with a very ſtrong, thick, ſub-cuneiform ſhell, ſtriated longitudinally; the interſtices punctated, or tranſverſely ſtriated; with uſually a few broad purple rays from the

the beak; the larger end much ſloped and truncated; at which part the ſtriæ run tranſverſely, and ſomewhat undulated: a prominent ridge upon the angle of the ſlope, running from the beak to the oppoſite margin: *umbo* placed near to the larger ſide: hinge furniſhed with ſtrong teeth: a lateral tooth on each ſide the middle ones. Inſide purple, very concave under the *umbo;* margin denticulated. Length about ſix-eighths of an inch; breadth one inch.

Da Costa muſt certainly have been deceived in ſaying, it is frequent on moſt of our ſhores, and that he had received it from *Eſſex, Suſſex, Cornwall,* and other weſtern coaſts, the iſles of *Scilly, Yorkſhire,* and from *Wales;* alſo from *Aberdeenſhire,* and the *Orkney* iſlands in *Scotland;* and from the ſhores of the county of *Cork* in *Ireland.*

However this may be, few of our conchological friends ever found it, and it is in general eſteemed ſo rare that many have doubted its exiſtence as a *Britiſh* ſpecies. We confeſs it has never fallen within our reſearches.

Doctor Pulteney ſays it was found at *Weymouth;* and Mr. Bryer, a diligent obſerver of nature, favoured us with ſeveral ſpecimens, which he aſſured us he picked up on the coaſt of that place; one of which was intirely white, another plain purple without rays.

This ſpecies is much ſtronger and thicker than the *Trunculus,* the ſtriæ more conſpicuous, is much longer

in proportion to its breadth, and is at once diſtinguiſhed by its truncated, cuneiform ſhape.

3. COMPLANATA. TAB. 5. f. 4.

Tellina variegata, unico radio, ſive plagula albeſcente conſpicua. *Liſter Conch.* t. 384. f. 227.

D. with an oblong, ſmooth, and extremely gloſſy ſhell, of a light yellow, or faint purpliſh colour, with ſmall ſpots or ſtreaks of white, and one broad ray of the ſame from the beak to the oppoſite margin, edged with ferruginous: in ſome a few diſtant tranſverſe ſtriæ, nearly obſolete, are obſerveable; but no longitudinal ones: *umbo* placed neareſt to one end: teeth ſmall, eſpecially the lateral ones. Inſide purple, margin quite ſmooth. Length five-eighths of an inch; breadth an inch and a quarter.

This elegant ſpecies has much the habit of the *Truncu-lus*, and no doubt has been ſometimes confounded with it; from which, however, it is readily diſtinguiſhed by being rather more flat, by the ſhorter end being more produced, in not having any longitudinal ſtriæ, and the margin not being crenulated; as well as by the invariable ſingle white ray from the *umbo*. It is a rare ſhell, and not noticed by any one, we believe, except LISTER.

We have found it ſparingly on *Milton* ſands, on the *South Devon* coaſt, and at *Falmouth;* and believe it is ſometimes met with on the ſhores of *Dorſet*, as we obſerved

ſerved it in the collection of a friend chiefly made on that coaſt; placed indiſcriminately with the *Trunculus*.

In a live, or recent ſtate, it is covered with a highly poliſhed *epidermis* of a yellowiſh colour, which gives to the white markings a tinge of the ſame. In the ſpecimens we have collected, it is ſometimes obſerved to be banded concentrically with lighter and darker ſhades.

It is in the cabinet of Mr. SWAINSON under the title of *Donax lævigata;* but we were unwilling to retain that name, leſt it might be confounded with the *D. lævigata* of GMELIN, which is a very different ſhell. This gentleman informed us he received it from *Looe* in *Cornwall.*

4.

Donax plebeia. *Pult. Cat. Dorſet.* p. 32. PLEBEIA.
Liſter Conch. t. 389. f. 228 ? TAB. 5. f. 2.

D. with a thick, ſtrong, oblong, ſub-oval ſhell, of a dull yellowiſh horn-colour, ſmooth, and gloſſy, except a few diſtant concentric furrows; moſt commonly marked with two brown ſtripes longitudinally from the beak: *umbo* placed neareſt to one ſide; teeth very ſtrong. Inſide gloſſy, paler than the outſide; margin ſmooth. Length ſcarce half an inch, breadth three-quarters.

Doctor PULTENEY, (to whom we are obliged for the firſt ſpecimen of this ſhell) ſays, it was found at *Weymouth*, by the late *Dutcheſs Dowager of Portland;* and obſerves,

that it is remarkably diſtinguiſhed by the ſize of the teeth, which are very large for ſo ſmall a ſhell.

This ſpecies has been more recently found on the coaſt of *Dorſet;* as we are aſſured by Mr. BRYER, who has himſelf taken it on the ſhore at *Weymouth;* and who favoured us with a ſpecimen, which is white, and the two rays very faint.

5.
IRUS.

Donax Irus.	*Lin. Syſt.* p. 1128.
	Gmel. Syſt. p. 3265. 11.
	Pult. Cat. Dorſet. p.32.—*Gualt.* t.95.A.
	Don. Br. Shells. i. t. 29. 2. 2.
	Turt. Lin. iv. p.216.
	Chem. Conch. vi. t. 26. f. 268. 270.
Tellina Cornubienſis.	*Br. Zool.* No.35.—*Bor. Corn.* t.38. f.23.
Cuneus foliatus.	*Da Coſta.* p. 204. t. 15. f. 6. left hand.

D. with a ſub-oval, opaque, rugoſe, whitiſh ſhell, with high concentric membranaceous ridges reflecting upwards, broken or undulated; interſtices between finely ſtriated longitudinally: *umbo* ſmall, placed near to one end; *apex* much turned: teeth ſmall, bifid, one excepted. Inſide white, or fleſh-colour, generally with dark purple about the hinge, and towards the longer ſide; ſometimes wholly of that colour: margin plain.

No ſhell perhaps varies more in ſhape than this, ſometimes it is nearly as long as it is broad: others in breadth doubly

doubly exceed the length, are almoſt cylindric, and very convex; many are flat and greatly diſtorted; yet, notwithſtanding ſcarce two are found alike, the ſpecific characters are ſtrongly marked. Worn ſhells are ſometimes purple on the outſide as well as within.

This ſpecies perforates the hardeſt lime-ſtone, where it is ſometimes lodged in great abundance: we have found detached pieces of ſuch ſtone thrown upon the coaſt of *Devonſhire*, eſpecially about *Plymouth*, perforated like a honey-comb, with theſe ſhells in it. It is alſo found in ſome parts of *Cornwall*.

Doctor PULTENEY ſpeaks of it as plentiful on the *Dorſet* coaſt in clay, as well as in lime-ſtone. It rarely exceeds half an inch in length; and three-quarters in breadth.

DA COSTA has quoted the *Tellina cornubienſis* of PENNANT, and BORLASE for his *Pectunculus truncatus*, in which he has certainly erred; and indeed his ſhell ſeems to be in perfect obſcurity. The general deſcription might anſwer very well for a worn ſpecimen of the *Donax Irus*, but the margin being notched forbids it.

GEN. XI.

VENUS.

Animal a TETHYS.

SHELL; bivalve, the anterior margin of the lip of one valve ſometimes incumbent on the other.

Hinge, with three approximating teeth; the lateral, diverging from the *apex*.

Umbonal, and ſub-umbonal regions diſtinct.

1. PAPHIA.

Venus Paphia. *Lin. Syſt.* p.1129.—*Gmel. Syſt.* p.3268. *Chem. Conch.* vi. t. 27. f. 274. 278. *Pult. Cat. Dorſet.* p.33.—*Gualt.* t.85.A. *Turt. Lin.* iv. p. 218.

Pectunculus faſciatus. *Da Coſta.* p. 188. t. 13. f. 3.

Vetula. *Id.* p. 190. t. 13. f. 5. 5.

V. with a ſtrong, ſomewhat flat, ſub-orbicular ſhell, with ſeveral broad and much elevated ridges, variouſly ſtreaked, or rayed with brown, purple, red, or yellow, intermixed with white: *umbo* central, *apex* much turned to one ſide, beneath which is a cordiform depreſſion: the cartilage

cartilage ſlope in one valve frequently ſtreaked tranſverſely: hinge furniſhed with ſtrong teeth. Inſide ſmooth, gloſſy white, or fleſh colour, with ſometimes a brown mark at one end: margin crenulated.

This ſpecies appears ſubject to much variety; in ſome the ridges are broad, and nearly flat, others narrower, and turn a little backwards, ſo much reſembling the *Venus Paphia* of LINNÆUS, that we are inclined to believe, with Doctor PULTENEY, that it muſt be conſidered as that ſhell in a depauperated ſtate. It rarely exceeds ſeven-eighths of an inch in length; and one inch in breadth. In comparing the foreign *V. Paphia* with this ſhell, we perceive in the inſide the ſame ſhaped *cicatrix*, which is an eſſential ſpecific character, not ſufficiently attended to.

DA COSTA's *Pectunculus faſciatus* is evidently this ſhell, but his ſpecimens muſt have been worn, or he would not have deſcribed the margin plain. The *Pectunculus Vetula* of the ſame author, is only a more perfect variety, with ſtronger ridges and markings.

It is not uncommon in ſome parts of *Cornwall*; frequent about *Falmouth*, but more plentiful on the ſouth coaſt of *Devon*, particularly on *Milton* ſands.

Doctor PULTENEY ſpeaks of it as a rare ſhell on the *Dorſet* coaſt. An elegant variety, radiated all over with double and treble lines, we have found on the weſtern ſhores.

2.
VERRUCOSA.

Venus verrucoſa.	*Lin. Syſt.* p. 1130.—*Gmel. Syſt.* p. 3269. 6.—*Gualt.* t. 75. H. *Lin. Trans.* vi.t.17. f.5. 6.*(Wood)* *Pult. Cat. Dorſet.* p. 33. *Don. Br. Shells.* ii. t. 44. *Chem. Conch.* vi. t.29. f.299. 300. *Liſt. Conch.* t.284. f.122. *Favan.* t. 47. E. 9. *Turt. Lin.* iv. p. 219.
Venus Erycina.	*Br. Zool.* t. 54. f 48. 48 A. *Borlaſe Corn.* p. 278. t 28. f. 32.
Pectunculus ſtrigatus.	*Da Coſta* p. 185. t. 12. f. 1. 1.
Pectunculus membranaceus.	*Id.* p. 193. t.13. f.4. left hand.

V. with a ſtrong, thick, heavy, ſub-orbicular, convex, rugoſe ſhell, with numerous, ſtrong, elevated ridges, ſomewhat recurved, and broken at the ends, (particularly the anterior) into irregular warty knobs: *umbo* turned much to one ſide; beneath which is a ſtrong cordiform depreſſion; the cartilage ſlope of the left valve turns inward, ſlightly ſtriated longitudinally, and marked tranſverſely with brown ſtreaks. Inſide ſmooth, white; margin finely crenated.

Diameter from the *umbo* to the oppoſite margin two inches and a quarter; breadth rather more. The colour is generally of a dirty white, but ſometimes of a dark ruſty brown, moſtly towards the poſterior end. Young ſhells of an inch diameter have the ridges much more perfect and diſtinct, and the interſtices are prettily crenulated.

This

This ſpecies is not uncommon on ſome parts of the *Corniſh* coaſt, particularly at *Falmouth*, but rarely alive, though frequently with the valves united. We have alſo found it on the ſouth coaſt of *Devon*, and in *Dorſetſhire;* and have received ſmall worn ſpecimens from the coaſt of *Kent*. In this mutilated ſtate it has ſometimes been conſidered a diſtinct ſpecies, as is the caſe with reſpect to the *Pectunculus membranaceus* of DA COSTA.

It is a common ſhell in the *Mediterranean*.

3.
STRIATULA.

Pectun. ſtriatulus. *Da Coſta* p. 191. t. 12. f. 2. 2.
Pectun. ſulcatus. *Da Coſta* p. 192.
Venus Gallina. *Gmel. Syſt.* p. 3270.—*Turt. Lin.* iv. p. 120.
Chem. Conch. vi. t. 30. f. 308. 310.
Liſter Conch. t. 282. f. 120. & t. 295. f. 131.
Lin. Trans. vi. t. 17. f. 7. 8. *(Wood.)*
Gualt. t. 75. O.
Venus rugoſa. *Br. Zool.* t. 56. f. 50.
Venus Caſina. *Pult. Cat. Dorſet.* p. 33.
Venus ſtriatulus. *Don. Br. Shells.* ii. t. 68.

V. with a ſtrong, ſub-cordated ſhell, with numerous fine, prominent, recurved, concentric ſtriæ: colour white, or yellowiſh-brown, rayed with a few rufous-brown ſtripes from the *umbo*, and frequently marked with fine, cloſe-ſet, zigzag ſtreaks of the ſame colour, that make it appear crenated: this is a pretty general character; however, it is ſometimes quite plain, without being radiated or ſtreak-

ed: *umbo* turns much to one ſide, beneath which is a cordiform depreſſion: the cartilage ſlope much depreſſed, almoſt ſmooth, or faintly ſtriated longitudinally. Inſide white; margin finely crenated. Length rather more than an inch; breadth an inch and a quarter. A variety is rayed with brown and white.

This ſpecies appears to be common on many parts of our coaſts. DA COSTA ſpeaks of it, from *Cheſhire, Yorkſhire, Flintſhire,* the iſles of *Scilly, Caernarvonſhire, Cornwall,* and *Dorſetſhire.* In the two laſt places we have found it not uncommon, as well as on the ſhores of *Devon, Caermarthenſhire,* and other parts of the ſouth coaſt of *Wales.*

4.

ISLANDICA.

Venus Iſlandica. *Lin. Syſt.* p. 1131.—*Gmel. Syſt.* p. 3271. *Pult. Cat. Dorſet.* p. 33.—*Gualt.* t. 85. B? *Don. Br. Shells* iii. t. 77.—*Turt. Lin.* iv. p. 221. *Chem. Conch.* vi. t. 32. f. 341. 342. *Liſt. Conch.* t. 272. f. 108.—*Id. Angl.* t. 4. f. 22. *Lin. Trans.* vi. t. 17. f. 1. 2. *(Wood.)*

Venus mercenaria *Br. Zool.* t. 53. f 47.

Pectunc. craſſus. *Da Coſta* p. 183. t. 14. f. 5.

V. with a ſtrong, thick, ſub-orbicular, convex, white ſhell, wrought with irregular concentric ſtriæ; covered with a rough, but gloſſy yellowiſh-brown, or duſky *epidermis: umbo* pointed, turned inwards, and curved to one ſide: no cordiform depreſſion. Inſide ſmooth, white: margin plain. Length three inches and three-quarters; breadth four inches and a quarter.

This

This ſpecies is not uncommon on many parts of our coaſt, but is rarely taken alive, except by dredging in deep water. Is plentiful on the ſandy, flat ſhores of *Caermarthenſhire;* rarely in *Devonſhire* and *Cornwall,* but on ſome parts of the *Dorſet* coaſt is thrown up in great numbers, as we are informed by Doctor PULTENEY. It is alſo found on ſome of the ſhores in the north of *England* and *Scotland.*

This is not the *Wampum* ſhell of the *Americans;* that is the *V. mercenaria* of LINNÆUS, and has never been found on our coaſts.

5.

Venus Chione. *Lin. Syſt.* p. 1131.—*Gmel. Syſt.* p. 3272. 16. CHIONE.
Pult. Cat. Dorſet. p. 33.—*Favan.* t.47. B.
Chem. Conch. vi. t 32. f.343.—*Gualt.* t.86.A.
Liſter Conch. t. 269. f. 105.
Don. Br. Shells i.t.17.—*Turt. Lin.* iv.p.222.
Lin. Trans. vi. t. 17. f. 3. 4. *(Wood.)*
Pectunc. glaber. *Da Coſta.* p. 184. t. 14. f. 7.

V. with a ſtrong, ſub-cordated ſhell, ſomewhat wrinkled concentrically, but covered with an extremely ſmooth, gloſſy, cheſnut-coloured *epidermis,* more or leſs radiated with a darker ſhade: *umbo* placed neareſt to one end; *apex* turned ſideways, beneath which is a ſtrong cordiform depreſſion. Inſide white, gloſſy; margin plain; edge obtuſe. Length three inches; breadth three-quarters of an inch more.

This beautiful ſpecies has been eſteemed rare in *England;* is mentioned as a *Dorſetſhire* ſhell by DA COSTA and Doctor PULTENEY. It is however a very common ſpecies in *Falmouth* harbour, in *Cornwall*; and is taken in abundance amongſt the heaps of ſand brought in by the barges for manure; frequently live ſpecimens: we have ſeen more than fifty in one heap.

Amongſt theſe are found ſome of a lighter colour, with the rays broken into ſpots, much like the *Venus maculata*; and, as Doctor PULTENEY obſerves, might well paſs for the northern depauperated variety of it.

In *Cornwall* is called *Queens.* Becomes ſcarce eaſtward, haviug never found it on the coaſt of *Devon,* except a few ſingle valves, very much worn.

6.

EXOLETA.

Venus exoleta. *Lin. Syſt.* p. 1134.—*Gmel. Syſt.* p.3284. 75.
Br. Zool. t. 54. f. 49. A. & t. 56. f.49.
Pult. Cat. Dorſet. p. 34.—*Favan.* t.48. F 1 ?
Chem. Conch. vii. t. 38. f. 402. 404. 405. 407.
Liſter Conch. t. 290. f. 126.—t.291. f.127.—t.292.f.128.—t.293.f.129.—*Gualt.* t.75.F
Don. Br. Shells. ii. t. 42. f. 1.
Turt. Lin. iv. p. 233.
Lin. Trans. vi. t. 17. f. 9. 10. *(Wood.)*

Venus lincta. *Pult. Cat. Dorſet.* p. 34.

Pectun. capillaceus. *Da Coſta.* p. 187. t. 12. f. 5. 5.

V. with a ſtrong, orbicular ſhell, with fine, cloſe-ſet, thread-like concentric ſtriæ, ſometimes with a few ridges,

or

or interſtices, rather broader and deeper than the reſt; moſt commonly of a light colour, but rarely quite white; ſome are quite plain, others faintly radiated, or ſtreaked all over with rufous-brown; and not unuſual with two or three broad rays only: it is moderately convex: *umbo* much turned to one ſide, beneath which is a ſhort, much depreſſed, cordiform impreſſion. Inſide ſmooth, white; margin plain. Diameter two inches. Younger ſhells ſlope more from the *umbo* on the anterior ſide, and in this ſtate it was made a diſtinct ſpecies in the *Muſeum Portlandicum* by the name of *Venus lincta*; which induced our late worthy friend Doctor PULTENEY to do the ſame.

This ſlope however is rarely found after the ſhell exceeds an inch and a quarter in diameter, when it gradually encreaſes to riſe at that part. The tongue, or *cicatrix*, which is almoſt an invariable ſpecific character, is alike in both; it is long, ſomewhat taper, and runs into the middle of the ſhell more than half way acroſs.

It is not an uncommon ſpecies on many parts of our coaſt; is plentiful in *Cornwall*, eſpecially about *Falmouth*; and on the ſhores of *Devonſhire*, but ſcarcer in *Dorſetſhire*; we have alſo found it in abundance on ſome parts of the coaſt of *South Wales*.

7.

Venus undata. *Br. Zool.* t. 55. f. 51.—*Turt. Lin.* iv. p. 233. UNDATA.
Lin. Trans. vi. t. 17. f. 17. 18. *(Wood.)*

V. with

V. with an orbicular, thin, white ſhell, with fine, concentric, irregular ſtriæ, which ſometimes run into uneven wrinkles: young ſhells a little gloſſy: *umbo* prominent; *apex* pointed, and turning a little to one ſide, without any cordiform depreſſion: hinge ſtrong in proportion to the ſubſtance of the ſhell: in one valve three teeth; in the other two. Inſide ſmooth, gloſſy, moderately concave; margin ſmooth; edge acute, and ſomewhat undated, by a ſmall projection of the lip oppoſite the hinge, from which runs a broad *cicatrix* into the middle of the ſhell.

This ſpecies, deſcribed hitherto only by Mr. PENNANT, has been confounded with the *Tellina rotundata*, but may readily be diſtinguiſhed by the hinge, and particularly the *cicatrix* in the inſide, that ſhell being wholly deſtitute of ſuch a mark: the *umbo* is alſo turned more to one ſide. We have mentioned before, that Doctor PULTENEY has deſcribed the *Tellina rotundata* for this ſhell, as is evident by his calling it *Tellina undata*, and quoting the *Venus undata* of PENNANT: indeed he is not ſingular in this reſpect, for we have ſeen it in more cabinets than one placed as ſuch. This ſhell does not appear to be a plentiful ſpecies, but we have found it at *Falmouth*, and on the coaſt of *South Devon*, as well as in *Biddeford* bay: but no where ſo fine as on the ſhores of *Caermarthenſhire* near *Laugharne*.

Diameter from the hinge to the oppoſite margin, an inch and a quarter; breadth near a quarter of an inch more.

Young

Young ſhells are frequently very white and pellucid; the larger ones yellowiſh-white, ſometimes tinged with light ferruginous, and rather opaque.

8.

Venus tigerina. *Lin. Syſt.* p. 1133.—*Gmel. Syſt.* p. 3283.69. TIGERINA.
Chem. Conch. vii. t. 37. f. 190. 191. TAB. 4. f. 1.
Liſter Conch. t. 337. f. 174—*Gualt.* t. 77. A.
Pult. Cat. Dorſet. p 34.—*Favan.* t. 47. D. 1.
Turt. Lin. iv. p. 231.

V. with a ſub-orbicular, flat, lenticular, thin, white ſhell, ſometimes with a tinge of purple on the edges; ſtriated longitudinally, croſſed with numerous fine ſtriæ, moſt conſpicuous in the interſtices, which gives it a reticulated appearance: *umbo* ſmall, pointed, and turns a little to one ſide: hinge ſtrong for the ſubſtance of the ſhell. Inſide ſmooth, gloſſy white; *cicatrix* ſmall, and nearly obſolete: margin plain. Length three-quarters of an inch; and ſeven-eighths wide.

We were firſt favoured with this elegant ſpecies by Doctor PULTENEY, who ſaid it was found at *Weymouth, Studland*, and on the north ſhore at *Poole*. Have ſince received ſpecimens from Mr. BRYER, who picked them up on the ſands between *Weymouth* and *Portland*.

Weſt Indian ſpecimens are much larger, ſometimes three inches broad.

Venus

9.
SINUOSA.

Venus ſinuoſa. *Br. Zool.* t. 55. f. 51. A.

V. with thin, convex ſhells, with a very deep, obtuſe *ſinus* or bending, on the front.

Mr. PENNANT is the only author who has deſcribed, or figured, this ſpecies, from whom we have taken the above deſcription: the breadth of the figure is three-quarters of an inch; the length not ſo much. We confeſs this ſhell is much in obſcurity, and perhaps is only an accidental diſtortion of ſome other ſpecies. It is ſtated to have been in the *Portland* cabinet. DONOVAN has given the *Tellina flexuoſa* of this work for the *Venus ſinuoſa* of the *Britiſh Zoology*.

10.
OVATA.

Venus ovata. *Br. Zool.* t. 56 f. 56.
Cardium ſtriatum radiatum. *Walk. Min. Shells.* f. 82.

V. with a ſub-oval, opaque, brown ſhell, ſomewhat compreſſed; with ſtrong, coſtated ſtriæ longitudinally, and more finely ſtriated tranſverſely, cauſing tuberculated elevations on the ribs: *umbo* nearly central, *apex* turning a little to one ſide, beneath which is a ſub-cordiform depreſſion elevated in the middle; ſides nearly ſimilar. Inſide gloſſy white, or fleſh-colour; ſometimes fine purple in the centre; margin ſlightly crenated. Length three eighths of an inch; breadth, half an inch.

We have found this very pretty ſhell at *Falmouth*, and on the ſouth coaſt of *Devon*. Mr BOYS alſo favoured us with

with it from *Sandwich*, for WALKER's ſhell above quoted, and remarked that it was not uncommon upon that coaſt. The hinge of this ſpecies was certainly not duely attended to by Mr. WALKER, or he was not provided with perfect ſpecimens, for it has all the characters of a *Venus* and not the leaſt of a *Cardium*.

11. MINIMA. TAB. 3. f. 3.

V. with a ſub-orbicular, ſomewhat compreſſed, fleſh-coloured ſhell; very gloſſy, with broad, concentric ſtriæ: from the beak two white lines run half way down the ſhell, in ſhape like the letter V meeting at the *apex;* at the extremity of each line is a red ſtreak, diverging outwards to the margin. In ſome the white lines are wanting, but we have never ſeen it without the two ſpots near the margin: *umbo* prominent, pointed, a little turned to one ſide. Inſide gloſſy white; margin plain. Length a quarter of an inch; breadth rather more.

This ſhell is very thick and ſtrong in proportion to its ſize, and the teeth very conſpicuous. It is a rare ſpecies, which we have only found ſparingly at *Falmouth*, dredged from the harbour, alive.

12. SUBCORDATA. TAB. 3. f. 1.

V. with a ſtrong, ſub-cordated, white ſhell, with ſtrong, longitudinal, coſtated ſtriæ, and remote tranſverſe ridges, making the depreſſions between of a long ſquare, and gives the ſhell a pretty, cancellated appearance: *umbo* placed neareſt to one end, much incurvated, and turned a little to one ſide; the anterior ſide almoſt ſtrait, and much

ſloping from the beak: cartilage ſlope large, turned inwards, nearly ſmooth, and gloſſy. Inſide gloſſy white; teeth very ſtrong; margin ſub-crenated; valves moderately concave. Diameter a quarter of an inch.

We give this ſpecies with ſome doubt, with reſpect to its being really *Britiſh*. It is however but right to mention that we once found it in the ſand from *Falmouth* harbour.

13.

GRANULATA.

Venus granulata. *Gmel. Syſt.* p. 3277. 33.
Don. Br. Shells iii. t. 83.
Turt. Lin. iv. p. 226.
Venus Marica ſpuria. *Chem. Conch.* vi. t. 30. f. 313.
Venus Marica. *Born. Mus.* t. 4. f. 5. 6.

V. with a thick, ſub-orbicular ſhell, ſtrongly reticulated: colour white, variegated with ſpots and ſtreaks of dark chocolate-brown: *umbo* much turned to one ſide, beneath which is a cordiform depreſſion; the cartilage ſlope moſt frequently marked with a few diſtinct, tranſverſe, dark lines. Inſide gloſſy, dark purple; margin crenulated; *cicatrix* ſhort, conic. Length ſeven-eighths of an inch; breadth one inch.

Mr. DONOVAN has given a figure of this ſhell, which he ſays was found in *Cornwall*.

Two inſtances only have occurred to us, both dead ſpecimens:

ſpecimens: theſe we took out of ſand from *Falmouth* harbour.

It has generally been conſidered as an *American* ſhell.

14.

Venus deflorata. *Lin. Syſt.* p. 1133. 132. DEFLORATA.
Gmel. Syſt. p 3274. 24.—*Favan.* t. 49. P. TAB. 3. f. 4.
Br. Zool. t. 57. f.54.—*Turt. Lin.* iv. p.224.
Chem. Conch. vi t. 9. f. 79.—82. & 83?
Lifter Conch. t 425. f.273.—*Gualt.* t.85 f.G?

V. with an oblong, ſub-oval, thin ſhell, of a yellowiſh-white colour; tinged, or faintly radiated, with purple, ſtrongeſt about the *umbo;* with undulated, longitudinal ſtriæ, and a few tranſverſe wrinkles, which gives it a reticulated appearance, particularly at the anterior end: *umbo* placed a little to one ſide, not very pointed, nor reclined. Inſide purpliſh, moſt ſo at the ſmaller end, and is frequently on that part highly coloured; hinge with two teeth in each valve, one of which is large, the other extremely ſmall.

Mr. PENNANT is the only one who has mentioned this as a *Britiſh* ſhell.

We found a perfect, recent, ſpecimen at *Falmouth,* it was dredged from the harbour of that place, but is no doubt a very rare ſpecies in *England.* Length one inch; breadth an inch and three-quarters. Foreign ſhells are generally higher coloured and more radiated.

15.

DECUSSATA.

Venus decuſſata. *Lin. Syſt.* p.1135.—*Gmel. Syſt.* p.3294.135.
Pult. Cat. Dorſet. p 34.
Don. Br. Shells ii. t.67.—*Turt. Lin.* iv.p.241
Chem. Conch. vii. t. 43. f. 455. 456.
Liſt. Conch. t.423. f.271.—*Id. Ang.* t.4.f.20.
Gualt. t. 85. C. E. I. L.
Lin. Trans. vi. t. 17. f. 11. 12. *(Wood.)*
Venus litterata. *Br. Zool.* t 57. f 53.
Cuneus reticulatus. *Da Coſta* p. 102. t. 14. f. 4. 4.

V. with a ſub-oval, ſub-rhomboidal, ſtrong, reticulated ſhell, ſomewhat angulated or cut off diagonally at the anterior end: at which part it is moſt ſtrongly decuſſated: *umbo* placed neareſt to one end; *apex* turned to one ſide; beneath which is a ſlight, lanceolate, cordiform depreſſion. Inſide ſmooth, white, frequently with a little purple on the margin under the cartilage, and at the truncated end: the front margin is divided from the middle by a ſlender ſmooth line, that forms a broad border, and ſurrounds the *cicatrix;* this mark is broad, runs nearly into the middle of the ſhell, and is divided from the border, to its origin: hinge furniſhed with three teeth in each valve, one of which is ſmall, and in one valve is almoſt obſolete in the larger ſhells; the other teeth are ſtrong and moſt commonly bifid; middle one always ſo.

This ſpecies is generally of a plain ruſty-brown colour, but ſometimes marked with ſort of characters, or zigzag lines: the longitudinal ſtriæ are coarſe, and are ſcarcely decuſſated in the middle part of the ſhell; the ends are frequently

quently ſo ſtrongly reticulated as to cauſe ſmall warts or tubercles.

Is common on many parts of our coaſt, and uſually confounded with the following ſpecies: the fineſt we ever ſaw, were taken in the inlet between *Kingsbridge* and *Salcomb*, and at the mouth of the *Aun*, in *Devonſhire:* they lay in ſhallow water, or about mid-tide, ſometimes buried an inch or two under the ſhingle; and not uncommonly expoſed on the ſurface: ſize of the largeſt, two inches in length; and three in breadth.

The animal is furniſhed with two tubes, an inch or more in length, which it protrudes in ſearch of food; theſe are divided to their origin.

16.

PULLASTRA.

Chem. Conch. vii. t. 42. f. 439.
Lin. Trans. vi. t. 17. f. 13. 14. *(Wood.)*

V. with a ſub-oval, finely decuſſated ſhell; the anterior end ſub-truncated, or ſomewhat angulated like the laſt; indeed it is ſo nearly allied to the *Venus decuſſata*, that it has generally been confounded for the ſame.

The principal diſtinctions are, that this does not grow to the ſize of that ſhell; the ſtriæ in both directions are much finer, regular, and equal on all parts except at the anterior end, where it frequently runs into tranſverſe ridges: the teeth are nearly ſimilar, but in general are more

more regular and more approximating: the *cicatrix* is rather longer, as it exceeds half the breadth of the ſhell; and is joined, or very nearly runs into the marginal border (mentioned in the deſcription of the other ſpecies) for half its length from its baſe.

It is a much more elegant ſhell, eſpecially when young, variegated with cinereous, brown, or purple zigzag lines; and ſometimes radiated with the ſame from the hinge to the oppoſite margin; the ground colour of the older ſhells is uſually brown, the younger ones white, ſometimes with only a few markings at the anterior end. The utmoſt ſize is an inch and three-eighths in length; and two inches in breadth: it is moſt commonly broader in proportion to its length than the *V. decuſſata*, but we do not perceive the material diſtinction upon a general review, in the teeth, that Mr. Wood ſeems to expreſs between theſe two ſhells; and muſt confeſs the gradations in this reſpect run ſo much into each other that no leading character can be drawn from them.

This gentleman however is the firſt *Engliſh* author who has properly divided theſe ſhells; to whoſe definition may be added, that the great leading character beſides the ſtructure, and ſituation of the *cicatrix*, is the formation of the animal inhabitant: that of the *V. decuſſata* (as before ſtated) is poſſeſſed of two ſeparate tubes, whereas the tubes of this are not quite ſo long, and connected almoſt their whole length, except at the tip.

This

This ſpecies is found with the laſt, is frequently eaten by the common people, and in ſome parts of *Devonſhire* indiſcriminately called *Pullers* or *Pullets*.

There is very little doubt ſome of the elegant varieties of this ſhell, have been deſcribed under other denominations: the figure we have referred to in CHEMNITZ is exactly the ſhape of ours of that ſize; and we have ſeen it very ſimilar in markings. In our poſſeſſion are other varieties, with all the markings of *Venus Textrix* of the ſame author, vol. vii. tab. 42. fig. 443. the firſt is quoted by GMELIN for the *Venus litterata;* whether ours is a depauperated ſhell of that ſpecies, is not eaſily determined.

17.

V. with a ſub-rhomboidal ſhell, concentrically ſtriated, running into ſtrong wrinkles or ridges at the anterior ſide; ſometimes, though rarely, with very fine longitudinal ſtriæ; colour light brown: *umbo* very near to one end, ſmall, and turned a little ſideways: the longer ſide much truncated: hinge furniſhed with three teeth in each valve, one of which is ſmall, the others very long, ſlender, and curve outwards, middle tooth a little bifid. Inſide ſmooth, white, with generally ſome purple at the truncated end; margin plain: *cicatrix* large, running from the anterior ſide half way acroſs to the oppoſite end; valves moderately concave. PERFORANS. TAB. 3. f. 6.

This ſpecies, at firſt ſight, might readily be confounded with

with the young of the *V. decuſſata;* but the ſlender and recurved teeth is a diſcriminating character, if all others were wanting. It rarely exceeds three-eighths of an inch in length; and five-eighths in breadth. With reſpect to ſhape, it is difficult to fix any as a permanent character; it is however moſt frequently ſub-rhomboidal; ſometimes nearly as long as it is broad, generally ſtrait on the front margin, but in ſome inſtances deeply ſinuous or indented; not very unlike Mr. PENNANT's figure of the *Venus ſinuoſa.*

We found this ſpecies in abundance on the ſhore near *Plymouth*, burrowed in hard lime-ſtone, detached fragments of which were perforated in all directions, and ſtuck full of them.

18. VIRGINEA.

Venus Virginea. *Lin. Syſt.* p.1136.—*Gmel. Syſt.* p.3294. 136.
Pult. Cat. Dorſet. p. 34.
Turt. Lin. iv. p. 241.
Chem. Conch. vii. t. 42. f.443. & t. 43. f.457. a. b. c.—*Br. Zool.* t.55. without number?
Liſter Conch. t. 403. f. 247.
Cuneus faſciatus. *Da Coſta* p. 204.

V. with a ſtrong, ſub-oval ſhell, tranſverſely ſtriated; the ſtriæ in ſome ſpecimens, interrupted in a few places by a deeper furrow: colour various, moſt commonly of a pale rufous-brown, ſtreaked and ſpotted in a very pretty manner, with ferruginous, or dull purpliſh-brown: ſometimes with a few interrupted rays or zigzag lines: and rarely

rarely of a fine bluſh-colour, with two or three white, longitudinal ſtreaks: *umbo* placed much to one ſide, beneath which is a lanceolate, cordiform depreſſion; hinge with three teeth in each valve, the outer ones a little diverging, middle one bifid. Inſide white, frequently tinged with bluſh-colour; margin plain; edge obtuſe; *cicatrix* nearly cylindric, running from the anterior ſide, not quite half way acroſs towards the oppoſite end.

This ſpecies is not ſo common as the *decuſſata*, but is ſometimes taken in the ſame places. We have found it in ſome parts of *Cornwall*, and rarely in *Devonſhire* and *Dorſetſhire*.

Thoſe from *Guernſey* are extremely beautiful.

19. AUREA.

Venus aurea. *Gmel. Syſt.* p.3288.98.—*Turt. Lin.* iv.p.236. *Liſter Conch.* t.404.f.249.—*Petiv. Gaz.* 94.8? *Chem. Conch.* vii. t. 43. f. 458.

Venus nebuloſa. *Pult. Cat. Dorſet.* p. 34.

Venus rhomboides. *Br. Zool.* No. 55?—*Turt. Lin.* iv. p.241?

V. with a ſub-cordated, moderately ſtrong ſhell, rounded at both ends like the laſt, but not ſo broad in proportion to its length; ſtriated tranſverſely, and marked with very faint longitudinal ſtriæ, ſcarcely diſcernable without a glaſs: *umbo* placed near to one end, ſmall, pointed, turned to one ſide; beneath which is a lanceolate, cordiform depreſſion: colour various, ſometimes white, elegantly

marked with brown, or blueiſh-black, zigzag lines; or mottled with cinereous; others are plain brown, frequently of a yellowiſh tinge, and ſometimes deep ferruginous about the *umbo:* in moſt there are a few ſtreaks at the anterior margin. It varies alſo in ſhape; ſome are nearly as long as they are broad; others extend at the anterior end, and become more pointed, but in all the front margin is conſiderably more rounded than in the *Virginea.* Inſide yellowiſh-white; margin plain; valves concave: hinge furniſhed with three teeth in each valve, the middle one a little bifid. Length commonly about one inch; breadth an inch and three-eighths.

This ſpecies has ſometimes been confounded with the *Virginea,* but may be readily known, not only by its inferior ſize, different colour and markings, but by its being more convex, the ſtriæ much finer, and the front margin more rounded; beſides which it is always longer in proportion to the breadth.

LISTER has given a very good figure of this ſhell, and has marked it as an *Engliſh* ſpecies. It was known alſo to Doctor SOLANDER, and was called in the *Muſeum Portlandicum* by the name of *nebuloſa,* which name was retained by Doctor PULTENEY in his catalogue of *Dorſetſhire* ſhells, who ſays it is found on that coaſt; indeed we obſerved it on *Studland* beach.

It is very common amongſt the ſand taken from *Falmouth*

mouth harbour, where we never obſerved the *Venus Virginea:* it is alſo not unfrequent on the ſouth coaſt of *Devon.* A variety of this ſhell is probably the *V. Rhomboides* of the *Britiſh Zoology.*

20.

Pectunculus truncatus. *Da Coſta* p. 195 ? SULCATA.

V. with a ſtrong, thick, ſub-orbicular, ſub-angulated, flattiſh ſhell, with concentric ridges; the furrows or *ſulci* broader than the elevated parts, and both become nearly obſolete at the ſides and towards the beak, where it is only wrinkled: the colour is white, but when alive is covered with a very thick, duſky-brown *epidermis*, ſo very opaque that the colour of the ſhell is not to be ſeen: *umbo* very prominent and large, turning a little to one ſide; beneath which is a lanceolate, cordiform depreſſion; the cartilage ſlope is alſo depreſſed, and is much more ſtrait than on the oppoſite ſide; the exterior margin is rounded. The inſide is white, ſmooth, and gloſſy at the margin; the middle dull, yellowiſh, and appears rough when examined with a glaſs; the edge crenated: hinge remarkably ſtrong; teeth large and prominent; in one valve three teeth, the middle one much larger than the others, with a deep cavity on each ſide, into which the two teeth of the other valve lock: it has no *cicatrix*, but on each ſide is a lunated depreſſion, marked with four or five ſemi-circular ridges, to which the ligaments of the animal are fixed for the purpoſe of cloſing the ſhell. Length ſeven-eighths of an inch; breadth nearly the ſame.

We received this ſpecies from Mr. SOWERBY, who informed us it was *Engliſh;* and we obſerved the ſame ſhell in the cabinet of *Britiſh teſtacea* belonging to Mr. SWAINSON, who ſaid he received it from the *Dutcheſs of Portland* as ſuch, and that it has been ſince found in the north of *Scotland*, where it is known by the trivial name of the *brown circular-furrowed northern cockle.*

It was marked in Doctor PULTENEY's cabinet *Venus ſulcata*, but he did not know it had ever been found in this country, nor did he believe it had ever been deſcribed, and therefore named it himſelf.

We have ſuſpected this may be the *Pectunculus truncatus* of DA COSTA, though certainly not the *Tellina Cornubienſis* of PENNANT, which he erroneouſly quotes. We ſhall here ſubjoin the deſcription given by DA COSTA in order that our conchological readers may judge for themſelves.

"A ſmall ſpecies, very thick and ſtrong, of a ſomewhat triangular ſhape; the valves pretty concave; the ſides very diſſimilar, one being rounded, the other near perpendicular, flattiſh, or truncated."

"Outſide whitiſh, except towards the upper part, or round the beak, which is of a light purple colour."

"It is wrought with concentric, tranſverſe, broad, and very thick ridges, cloſe-ſet, with large intermediate furrows

rows. On the turn or edge of the truncated ſide the ridges generally divide or fork, and on the truncated ſide they tend obliquely upwards from thoſe of the body: this truncated part is rather in a ſlope than quite perpendicular. The beaks are ſtrong, pointed, and turn ſideways. The margins are plain."

"Inſide white, ſmooth, and gloſſy. The margins delicately notched."

(And adds,) "I received this ſpecies from the coaſt of *Cornwall*."

GEN. XII.

CHAMA.

Animal a TETHYS.

SHELL; bivalve, ſtrong.

Hinge rugged, gibbous; teeth obliquely inſerted into the oppoſite valve.

1 COR. Chama Cor. *Lin. Syſt.* p. 1137.—*Gmel. Syſt.* p. 3299. 1. *Chem. Conch.* vii. t. 48. f. 483. *Liſter Conch.* t. 275. f. 111.—*Favan.* t. 53. G. *Gualt.* t. 71. f. E.—*Turt. Lin.* iv. p. 244.

C. with a ſub-globoſe, cordated, thick, ſtrong ſhell; ſmooth, or ſlightly wrinkled tranſverſely, covered with a yellowiſh-brown *epidermis: umbo* large, prominent, much contorted or incurvated, and turned to one ſide, not touching when the valves are cloſed: hinge ſtrong; teeth flattiſh. Inſide ſmooth, white; margin plain.

This ſhell received its name from its repreſenting a heart when viewed ſideways.

It

It is a curious ſpecies, and not noticed by any conchological writer as a *Britiſh* ſhell.

In the cabinet of Mr. SWAINSON are two, which were taken in the *Britiſh* ſeas; one nearly three inches in diameter from the coaſt of *Scotland;* the other, not above an inch and a half in diameter, was dredged up off the *North Foreland* by himſelf; and though deſtitute of the animal, was perfect, very recent, and in good preſervation.

It is found about the *Hebrides.*

GEN. XIII.

ARCA.

Animal a TETHYS.

SHELL; bivalve, equivalve.

Hinge; with many teeth, alternately locking between each other.

1.
PILOSA.

Arca pilosa. *Lin. Syst.* p. 1143. 182.
Gmel. Syst. p. 3314. 36.
Pult. Cat. Dorset. p. 35.
Turt. Lin. iv. p. 256.—*Gualt.* t. 73. A.
Chem. Conch. vii. t. 57. f. 565. 566.
Lister Conch. t. 247. f. 82.
Arca Glycymeris. *Br. Zool.* t. 58. f. 58.
Don. Br. Shells. ii. t. 37.
Lin. Trans. vi. t. 18. f. 1. 2. *(Wood.)*
Glycymeris orbicularis. *Da Costa* p. 168. t. 11. f. 2. 2.

A. with a strong, orbicular shell, covered with a dark brown, pilous *epidermis*, particularly about the margin; beneath this the older shells are sometimes of a rusty brown colour,

colour, others almoſt white, with zigzag, angular ſtripes of cheſnut, or orange-yellow; in younger ſhells the markings are frequently of a carnation colour. It is faintly ſtriated longitudinally, with tranſverſe, antiquated wrinkles or ridges: *umbo* large, central, and not turned to either ſide. Inſide white, with ſometimes a little purpliſh-brown at one end; margin ſtrongly crenated. Diameter two inches and a half, or more.

This ſpecies and the *Arca glycymeris* have been greatly confounded, and indeed it is not an eaſy matter to aſcertain them by the ſynonyms of GMELIN.

LISTER has given a very good figure of this ſhell, and marks it as *Engliſh*, as well as from *Guernſey*; this however is quoted by GMELIN for his *Glycymeris*. We have had ſome doubt whether theſe two ſhells are actually diſtinct, and whether the variation may not be occaſioned by climate. Doctor PULTENEY expreſsly ſays, they are totally different; we have therefore followed that able conchologiſt, in giving it as the *piloſa* of LINNÆUS.

This ſhell is in great abundance on the ſhore near *Pendennis Caſtle* in *Cornwall*, of a large ſize, but all worn and mutilated, as if driven from a conſiderable diſtance.

We have obtained it by dredging, on the ſouth coaſt of *Devon*, but rarely alive, except ſmall ſpecimens: is alſo taken on the *Dorſet* coaſt by dredging, at *Weymouth* and at *Swanage*; and we have received it from *Kent*.

2.
LACTEA.

Arca lactea. *Lin. Syſt.* p. 1141. *Gmel. Syſt.* p. 3309. 15.
Chem. Conch. vii t. 55. f. 547.
Liſter Conch. t 235. f. 69.—*Petiv. Gaz.* t. 73. 1.
Da Coſta p. 171. t. 11. f. 5. 5.
Turt. Lin. iv. p. 252.
Arca barbata. *Br. Zool.* No 60. t. 58. f. 59. reference miſplaced to A. Nucleus.
Arca crinita. *Pult. Cat. Dorſet.* p. 34.

A. with a rhomboidal, yellowiſh-white ſhell, covered with a brown pilous *epidermis*, under which it is furniſhed with numerous fine, cloſe-ſet, regular ſtriæ longitudinally, or from the *umbo* to the margin, with a few concentric wrinkles or ridges: the interſtices between the ſtriæ are prettily punctured, giving the ſhell a reticulated appearance when examined by a lens: *umbo* not quite central; hinge furniſhed with numerous teeth. Inſide white; margin plain.

This ſpecies is ſubject to great variety in ſhape, ſome are rounded at both ends, others angulated, or cut off at one end; and the ſtriæ, which are faint in ſome, are very ſtrong in others, both tranſverſe and longitudinal, croſſing in a decuſſated manner; the tranſverſe ſtriæ, however, are always leaſt diſtinct.

Doctor PULTENEY has conſidered this ſhell as diſtinct from the *A. lactea* of LINNÆUS, obſerving that, that is much larger, and is ſtrongly ſtriated in a reticulated manner. *Engliſh* ſpecimens, however, are ſometimes reticulated

ticulated very conſpicuouſly; and, if we make allowance for the various effects of climate, it may be conjectured this is only a variety in a depauperated ſtate.

This ſhell is found in great abundance on ſome parts of the ſouth coaſt of *Devon;* and not unfrequent on that of *Cornwall*, particularly about *Falmouth;* but live ſhells, or double valves with the *epidermis* on, are rare. It ſeldom exceeds half an inch in length; and three-quarters in breadth.

3.

Arca Noae.	*Lin. Syſt.* p. 1140. 169.	Noæ.
	Gmel. Syſt. p. 3306. 2.	Tab. 4. f. 3. 3.
	Chem. Conch. vii. t. 53. f. 531. a.	
	Turt. Lin. iv. p. 250.—*Gualt.* t. 87. H.	
Muſculus Matthioli.	*Liſter Conch.* t. 368.. f. 208.	
Arca tortuoſa.	*Br. Zool.* No. 57. figure omitted.	
	Borlaſe Corn. t. 28. f. 15. 16.	

A. with a rhomboidal ſhell, the ſmaller end of each valve turning inwards to meet each other, forming a ſharp angle, giving that end a ſub-cordated appearance: the *umbo* is placed neareſt to one ſide: the *apex* prominent, and greatly ſeparated by a deep ſulcus, which is ſmooth and gloſſy: the ſtriæ that run from hinge to margin are regular and ſtrong; theſe are croſſed with fine, tranſverſe ſtriæ, that make the ſhell elegantly reticulated: ſome are marked with concentric, antiquated ridges: colour rufous-brown, lighteſt at the larger end. Inſide whitiſh or

tinged with brown: hinge ſtrait, furniſhed with numerous teeth.

We have found this ſingular ſpecies at *Milton* ſands, on the ſouth coaſt of *Devon*, but it is extremely rare. BORLASE firſt obſerved this to be an *Engliſh* ſhell, having found it at the lands-end in *Cornwall*, but ſpeaks of it as rare. Thoſe we found do not much exceed half an inch in breadth, which is about the ſize of the figure given by BORLASE.

Foreign ſpecimens are much larger.

4. MINUTA.

Arca minuta. *Gmel. Syſt.* p.3309. 14.—*Lin. Trans.* iii.p.64?
Chem. Conch. x. t. 170. f. 1657. 1658.
Turt. Lin. iv. p. 252.
Arca Modiolus. *Walk. Min. Shells.* f. 81.
Adams Micros. t. 14. f. 43.
Arca caudata. *Don. Br. Shells* iii. t. 78.

A. with an oblong ſhell, the anterior ſide running into an angulated beak, cut off at the point; finely ſtriated tranſverſely, interrupted by three or four ſtrong concentric ridges: colour white, or yellowiſh: *umbo* very ſmall, turning a little towards the angulated ſide; beneath which is a ſmooth depreſſion reaching to the end; this part is indented, which gives the produced ſide a reflexed appearance. Inſide ſmooth, gloſſy; colour the ſame as the outſide; teeth numerous, angulated, the angular ſides placed towards

towards the *umbo:* immediately under the *apex* is a cavity, and a ſpace deſtitute of teeth, dividing them into two ſeries: margin plain. Length three-eighths of an inch; breadth ſcarce half an inch.

This curious and rare ſpecies we received from Mr. Boys of *Sandwich,* for the ſhell figured by Walker as above quoted, at which place it is not uncommon. Mr. Walker conſidered this ſhell as the *A. Modiolus* of Linnæus. Chemnitz has given a tolerably good figure of this ſpecies, which Gmelin quotes as his *A. minuta.* Mr. Adams has given an *Arca minuta* in the *Linnean Tranſactions,* but from his ſhort deſcription, we cannot be confident it is the ſame. He ſays, "*Teſta ſubrotunda: ſtriis concentricis, margine integro. Color albus.*"

5. Nucleus.

Arca Nucleus *Lin. Syſt.* p. 1143.—*Gmel. Syſt.* p. 3314. 38.
Chem. Conch. vii. t. 58. f. 574. a. b.
Br. Zool. No. 59. figure erroneous.
Don. Br. Shells ii. t. 63.—*Turt. Lin.* iv. p. 257.
Pult. Cat. Dorſet. p. 35.—*Gualt.* 88. R.
Lin. Trans. vi. t. 18. f. 3. 6. *(Wood.)*
Petiv. Gaz. t. 17. f. 9.
Glycymeris argentea. *Da Coſta* p. 170. t. 15. f. 6. *dextra.*

A. with a ſub-triangular, white ſhell, concentrically wrinkled, and croſſed with numerous, minute, obſolete ſtriæ from hinge to margin; covered with a gloſſy, olivaceous

ceous *epidermis: umbo* placed a little to one ſide, beneath which is a cordiform depreſſion. Inſide gloſſy, ſilvery white; hinge angular, beſet with numerous, fine, regular teeth in a pectinated form: margin finely crenulated. Length three-eighths of an inch; breadth ſomewhat more.

This ſpecies is common on moſt of our ſandy ſhores. Mr. PENNANT has by miſtake referred to his *Arca barbata* for the figure of this ſhell.

GEN. XIV.

PECTEN.

Animal a TETHYS.

SHELL, bivalve, inequevalve, moſt times ribbed or ſtriated longitudinally.

Hinge, toothleſs, with a ſmall ſub-triangular cavity; aurated.

1.

Oſtrea maxima. *Lin. Syſt.* p. 1144.—*Gmel. Syſt.* p. 3315. 1. MAXIMUS.
Pult. Cat. Dorſet. p. 35.
Chem. Conch. vii. t. 60. f. 585.
Liſter Conch. t. 163. f. 1.—*Ib. Ang.* t. 5. f. 29.
Don. Br. Shells ii. t. 49.—*Turt. Lin.* iv. p. 258.
Gualt. t. 98. A. B.—t. 99. A.
Pecten maximus. *Br. Zool* No. 61.
Pecten vulgaris. *Da Coſta.* p. 140. t. 9. f. 3. 3.

P. with fourteen or fifteen rounded ribs, longitudinally grooved, and wrought with very fine, tranſverſe ſtriæ: upper valve flat, with a depreſſion at the *umbo;* colour rufous; lower valve very convex, white, tinged with yellow;

yellow; auricles ſtriated, equal, rectangular. Inſide white, with rufous-brown round the margin. Length five inches; breadth ſix. It is ſometimes found variegated with pink and brown.

This ſhell is not uncommon on ſome parts of our coaſt, and is frequently ſold for the uſe of the table, being much eſteemed. Is plentiful in *Salcomb* bay, in *Devonſhire*, and in the ſea between *Portland* and *Purbeck* in *Dorſetſhire*.

We are informed by old and experienced dredgers, that the greateſt quantity are taken after a fall of ſnow.

2.
JACOBÆUS.

Oſtrea Jacobæa. *Lin. Syſt.* p. 1144.—*Gmel. Syſt.* p. 3316. 2.
Pult. Cat. Dorſet. p. 36.
Turt. Lin. iv. p. 258.
Gualt. t. 99. B.—*Favan.* t. 54. L. 1.
Pecten Jacobi. *Chem. Conch.* vii. t. 60. f. 588. 589.
Liſter Conch. t. 165. f. 2.—t. 166. f. 3.
Pecten Jacobæus. *Br. Zool.* t. 60. f. 62.
Da Coſta. p. 143. No. 2.

P. with ſeventeen or eighteen, very convex, ribs; upper valve flat, rufous; the ribs rounded, finely ſtriated tranſverſely; with a ſmooth, whitiſh depreſſion at the *umbo:* lower valve pure white; ribs angulated, or brought to a flat ſurface, ſtrongly furrowed longitudinally, and marked with fine tranſverſe ſtriæ: auricles equal, rectangular, ſtriated. Inſide white, a little tinged with rufous at

at the margin. Length four inches; breadth five; rarely found ſo large in the *Britiſh* ſeas.

This ſpecies very much reſembles the *P. maximus*, but the ſides riſe higher towards the hinge; and it is at once diſtinguiſhed by the under valve being pure white; and by the flat, angulated ribs.

It is a rare ſhell, but has ſometimes been dredged up on our coaſt, particularly in *Dorſetſhire*, at *Poole* and at *Weymouth;* as we are aſſured by Doctor PULTENEY.

DA COSTA informs us he received it from the ſame coaſt, as well as from *Cornwall*, and *Scarborough* in *Yorkſhire*.

3.

Oſtrea opercularis. *Lin. Syſt.* p.1146.—*Gmel. Syſt.* p.3325. 51. OPERCULARIS.
Pult. Cat. Dorſet. p. 36.
Turt. Lin. iv. p. 266.
Liſter Conch. t. 190. f. 27.28.—*Id. Ang.* t.5. f. 30.
Pecten opercularis. *Chem. Conch.* vii. t. 67. f. 646.
Favan. t. 54. L. 2. 4.
Oſtrea ſubrufus. *Don. Br. Shells* i. t. 12.
Pecten ſubrufus. *Br. Zool.* t. 60. f. 63.
Pecten pictus. *Da Coſta* p. 144. t. 9. f. 1. 2. 4. 5.
Lin. Trans. vi. t. 18. f. 7. 8. *(Wood.)*

P. with a ſub-orbicular ſhell, with about twenty rounded ribs, finely ſtriated tranſverſely: colour various, moſt fre-

 quently

quently white, beautifully variegated with red or purple; ſometimes of one colour; white, yellow, brown, or purpliſh: the under valve moſt highly coloured; the upper valve is not ſo convex as the other: auricles nearly ſimilar, ſtriated. Inſide white, in ſome parts a little tinged with brown. Diameter about two inches and a half.

This ſpecies is common on many parts of our coaſt: in *Devonſhire* and *Cornwall* is frequently taken for culinary purpoſes; known by the name of *Frills* or *Queens*.

4. VARIUS.

Oſtrea varia. *Lin. Syſt.* p. 1146.—*Gmel. Syſt.* p. 3324. 48.
Pult. Cat. Dorſet. p. 36.
Turt. Lin. iv. p. 265.
Don. Br. Shells i.t.1.f.1.—*Favan.* t.54. B.3.4.5.
Liſter Conch. t. 178. f. 17. 18.
Gualt. t. 73. G.—t. 74. R.
Pecten varius. *Chem. Conch.* vii. t. 66. f. 633. 634.
Br. Zool. t. 61. f. 64.
Pecten Monotis. *Da Coſta.* p. 151. t. 10. f. 1. 2. 4. 5. 7. 9.

P. with about twenty eight echinated ribs; colour various, ſometimes like tortoiſe-ſhell, clouded dark chocolate-brown and yellow; others plain rufous-brown, or yellowiſh; upper valve leſs convex than the other; auricles very unequal, the longeſt ear on the ſuperior valve is much wrinkled, the other ſtriated lengthways: the whole ſhell is rough with concave ſpines, but leaſt ſo towards the *umbo*; ſometimes inſtead of ſpines it is imbricated on the ribs,

ribs, and only a little echinated about the ſides. Immediately beneath the long ear of the ſuperior valve, (which is not ſo broad as the correſponding one of the other valve) are a few teeth-like laminæ; at this part the ſhell is incapable of cloſing. Inſide partakes of the colour of the exterior, but lighter. Length two inches and a quarter; breadth two inches.

This is a common ſpecies, frequently dredged up with oyſters on various parts of the coaſt.

5.
LINEATUS.

Pecten lineatus. *Da Coſta.* p. 147. t. 10. f. 8.
Oſtrea lineata. *Pult. Cat. Dorſet.* p. 36.
Don. Br. Shells. iv. t. 116.

P. with a ſub-orbicular ſhell, with eighteen narrow ribs; colour white, except the ridge of each rib, which is red on the upper valve: the lower valve is quite white; the interſtices finely ſtriated tranſverſely; auricles nearly alike. Inſide white. In ſhape this elegant ſpecies very much reſembles the *P. opercularis*, one valve being a little more convex than the other; but the ſides of this do not riſe quite ſo high towards the ears, and the ribs are much finer; which, with the invariable red line upon the ridge of each, without any other markings, at once diſtinguiſhes it.

Doctor PULTENEY firſt noticed this ſhell on the *Dorſetſhire* coaſt, and ſent it to DA COSTA, who deſcribed it in his work. In the *Muſeum Portlandicum* was called by Doctor SOLANDER, *Pecten carinatus.*

We have found it in *Cornwall* and *Devonſhire*, but is rather a ſcarce ſhell. Length rarely exceeds an inch and a half; breadth not quite ſo much.

6. DISTORTUS.

Pecten diſtortus. *Da Coſta* p. 148. t. 10. f. 3. 6.
Pecten Puſio. *Br. Zool.* No. 65.
Liſter Conch. t. 172. f. 9.—t. 189. f.23.
Id. Angl. p. 186. t. 5. f. 31.
Chem. Conch. vii. t. 67. f. 635. 636.
Oſtrea Puſio. *Lin. Syſt.* p. 1146?
Gmel. Syſt. p. 3324. 49.?
Don. Br. Shells. i. t. 34.—*Turt. Lin.* iv. p. 266.
Oſtrea diſtorta. *Pult. Cat. Dorſet.* p. 36.

P. with a very diſtorted ſhell, with numerous, rib-like ſtriæ, ſome of which are larger than others: the upper valve is, in general, much more flat than the inferior, but it is of ſo diſtorted a growth, that no two are found alike. The under valve, by which it adheres to rocks and old ſhells, partakes of all the inequalities of the part to which it is affixed; and ſcarce any ribs or ſtriæ are to be found on that valve, except towards the *umbo*. The ſuperior valve partakes of theſe irregularities more or leſs, though it is always ſtriated, but frequently interrupted by ſwellings and depreſſions; and the ſtriæ become undulated. In the more perfect ſhells the auricles are large, ſometimes nearly equal; in others ſcarce any ears are obſerved: colour moſt commonly rufous-brown, or red and white mottled. It rarely exceeds two inches in length; and one inch and a half in breadth.

This

This ſingular ſpecies is not uncommon in the weſt of *England*, from *Dorſetſhire* to *Cornwall*, but the lower valves are ſeldom thrown upon the ſhores: theſe adhere ſo ſtrongly to rocks, as not to be eaſily ſeparated; and lie generally in deep water: perfect ſhells, however, are ſometimes obtained by dredging, affixed to the inſide of old oyſter ſhells.

We have ſeen it perforated into thoſe maſſy ſtones uſed for fixing the mooring chains to, in *Plymouth* harbour; or at leaſt ſo encloſed, that it became neceſſary to break off part of the ſtone to get them out.

7.
OBSOLETUS.

Pecten obſoletus. *Br. Zool.* t. 61. f. 66.
Don. Br. Shells. i. t. 1. f. 2.
Pecten parvus. *Da. Coſta*. p. 153. No. 7.
Oſtrea obſoleta. *Turt. Lin.* iv. p. 266.

P. with numerous, fine, longitudinal ſtriæ, eight or ten more prominent than the others, at irregular diſtances; the valves are equal, and rather flat: the auricles are unequal; one very large, ſtriated, the other extremely ſmall: colour dark purple. Inſide ſmooth, browniſh.

This ſpecies, which was firſt given by Mr. PENNANT, appears to be very rare. DA COSTA received his from the coaſt of *Cornwall*.

8.

GLABER. Pecten glaber. *Br. Zool.* No. 68.

P. with a very thin ſhell; fifteen faint rays; equal ears.

The inner ſide of the ſhells marked with rays, divided by a ſingle *ſulcus*.

Angleſea. A ſcarce ſpecies. Small.

We have been obliged to copy Mr. PENNANT's deſcription of this ſhell, not having been fortunate enough ever to meet with it. The deſcription does not ſufficiently correſpond with the *Oſtrea glabra* of LINNÆUS, to induce us to think it is the ſame ſpecies.

9.

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

TAB. 4. f. 4. Oſtrea lævis. *Turt. Lin.* iv. p. 266.

P. with a flat, ſub-orbicular, thin, pellucid ſhell, perfectly ſmooth, except a few faint concentric ridges: valves nearly equal; auricles ſtrongly ſtriated lengthways, croſſed with very fine ſtriæ; one ear much longer than the other: colour yellowiſh-white. Inſide gloſſy white. Length five-eighths of an inch; breadth not quite ſo much.

Mr. PENNANT ſeems to be the only author who has given this ſpecies; found in *Angleſea*. We have found it at *Falmouth*, rarely: our fineſt ſpecimen was dredged up alive, from *Salcomb* bay in *Devonſhire;* this is of a pale, dull, orange-yellow.

GEN.

GEN. XV.

OSTREA.

Animal a TETHYS.

SHELL, bivalve, inequivalve, rugged or plated; no auricles.

Hinge toothleſs, with a tranſverſe, ſtriated cavity.

1.

Oſtrea edulis. *Lin. Syſt.* p. 1148.—*Gmel. Syſt.* p. 3334. 105. EDULIS.
Chem. Conch. viii. t. 74. f. 682.
Gualt. t. 102. A. B.—*Br. Zool.* No. 69.
Liſter Conch. t. 193. f. 30.—t. 194. f. 31.
Id. Angl. t. 4 f. 26.—*Pult. Cat. Dorſet.* p. 36.
Turt. Lin. iv. p. 274.—*Favan.* t 80. C.
Lin. Trans. vi. t. 18. f. 9. 10. *(Wood.)*
Oſtreum vulgare *Da Coſta.* p. 154. t. 11. f. 6.

O with a ſub-orbicular, rugged ſhell, with plates or folds lying over each other; generally of a brown colour.

This ſpecies, ſo well known, requires little deſcription: it varies greatly in ſhape and ſize, according to the ſitua-

tion

tion in which it is found: ſome have very ſtrong, thick, ponderous ſhells; others are thin, with membranaceous plates or laminæ, obſcurely and irregularly ſtriated.

A pretty variety is found in *Salcomb* bay in *Devonſhire*, with a very thin ſhell, with large membranaceous plates, wrinkled into irregular, interrupted ribs: the upper valve flat, or rather concave on the top, with a corneous margin, half an inch broad, extremely thin and brittle: the lower valve convex, clouded with pale purple, particularly round the margin. Theſe are called *Rock oyſters*, and vary ſo much from others, taken from a different part of the ſame bay, that they appear like a diſtinct ſpecies; and are very unlike thoſe which are cultivated for the *London* markets; they are generally of an orbicular ſhape; with the *umbo* pointed, and central. Diameter about three inches and a half.

It is the nature of *oyſters* in general to have the lower valve fixed to rocks, or looſe ſtones, and frequently to each other; but this is not the caſe with the variety juſt deſcribed, in conſequence their ſhape is more regular.

The appellation of *Rock oyſter* ſeems to be given it by the fiſhermen, becauſe they are taken on rockey ground.

For an account of the taking, breeding, and management of *oyſters*, in order to ſupply the tables of the luxurious, we refer our readers to the *Britiſh Zoology;* DALE'S *Hiſtory of Harwich;* and DA COSTA'S *Britiſh Conchology;* which

which is extracted from Biſhop SPRAT's *Hiſtory of the Royal Society*, p. 307.

2.
STRIATA.

Oſtrea ſtriata. *Pult. Cat. Dorſet.* p. 36.
Don. Br. Shells. ii. t. 45.
Turt. Lin. iv. p. 275.
Oſtreum ſtriatum. *Da Coſta.* p. 162. t. 11. f. 4. 4.
Liſter Conch. t. 202. 203. f. 36. 37.
Ib. Angl. t. 4 f. 27.

O. with a ſub-orbicular ſhell, marked with fine, irregular, undulated, longitudinal, rib-like ſtriæ; *umbo* very ſmall, placed near the top, a little ſurrounded by the margin: ſuperior valve leſs convex than the inferior: colour white. Inſide ſmooth, gloſſy white, with a pearlaceous hue; the hinge is a ſmall cavity under the beak; a little below which is an opaque, chalky white ſpot, of an oval ſhape. Diameter rarely exceeds one inch and a half.

This ſpecies is ſubject to great variety in ſhape like the common oyſter, and is frequently diſtorted and ſinuous; but is never plated or laminated like that ſhell. Small ſpecimens are often ſtrongly ribbed with ſmaller intermediate ſtriæ, and the margin angulated by the ribs; colour mottled, faint rufous-brown and white.

This ſhell, which was firſt noticed by Doctor LISTER, is not unfrequently found on ſome parts of our coaſt; but moſtly ſingle valves, and by far the greateſt part that of the under or concave: theſe having loſt the ſtriæ by being much worn, are ſometimes confounded for the *Anomia Ephippium*.

GEN. XVI.

ANOMIA.

Animal not reducible to any hitherto found in a molluſcous ſtate.

It appears to be different in ſome ſpecies of *Anomia*, as may be ſeen by comparing that of the *Cepa* figured by MURRAY in his *Fundamenta Teſtaceologiæ*, t. 2. f. 23. and the *tridentata*, ſo called by FORSKAL, in his *Icones Animalium*, t. 6. 40.

The animal of the *A. patelliformis* ſeems to be different from either of theſe, by the deſcription LINNÆUS has given of it.

SHELL, bivalve, inequivalve; one valve uſually flat, the other convex: in ſeveral ſpecies the flat valve is perforated near the hinge, through which the animal is immoveably fixed by a teſtaceous plug to ſome other body.

Hinge toothleſs: a tranſverſe, linear prominence on the flat valve, connected under the beak of the oppoſite valve by a ſtrong cartilage.

1.

Anomia Ephippium. *Lin. Syſt.* p. 1150.—*Gmel. Syſt.* p. 3340. 3. EPHIPPIUM.
Chem. Conch. viii. t. 76. f. 692. 693.
Liſter Conch. t. 204. f. 38.
Br. Zool. t. 62.—*Gualt.* t. 97. B.
Don. Br. Shells i. t. 26.
Lin. Trans. vi. t. 18. f. 11. 12. *(Wood.)*
Turt. Lin. iv. p. 280.—*Favan.* t. 41. B.
Anomia Tunica Cepæ *Da Coſta* p. 165. t. 11. f. 3.
Anomia Cepa. *Lin. Syſt.* p. 1151?—*Gmel. Syſt.* p. 3341?
Chem. Conch. viii. t. 76. f. 694. 695.
Pult. Cat. Dorſet. p. 37.—*Id.* roſea

A. with a ſub-orbicular, irregularly wrinkled, waved, and ſinuous ſhell: one valve convex, the other flat, and perforated at the hinge, by which it adheres to other bodies, particularly oyſters; taking the impreſſion of whatever it is affixed to. We have ſeen very elegant, pellucid, compreſſed ſpecimens, taken from the *Pecten maximus*, of a large ſize, with all the impreſſions of the ribs; ſometimes longitudinal, in others tranſverſe; and which is communicated to the upper valve. Inſide pearlaceous, gloſſed with green, purple, violet, or yellow; with all the intermediate ſhades.

The *Anomia Cepa* of LINNÆUS is probably only a variety of this ſhell, ſtrongly coloured in the inſide.

It is very common on moſt of our ſhores, but rarely perfect, unleſs dredged up alive. Diameter ſometimes three inches and a half; moſt frequently not above two inches.

The teſtaceous plug by which the animal fixes itſelf to other ſubſtances, is firmly attached by ſtrong ligaments to the body; and ſo cloſely cemented, or united to whatever it is affixed, that they become inſeparable; and of courſe when the ſhell is forced from its native place, the plug is left behind upon the ſtone or ſhell to which it adhered.

2.
SQUAMULA.

Anomia Squamula. *Lin. Syſt.* p.1151.—*Gmel. Syſt.* p.3341.6.
Chem. Conch. viii. t. 77. f. 696.
Br. Zool. No.71.—*Walk. Min. Shells* f.80.
Da Coſta. p. 167.
Adams. Microſc. t. 14. f. 42.
Pult. Cat. Dorſet. p. 37.
Turt. Lin. iv. p. 281.

A. with a ſub-orbicular ſhell, not unlike the laſt, but conſiderably more thin and membraneous; in general much compreſſed; the perforated valve quite flat, the other ſometimes a little convex: colour dirty white when alive. Inſide white, or tinged with green. This, like the preceding ſpecies, takes the impreſſion of whatever it adheres to; and very pretty ſpecimens are obtained from ſome of the *Pectens*.

Frequent on oyſters, lobſters, crabs, and other marine bodies. Is diſtinguiſhed from the young of the *A. Ephippium* by being ſmooth, and by the ſmall pointed beak or *umbo;* is alſo much more flat. Diameter rarely exceeding half an inch.

3.
ACULEATA.
TAB. 4. f. 5.

Anomia aculeata. *Gmel. Syſt.* p. 3346. 30.
Chem. Conch. viii. t. 77. f. 702.
Turt. Lin. iv. p. 285.
Gualt. t. 97. B. lower figure.

A. with a thin, compreſſed, muricated ſhell, with interrupted, longitudinal ſtriæ, furniſhed with ſmall, concave, obtuſe ſpines: beak ſmall, turning a little downwards: under valve flat, generally plain, but ſometimes a little echinated towards the margin: perforated near the hinge. Diameter three-eighths of an inch; moſt frequently not ſo large on our coaſts.

We have found this ſpecies in *Devonſhire* and *Cornwall*, adhering to the roots of *algæ:* moſt commonly of a dirty white or browniſh colour.

4.
UNDULATA.
TAB. 4. f. 6.

Anomia undulata. *Gmel. Syſt.* p. 3346. 34.
Turt. Lin. iv. p. 286.
Anomia undulatim ſtriata. *Chem. Conch.* t. 77. f. 699.

A. with an extremely delicate, thin, pellucid, flat ſhell, of a ſub-orbicular ſhape, with numerous undulated rib-like ſtriæ, radiating from the *umbo:* beak ſmall, pointed, placed a little within the margin; lower valve almoſt membranaceous, plain; perforation near the hinge, large, oval. Inſide pearlaceous. Diameter about an inch.

This ſpecies, like others of the genus, is ſubject to vary in ſhape, depending intirely on the body to which it is affixed

fixed. It is ſometimes found on the ſouth coaſt of *Devon;* the fineſt ſpecimens we have taken by dredging in *Salcomb* bay, adhering to the inſide of old bivalve ſhells, eſpecially the *Cardium lævigatum.*

Theſe have the under valve convex, and the upper valve flat, or ſomewhat concave; but when the ſurface is flat to which they adhere, the lower one conforms to it, and the upper one becomes a little convex.

A variety is marked with rufous-brown between the ribs, towards the margin.

This ſhell differs from the *aculeata* in being larger, more pellucid, and in the ribs or ſtriæ being more diſtant, undulated, and never furniſhed with ſpines.

GEN. XVII.

MYTILUS.

Animal allied to an ASCIDIA.

SHELL, bivalve; in ſome ſpecies affixed by a thick ſilky *byſſus*.

Hinge without teeth, marked by a longitudinal furrow: in ſome ſpecies crenulated.

1.

Mytilus edulis. *Lin. Syſt.* p. 1157. EDULIS.
Gmel. Syſt. p 3353. 11.
Chem. Conch. viii t. 84. f. 750. 751.
Liſt. Conch. t.362. f.200.—*Id. Ang.*t.4.f.28
Br. Zool No. 73.—*Turt. Lin.* iv. p. 291.
Pult. Cat. Dorſet. p. 38.
Lin. Trans. vi. t. 18. f. 13. 14. *(Wood.)*
Gualt. t. 91. E.
Mytilus vulgaris. *Da Coſta.* p. 216. t. 15. f. 5.

M. with an oblong ſhell, ſomewhat pointed at the beak; ſides very much ſloped; anterior ſide a little angulated; poſterior rather indented: colour blackiſh-blue, covered with

with a brown *epidermis;* ſometimes radiated with fine blue. Inſide blue about the margin, whitiſh in the middle: beneath the beak are ſeveral teeth-like crenulations. Length three inches; breadth one and a half.

This is the moſt common of all *Britiſh* ſhells, found in vaſt beds fixed by the *byſſus*.

2.

INCURVATUS. Mytilus incurvatus. *Br. Zool.* t. 64. f. 74.
Liſter Conch. t. 357. f. 195. 196.
Turt. Lin. iv. p. 292.

This ſhell is very like the laſt, but broader in proportion to its length: the poſterior ſide much incurvated: crenulations under the beak the ſame.

Whether this is really a diſtinct ſpecies may be doubted. It is uſually found fixed into ſome crevice of a rock ſingly, and not in beds like the *edulis*. Many appear diſtorted about the beak, as if the ſhell was prevented in its growth by accident; and we think the intermediate gradations, between this and the preceeding, bring them ſo near together, as ſcarce to allow a ſpecific diſtinction. It is however of a very inferior ſize, ſeldom exceeding an inch and a half in length; and one inch broad.

3.

PELLUCIDUS. Mytilus pellucidus. *Br. Zool.* t 63. f. 75.—*Turt. Lin.* iv. p. 292.
Chem. Conch. viii. t. 84. f. 755.

M. with a thin, pellucid ſhell, of a whitiſh colour, or tinged

tinged with blue, more or leſs radiated with deep blue or purple, covered with a yellow *epidermis*. In ſhape it reſembles the *edulis*, but not ſo much indented at the poſterior ſide, and is much more ſmooth and gloſſy. Inſide gloſſy, blueiſh-white, rayed with blue like the outſide; crenulations beneath the beak ſmall. Length about two inches; breadth one inch.

This ſpecies does not appear to be common.

Mr. PENNANT ſays, it is found in *Angleſea*, ſometimes in *Oyſter-beds*; ſometimes in trowling over ſlutchy bottoms.

We have found it ſufficiently plentiful on the ſhore near *Southampton*; but rarely elſewhere.

4.

Mytilus barbatus. *Lin. Syſt.* p.1156.—*Gmel. Syſt.* p.3353.10. BARBATUS.
Chem. Conch. viii. t. 84. f. 749.
Pult. Cat. Dorſet. p. 38.
Don. Br. Shells. ii. t. 70.
Gualt. t. 91. H. middle figure.
Mytilus curtus. *Br. Zool.* t. 64. f. 76. A.
Turt. Lin. iv. p. 292.

M. with a thin, ſub-pellucid, ſub-ovate, oblong ſhell, covered with a ferruginous-yellow *epidermis*, beſet with a thick beard about the front margin, and on the anterior ſide, mixed with ſand, broken ſhells, and other extraneous matter: the poſterior ſide, towards the beak, extends outwards a little, and riſes above the *umbo*, which gives it

a ſub-arcuated appearance. Inſide white; margin under the beak quite ſmooth. Length rarely exceeds two inches; breadth one inch.

DA COSTA makes no mention of this ſpecies. Mr. PENNANT ſpeaks of it from *Weymouth*, from whence we have been favoured with it by Mr. BRYER. Doctor PULTENEY alſo ſtates it to be on the *Dorſetſhire* coaſt; and expreſſes ſome doubt whether it is not the young of the *M. Modiolus*.

With reſpect to the ſhape of theſe two ſhells, they certainly are extremely ſimilar, but in colour they are eſſentially different; beſides, the *Modiolus* is never found bearded, is always of a duſky-black colour, and grows to a very ſuperior ſize. On the other hand, it muſt be admitted that young ſhells ſometimes differ materially in colour; and that, as we never have ſeen any other which could be conſidered as the young of that ſhell, doubts muſt be entertained.

We have found this ſpecies in *Cornwall* and in *Devonſhire* rarely, and have received it from *Sandwich* in *Kent*; but it does not appear common any where.

A variety is faintly radiated.

The rough, or bearded, appearance of this ſhell is occaſioned, in part, by the *epidermis* being broken and divided into fibres, which in a ſoft, and glutinous ſtate, arreſts ſuch extraneous matter as comes in contact.

5.

Mytilus Modiolus. *Lin. Syſt.* p.1158.—*Gmel. Syſt.* p.3354.14. MODIOLUS.
Chem. Conch. viii. t. 85. f. 757.
Liſter Conch. t. 356. f. 195.—t. 359. f.198.
Br. Zool. t. 66. f. 77.
Turt. Lin. iv. p. 293.
Da Coſta p. 219. t. 15. f. 5.
Pult. Cat. Dorſet. p. 38.
Don. Br. Shells. i. t. 23.

M. with an oblong, ſub-oval, ſtrong ſhell, covered with a thick, purpliſh-black *epidermis;* ſhape like the laſt, but more concentrically wrinkled.

It is a very convex ſhell; the *umbo* large and prominent: Inſide ſmooth, pearlaceous.

This is a large ſpecies, ſometimes growing to the length of ſix inches, and near three inches in breadth; but more uſually about four inches long, and two broad.

It is a *pelagic* ſhell, and rarely taken even by dredging, except in very deep water; but is ſometimes caught by the hook in fiſhing for whiting, or other fiſh, near the ground.

DA COSTA ſays it is found at *Scarborough,* and on the coaſt of *Wales,* as well as in the *Orknies,* and other coaſts of *Scotland;* and alſo in *Kent* and *Cornwall.*

We have found it rarely in *Devonſhire;* and according to Doctor PULTENEY's account, has been dredged up at

Weymouth. This ſpecies is furniſhed with a large ſilky *byſſus*, not unlike that of the *Pinna*, but of a coarſer texture, by which it adheres firmly to the bottom; and when taken by dredging is uſually torn from the animal. We have taken the Pea-crab, *Cancer Piſum*, and two minute crabs, *Cancer minutus*, from one of theſe muſcles; the former of an unuſual ſize.

6.

UMBILICATUS.

Mytilus umbilicatus *Br. Zool.* t. 65. f. 76.
Don. Br. Shells ii. t. 40.
Turt. Lin. iv. p. 292.
Mytilus curviroſtratus. *Da Coſta.* p. 220.

M. with a thick, ſtrong, oblong, ſub-oval ſhell, in ſhape much like the two preceding; but is at once diſtinguiſhed by a deep depreſſion, or *umbilicus*, under the beak, oppoſite the hinge, which is ſingularly intorted and wrinkled: colour dark brown, or blackiſh. Length rarely above four inches.

Mr. PENNANT, who firſt deſcribed this ſpecies; ſays it is ſometimes dredged up off *Prieſtholme Iſland*, and that it ſometimes grows to the length of five inches. And adds, that the pea-crab is found in this ſhell of a larger ſize than uſual. It is a very rare ſhell, and ſeldom found but in the place before mentioned.

7.

RUGOSUS.

Mytilus rugoſus. *Lin. Syſt.* p. 1156.—*Gmel. Syſt.* p. 3352. 7.
Br. Zool. t. 63. f. 72.—*Turt. Lin.* iv. p. 290.

Mytilus

Mytilus rugoſus. *Da Coſta.* p. 223.
Pult. Cat. Dorſet. p. 37.
Liſter Conch. t. 426. f. 267.
Id. Angl. t. 4. f. 21.

M. with an oblong, ſub-oval ſhell, with rugged, concentric wrinkles: colour dirty-white, covered with a yellowiſh *epidermis:* ſide next to the hinge always rounded; the oppoſite ſometimes truncated: *umbo* ſmall, obtuſe, placed near to one end. Inſide white. It rarely exceeds an inch and a quarter in length; breadth about half its length: is however very ſubject to vary in ſhape; ſome are very little longer than they are broad, others exceed the breadth nearly three times, and ſo convex as to be almoſt cylindric. It moſt uſually gapes at one end, and ſometimes in the front, oppoſite the hinge.

This ſpecies is found on many of our coaſts, burrowed in lime-ſtone, in great abundance: is not uncommon on ſome parts of the coaſt of *Devon,* in company with the *Donax Irus,* particularly about *Plymouth,* and at *Torbay.*

8.

M. with an oblong, irregular, rugoſe ſhell, wrinkled, and frequently much diſtorted: commonly ſo much the ſhape of the *Solen minutus,* as to be eaſily confounded for a worn ſhell of that ſpecies, having loſt the ſpines; others reſemble the *Mytilus rugoſus.* The particular characters are, that the hinge is cloſe to one end, which ſide is quite ſquare as if cut off; the beak large, prominent, and projects

Præcisus. Tab. 4. f. 2.

jects further in one valve than the other; which valve is rather largeſt, and receives the other within its margin, particularly at the oppoſite end from the hinge. In ſome both ends are truncated: colour dirty white, frequently covered with a brown *epidermis*. Inſide white, hinge rough, ſtrong, inflected, forming a deep cavity underneath the margin. Length, from hinge to the oppoſite margin, a quarter of an inch, breadth half an inch, but uſually much leſs; though we have one ſpecimen full three-quarters of an inch wide.

This ſpecies is found on ſome parts of the *Corniſh* coaſt, and we have ſeen it burrowed in lime-ſtone at *Plymouth*; but is moſt commonly met with at the roots of *Algæ*, not unfrequently on many parts of the coaſt of *South Devon*, as well as at *Ilfracomb* in the north of that county: and we have received it from *Wales*.

It is readily diſtinguiſhed from the young of the *M. rugoſus* by the larger end being truncated, and not rounded, and by the valves being unequal.

9.

CRISTA GALLI. Mytilus Criſta Galli. *Lin. Syſt.* p. 1155.
Gmel. Syſt. p. 3350. 1.
Chem. Conch. viii. t. 75. f. 683. 684.
Id. t. 73. f. 675—*Gualt.* t. 104. f. E.
Turt. Lin. iv. p. 289.

M. with a rude, rugged, compreſſed ſhell, varying ſo much in ſhape as not to form any fixed character: colour opaque

opaque, ferruginous, or dull purple. Margin ſcolloped, or cut into deep, irregular notches, on both valves, correſponding with each other, ſo as to be inſerted, and ſhut cloſe. Inſide white, or tinged with ferruginous: beneath the hinge, in the ſuperior valve, ſlightly crenulated. Diameter two inches and a half.

This ſpecies, though as yet not aſcertained to breed in this climate, has been found alive adhering to the bottom of ſhips; and poſſibly may become naturalized, as well as the *Teredo navalis*, which was firſt introduced in the ſame manner, and now become formidable in ſome of our harbours.

Is common in *India*, and in the *Red Sea*.

10. DISCORS.

Mytilus diſcors. *Lin. Syſt.* p. 1159.—*Gmel. Syſt.* p. 3356. 21.
Chem. Conch. viii. t. 86. f. 764. 767.
Da. Coſta. p. 221. t. 17. f. 1.
Walk. Min. Shells. f. 79.
Adams. Micr. t. 14. f. 41.
Pult. Cat. Dorſet. p. 38.
Don. Br. Shells. i. t. 25.—*Turt. Lin.* iv. p. 294.

M. with a very convex, ſub-cordated, pellucid ſhell; the poſterior and anterior ſides longitudinally ribbed or ſtriated, broader and ſtronger on the former: the middle area is plain, or faintly wrinkled tranſverſely: *umbo* large, prominent; *apex* turned much to one ſide, and placed

placed close to the larger end: the anterior side is somewhat pointed: colour white, mottled with pink, or pale red; but these colours are, in a recent state, obscured by an olive-green, glossy *epidermis*. Inside white, or tinged with pink; margin crenated on the part which is ribbed.

We have found this species sparingly on the coast of *Cornwall* and *Devonshire:* adhering very strongly to the lower part of the stalks of *Algæ*, and frequently so enveloped by the bark or film of the plant, as to appear like a knot or swelling; the smaller end of the shell, however, is generally uncovered, or it might pass unnoticed.

Doctor PULTENEY speaks of having found a cluster of these muscles, adhering to the *Ascidia Mentula* of GMELIN, at *Weymouth*, from which DA COSTA took his description. The Doctor afterwards saw them on *Oysters*, from *Poole* and *Swanage*.

We have received specimens from Mr BRYER of *Weymouth*, completely enveloped by the *epidermis*, or skin of the *Ascidia* before mentioned, except a small corrugated opening: two or three were so fixed to the same animal, adhering strongly by their *byssus*. This circumstance is not uncommon on the coast of *Devonshire*, where we have seen that animal studded with *M. discors*.

It differs only in size, and being of a lighter colour, from those first introduced into *England* by Captain COOK, from

from the *South Seas*, which were an inch and a half in breadth; whereas the *Britiſh* ſpecimens rarely exceed half an inch in breadth, and three-eighths of an inch in length.

This ſhell has frequently been confounded with the following ſpecies, from which it is perfectly diſtinct, as may be ſeen by the comparative deſcription there given.

11. DISCREPANS.

M. with a ſub-oval, compreſſed, pellucid, thin, brittle ſhell, covered with an olive-green *epidermis:* and, like the preceding ſpecies, is divided into three compartments, the poſterior and anterior ſides ribbed, or ſtriated longitudinally; the middle area ſlightly wrinkled: *umbo* placed as the laſt, but very little prominent: both ſides rounded, the anterior one largeſt. Inſide white, with a faint pearly gloſs. Inferior in ſize to the preceding.

The ſingular ſtructure of this and the *M. diſcors*, ſo much reſemble each other, at firſt ſight, that the eſſential ſpecific characters have been overlooked: and we once received a ſpecimen of each from a friend, an able conchologiſt, for the ſame ſhell.

The principal diſtinctions are, that this is very little convex, whereas the other is nearly as thick as it is broad; this is rounded, and broadeſt at the anterior ſide; the other is ſmalleſt on that ſide, and runs out to an obtuſe point:

it has only eight, or nine, clearly defined ribs, on the ſide next to the beak; whereas the other has double that number; which character is invariable: and this is never otherwiſe than of an uniform colour, without ſpots or markings of any kind. No author ſeems to have diſtinguiſhed this ſpecies, although ſo eſſentially different from the *M. diſcors.*

We found this ſhell alive on the ſhore between *Southampton* and the mouth of the *Itchin,* in vaſt abundance; and not uncommon at *Ilfracomb* in *Devonſhire,* in the holes or crevices of the rocks, and among various marine plants, near high-water mark; have alſo received it from the ſouth coaſt of *Wales.*

This is always found detached, and never buried in animal or vegetable ſubſtances, like the *diſcors;* though it frequently adheres ſlightly by its *byſſus.*

12.
CYGNEUS.

Mytilus Cygneus. *Lin. Syſt.* p. 1158.—*Gmel. Syſt.* p. 3355.
Liſter Conch. t. 156. f. 11.
Chem. Conch. viii. t. 86. f. 762.
Br. Zool. t. 67. f. 78.—*Da Coſta* p. 214.
Pult. Cat. Dorſet. p. 38.—*Gualt.* t. 7. F.
Don. Br. Shells. ii. t. 55.
Turt. Lin. iv. p. 293.
Muller p. 208. No. 394.
Schroet Fluſſconch. t. 3. f. 1.

M. with

M. with a thin, fragile, ſemi-pellucid, oval ſhell, wrinkled concentrically, and covered with an olivaceous-green *epidermis: umbo* very ſmall, placed near to one end. Inſide gloſſy pearlaceous-white. Length rather more than two inches and a half; breadth near ſix inches.

This is the largeſt of the *Britiſh* freſh-water ſhells. Inhabits dull, deep rivers; but rarely found ſo large as in ponds and ſtagnant waters.

It bears great affinity to the *M. Anatinus*, and has, by ſome, been conſidered as the ſame: the material diſtinction is, that this is vaſtly ſuperior in ſize, more convex, broader in proportion to its length, and does not riſe ſo high at the hinge; though both ſhells are compreſſed at that part.

It muſt however be allowed, that the ſpecific characters of diſtinction are not ſtrong: and much is to be depended on the circumſtance, of their being frequently found in ſeparate places: and that this is not near ſo common.

13. ANATINUS.

Mytilus Anatinus. *Lin. Syſt.* p. 1158.—*Gmel. Syſt.* p. 3355. 16.
Chem. Conch. viii. t. 86. f. 763.
Liſter Conch t. 153. f. 8.—*Id. Angl.* t. 2. f. 29.
Schroet. Fluſſconch. t. 1. f. 2. 3.
Muller verm. p. 207. No. 393.
Petiv. Gaz. t. 93. f. 8. 9.
Br. Zool. t. 68. f. 79.—*Turt. Lin.* iv. p. 293.
Da Coſta p. 215. t. 15. f. 2.

Mytilus Anatinus. *Don. Br. Shells.* iv. t. 113.
Pult. Cat. Dorſet. p. 38.

M. with a thin, ſemi-pellucid, oval ſhell, very like the *M. Cygneus*, but uſually of a greener colour, leſs convex, and the margin at the hinge more prominent, riſing into a ſort of angulated wing. Length two inches; breadth three and a half.

This ſpecies inhabits rivers, and other freſh-waters; is very plentiful, and frequently found where the *M. Cygneus* is not.

13. AVONENSIS.

Muſculus anguſtior, ſub-fuſcus, paulo craſſior. *Liſter Conch.* t. 154. f. 9?

M. with a ſub-oval ſhell, of an olivaceous-brown colour, with concentric wrinkles: ſize of the *M. Anatinus*, but broader in proportion to its length, and not ſo produced at the hinge; the poſterior ſide generally more obtuſe, and rounded; the front margin nearly ſtrait, or frequently ſub-arcuated, particularly towards the ſmaller end.

In theſe particulars it ſeems to differ eſſentially from either the *M. Cygneus* or *Anatinus*, and is much leſs like either, than thoſe ſhells are to each other.

This ſhell we found in great abundance in the river *Avon*, about *Lackham*, in *Wiltſhire*, where it is much more plentiful than the *Anatinus*.

Poſſibly

Poſſibly it has been confounded with that ſhell, but we never found it except at the place before mentioned. It is not in general ſo thin as the preceding ſpecies; in ſhape correſponds very well with LISTER's figure of the ſhell here quoted, but in general is more ſtrait on the front margin, cloſe to the poſterior ſide, and frequently makes an angle at that part.

15.

Mytilus ſtriatus umbonibus productis. *Walk. Min. Shells.* f.75. STRIATUS.

The ſtriated muſcle with lengthened beaks.

The colour pellucid white. From *Reculver* and *Sandwich* not uncommon. Minute.

We are not quite certain, that this ſpecies deſcribed by Mr. WALKER has ever come under our inſpection; but have ſometimes met with a ſhell, not very unlike the figure given, except that it had not any conſpicuous longitudinal ſtriæ, and which we have conſidered as the fry of the *M. Modiolus*, or *M. curtus*.

We ſhall here take the liberty of remarking, that very great attention is requiſite to diſcriminate ſome of the minute bivalve ſhells, and ſeparate them from the bivalve *Monoculi*.

The great affinity that the coverings, or ſhells, of ſome of this claſs of inſects, bear to the teſtacea tribe, has in all probability

probability cauſed many to have been conſidered as ſmall ſpecies of *Mytilus*, or the fry of larger; for many ſuch *Monoculi* are capable of ſhutting their valves intirely, and incloſing every part of the animal: in which ſtate they always are when dead, ſo that it is no eaſy matter to diſcriminate.

Mr. WALKER is not the only one who has fallen into this error, in his figures 76, 77, and 78, all of which we have received from *Sandwich*, and have found them in other parts.

The firſt is found in freſh-water, and is not much unlike *Monoculus conchaceus*, GMELIN *Syſt.* p. 3003, but is longer, in proportion to its breadth, than the figure given of that inſect by DONOVAN, *Britiſh Inſects*, i. t. 5.

The other two, given by Mr. WALKER, are marine *Monoculi*; both found on *Oyſters*, and other rugged ſhells; and is not uncommon on the coaſt of *Devon:* eſpecially No. 77, about the *byſſus* of the *Pinna ingens:* both theſe appear to differ only in ſhape, and do not ſeem to have obtained a place amongſt the *apterous* inſects. When examined under a microſcope, the ſhells are punctured all over.

To theſe ſuppoſed *Mytili* of Mr. WALKER, we may add the *Monoculus conchaceus*, which has been ſent to us for ſuch; and we could enumerate many others, which inhabit

inhabit both ſalt and freſh-water, that might readily be miſtaken for minute ſhells: one of which is figured in Tab. 14 No. 8. of this work by miſtake, not having an opportunity of examining the animal till after the plate was engraved.

This, and another ſpecies of *Monoculus* in every reſpect like it, but of a longer and more cylindric ſhape, is found on *Oyſters* on the ſouth coaſt of *Devonſhire;* and on the *byſſus* of the *Pinna ingens;* a general repoſitory for *Monoculi* and very minute ſhells, eſpecially *Nautili* and *Vermiculi.*

Theſe two ſpecies of *Monoculus* are extremely ſmooth, and gloſſy, of a bluſh-colour when alive, or freſh, and opaque yellowiſh-white when dead; and are diſtinguiſhed from any other, by the remarkable *ſinus* in front, near the end, through which is a groove or channel; but this perforation is only to be diſtinguiſhed when the valves are laid open. Had GMELIN made any mention of this ſingular ſtructure, we ſhould have been inclined to think theſe were his *M. luteus* and *M. flavidus:** but as we have not at preſent an opportunity of conſulting the figures of thoſe inſects given in MULLER, muſt leave the matter to be decided by entomologiſts; craving pardon for this digreſſion.

We cannot however quit the ſubject without remarking, that the ſureſt diſtinction between the ſhells of the bivalve

Monoculi

* The *antennæ* indeed of the one figured in this work was not ſimple, but compoſed of ſeveral briſtles.

Monoculi and the minute bivalve *teſtacea* is, that the latter always, more or leſs, poſſeſs ſome concentric wrinkles or annulations of growth, as well as ſome appearance of *umbo* or beak: ſuch therefore, which are deſtitute of theſe marks, may with confidence be referred to the former.

If any ſuch doubtful objects are put into water, even after the animal has been long dead and dried; and when ſoftened, the valves carefully opened with the point of a fine needle, and afterwards put into a drop of water under a microſcope; the *antennæ* and legs will ſoon appear, if a *Monoculus*.

GEN. XVIII.

PINNA.

Animal an ASCIDIA?

SHELL, bivalve, fragile, gaping at one end; and furniſhed with a ſilky *byſſus* or beard.

Hinge, without a tooth; valves connected on one ſide, nearly the whole length.

LINNÆUS, on the authority of HASSELQUIST, calls the animal of the *Pinna* a *Limax*, or *Slug:* in this he has moſt certainly been miſtaken, as it has not the ſmalleſt affinity; but appears more allied to the animal of the *Mytilus*.

It ſeems to be intirely deſtitute of locomotion, remaining immovably fixed by its *byſſus* to other bodies; and ſo firmly attached, that it cannot be diſengaged at the will of the animal, as the fibres are agglutinated to the gravel, ſand, roots of marine plants, broken ſhells, and other extraneous matter, within its reach.

The *Pinna* has been long celebrated for giving protection to a ſmall ſpecies of crab, and which was ſuppoſed to be of great uſe to the animal, by giving it notice either of approaching danger or of its prey.

Theſe ſtories, however, as handed down to us from earlier times, are not wholly unfounded, but mixed with too much fable to be fully credited in theſe more enlightened days. The ſhell of the *Pinna*, as well as many others, becomes the habitation of ſome ſmall ſpecies of crab, which ſeems to live in harmony with the animal inhabitant. It is however remarkable, that in not leſs than fifty of the *Pinna ingens* we opened, not a ſingle crab was found; and yet in the only ſpecimen of *Mytilus Modiolus*, taken in the ſame place, no leſs than three crabs were found alive within the ſhell.

The ancients equally celebrated this ſhell for its ſilky *byſſus*, from which they made the moſt coſtly veſtments: even modern travellers aſſure us, gloves and ſtockings are manufactured from the beard of this animal at *Palermo*, *Naples*, and *Taranto*.

1. PECTINATA.

Pinna pectinata. *Lin. Syſt.* p. 1160.—*Gmel. Syſt.* p. 3363. 2.
Chem. Conch. viii. t. 87. f. 770.
Pult. Cat. Dorſet. p. 39.—*Gualt.* 79. C?
Turt. Lin. iv. p. 301.
Pinna fragilis. *Br. Zool.* t. 69. f. 80?
Pinna muricata. *Da Coſta.* p. 240. t. 16. f. 3.
Don. Br. Shells. i. t. 10.

P. with

P. with a pellucid, thin, brittle ſhell, of a light horn-colour, darker towards the beak, where it is faintly varied with purple and blueiſh-green; it is marked with about eleven longitudinal ſtriæ, or rather ribs, the whole length from the *apex* to the oppoſite margin, furniſhed with concave ſpines, encreaſing in ſize at the larger end; about one third of the ſhell, on the ſide oppoſite the hinge, is deſtitute of ribs; and is finely ſtriated obliquely to the ribs, on which the ſpines are very ſmall, and the concave ſides turn outwards; the hinge ſide is nearly ſtrait, turning a little towards the beak: the other ſide bends a little inward under the beak, and is ſomewhat convex in the middle. Breadth three inches at the gaping end, which is ſomewhat rounded; length ſix inches and a half, tapering to the *apex;* the hinge ſide rather the longeſt. Inſide ſmooth, with a pearly hue: beneath the *apex* ſeveral tranſverſe, cartilaginous laminæ.

A ſhell of the above ſize we received from a friend, who took it in trawling off the *Ediſtone* near *Plymouth:* It is ſometimes taken by the fiſhermen about *Torbay* and on the *Dorſetſhire* coaſt; and we have ſeen it from the coaſt of *Suſſex;* but moſt times of a ſmall ſize, not exceeding three or four inches in length.

Da Costa was certainly miſtaken, in making this the *P. muricata* of Linnæus; that has been found in *England* rarely, according to the Catalogue of *Dorſet* ſhells by Doctor Pulteney, and is perfectly diſtinct.

2.
INGENS. Pinna ingens. *Br. Zool.* No.81.—*Lifter Conch.* t.372. f.213?

P. with a very rugged ſhell, with irregular, concentric wrinkles, running lengthways from the beak at the open ſide, and turning to the hinge nearly at right angles; ſometimes breaking into laminæ or plates: from the beak run a few interrupted ſtriæ, which croſſing the wrinkles, ſometimes form on the broader part of the ſhell, a few diſtant concave ſpines: but theſe muſt be conſidered as varieties, for in general it is deſtitute of any inclination to be echinated. In the ſpined variety it is obſervable, that the ſtriæ, or ribs from which the prickles ariſe, are never above ſeven or eight, remote from each other; theſe ſpines however, are only found on very young ſhells. With age it is ſubject to be much diſtorted, and is indented in various parts, as well as on the margin: but the moſt perfect, and regular grown ſhells, are nearly ſtrait from the beak along the hinge, turning a little inwards at the *apex:* on the oppoſite ſide, under the beak, it is concave or indented; beneath which it ſwells out, and increaſes gradually to the larger end, and is always longer on that ſide than on the other: the larger end is a little rounded, but is more angular next the hinge. Large and old ſhells are of a dark, and rather opaque horn-colour: ſmaller ones paler and more diaphanous; all more or leſs of a changeable green, at the ſmaller end. Inſide ſmooth, gloſſy, and of a pearly hue; laminated at the beak: valves connected the whole length.

This

This ſpecies is not uncommonly twelve inches long; and ſeven inches broad at the gaping end.

The principal diſtinction between the young and the *P. pectinata* conſiſts, in this being more wrinkled, broader in proportion to its length, ſhorteſt on that ſide where the hinge is placed; and in ſuch poſſeſſed of ſpines, theſe as well as the ribs, are leſs numerous, and more diſtant.

Mr. PENNANT ſeems to be the only one who has made mention of this ſhell, and that under the denomination of *Pinna ingens.* He ſays, "I ſaw ſpecimens of ſome vaſt "*Pinnæ*, found amongſt the farther *Hebrides*, in the col- "lection of Doctor WALKER, at *Moffat.* They were very "rugged on the outſide, but I cannot recollect whether "they were of the kind found in the *Mediterranean* or "*Weſt Indies.*

LISTER's ſhell, here quoted, is much like this in ſhape; but that ſeems to be furniſhed all over with ſmall ſpines, or ſcales, which renders it doubtful.

We diſcovered a bed of theſe ſhells in *Salcomb* bay, in *Devonſhire;* where they are called by the fiſhermen *French Muſcles* or *Scallops.*

They lie on a gravelly bottom covered with mud, and long ſea-weeds; and are only to be got, at particular times, when the ſea recedes farther than uſual.

They

They ſtand upright, with the large end about an inch above the ſurface; the lower end fixed by a very large, ſtrong *byſſus*, ſo firmly attached to the gravel, that much force is required to draw them up; and moſt commonly the *byſſus* is left behind. This beard is compoſed of numerous, fine, ſilk-like fibres, of a dark purpliſh-brown, two or three inches in length. The larger end of the ſhell is naturally a little open, and cannot be cloſed by art, but the animal is capable of effecting it: the beaks of the valves rarely cover each other exactly.

Some of theſe ſhells have been taken annually for many years, the animal having been accounted very good food; but they require at leaſt five or ſix hours ſtewing, to render them eatable: if this is properly attended to, they are nearly as good as *Scallops*, but never ſo tender.

The bank, on which theſe ſhells are found, probably increaſes, ſo that the water leaves a greater part bare, at every ſpring tide, than formerly; and in conſequence they become an eaſy prey to *Crows* and *Gulls:* few are now to be obtained, but at ſome unuſual low tide.

We have taken them of all ſizes, from one inch to one foot in length, and from their general habit cannot liken them to any of the *Linnæan* ſpecies. One of the largeſt, after the animal was taken out, weighed ſeventeen ounces. The animal is very diſproportionate to the ſhell, not occupying one half of it.

That

That this ſhell has been found on other parts of the *Britiſh* coaſt, of a ſmall ſize, is undoubted; for we have ſeen it in more cabinets than one, confounded with the *P. pectinata:* and we are partly inclined to believe the figure of the *P. fragilis* in the *Britiſh Zoology*, was taken from a ſmall ſhell of this ſpecies; by its ſuperior breadth, and being deſtitute of ſpines.

3.
MURICATA.
TAB. 5. f. 3.

Pinna muricata. *Lin. Syſt.* p. 1160.—*Gmel. Syſt.* p. 3364. 4.
Chem. Conch. viii. t. 87. f. 769.
Gualt. 79. B?—*Pult. Cat. Dorſet.* p. 39.
Turt. Lin. iv. p. 301.

P. with a thin, brittle, ſemi-pellucid, fleſh-coloured ſhell, darkeſt at the ſmaller end: with ten or twelve broad ribs running longitudinally the whole length, and a few intermediate ſmall ones at the narrow end; beſet ſparingly with concave prickles towards the larger end, generally at the extremity: the hinge ſide is quite ſtrait; oppoſite ſide a little inflexed, and not ſo long: rounded at the gaping end.

Doctor PULTENEY, who favoured us with a ſpecimen of this ſpecies, from the coaſt of *Dorſetſhire*, for the *P. muricata* of LINNÆUS, ſays, it has been dredged up at *Weymouth;* and that it is five or ſix inches long, by two or three wide. Our ſpecimen was only four inches long. Young ſhells are nearly ſmooth, and deſtitute of ſpines.

This

This ſhell differs from the *P. pectinata* in colour, and in the ribs being much larger, ſtraiter, more diſtant, and covering the whole ſhell. Whether it is really the *muricata* may perhaps be doubted, but we have been induced to follow ſo experienced and able a conchologiſt, notwithſtanding the ſynonyms of GMELIN and CHEMNITZ do not accord with ours. In the latter author is a very good figure of our ſhell, differing very little from that we were favoured with by the Doctor, except in being rather more ſpinous.

DIV. III.

UNIVALVE SHELLS.

GEN. XIX.

NAUTILUS.

Animal much in obſcurity.

Rumpf. Muſ. t. 17. f. B.

SHELL, univalve, compoſed of concamerations, or cells, communicating with each other by a ſmall aperture, or tube.

We ſhall in this place remark, that all the ſpecies of this genus, hereafter deſcribed, are minutely ſmall, the *lacuſtris* excepted; the extreme beauty, or ſingularity of which, is only to be ſeen under a microſcope.

The animal inhabitant, is at preſent ſo little known, that it has not obtained a place in the *Syſtem of Nature*, and in all probability, is very various.

To our worthy friend Mr. Boys, of *Sandwich*, we are greatly indebted for the knowledge of many of this curious genus: by whoſe aſſiſtance we have been able to identify moſt of thoſe given by Walker, in his *Teſtacea minuta rariora*.

1.
Beccarii,

Nautilus Beccarii. *Lin. Syſt.* p.1162.—*Gmel. Syſt.* p.3370.4. *Turt. Lin.* iv. p. 306.—*Planch.* t. 1. f. 1. *Walk. Min. Shells.* f.63.—*Favan.* t. 69. D.1. *Martini Conch.* i. t. 19. f. 178. 179.—t.20. f. 175. to 177.—*Gualt.* t. 19. f. H.H.I. *Adams Microſc.* p. 640. t. 14. f. 29.

N. with four, or five volutions; with deep ſulcated joints; ten in the firſt ſpire: upper part convex: beneath flat, and the markings leſs diſtinct: mouth turned downwards, not claſping the body whirl: aperture a ſmall perforation in a convex front: in this part, however, it appears to be ſubject to variation; for in ſome we have examined, the front, or part in which the ſyphon is placed, has been depreſſed or concave.

The colour is frequently pellucid white, but more commonly covered with a brown *epidermis;* this, however, depends on the ſituation in which they are found: when the animal is alive, the pellucid ſpecimens appear of a crimſon colour.

Found frequent on the *Fucus veſiculoſus*, and on the roots of other *Algæ*, as well as on *Oyſters* and other ſhells: and

and ſeems to be a pretty univerſal, littoral ſhell, being found in numbers at *Rimino*, and in the ſand of the *South Seas*.

2.

Nautilus Beccarii perverſus. *Walk. Min. Shells.* f. 64. *Favan.* t. 7. B. 2. BECCARII PERVERSUS.

N. with the ſpires reverſed; in every other reſpect like the preceding ſpecies, with which it is frequently found, and is equally plentiful on our coaſts.

FAVANNE evidently means this ſhell, (though he quotes the *Beccarii* of LINNÆUS,) as he particularly remarks its volutions turn from right to left.

3.

Nautilus criſpus. *Lin. Syſt.* p. 1162.—*Gmel. Syſt.* p.3370. 3. CRISPUS.
Turt. Lin. iv. p.306.—*Gualt.* t.19. f. A. D.
Walk. Min. Shells. f. 65.—*Planch.* t. 1. f. 2.
Martini Conch. t. 20. f. 172. f. 174.
Favan. t. 69. D. 2.—*Id.* t. 7. B. 1.
Adams. Microſc. p. 640. t. 14. f. 30.

N. with lateral ſpires, with about twenty flexuous, crenated joints in the exterior whirl, marked by elevated ſtriæ; outer edge carinated; interior volutions occult: aperture claſping the body, ſemi-cordate, furniſhed with a ſmall perforation, or ſyphon.

This is a moſt elegant ſpecies, when examined under a microſcope; both ſides are uniform; the aperture equal, and perfectly lateral.

It is not uncommon, with the two laſt, at *Sandwich*, and *Sheppey* iſland: we have found it alſo at *Teignmouth* and *Salcomb*, in *Devonſhire*, particularly on *Oyſters*, and with the two preceding ſpecies, lodged in the *byſſus* of the *Pinna ingens*. Are equally abundant on the ſhores of *Weymouth* and *Swanage*, in *Dorſetſhire*, and on other parts of that coaſt: have received it alſo from the ſouth coaſt of *Wales*.

4.
LÆVIGATULUS.

Nautilus ſpiralis geniculis lævibus. *Walk. Min. Shells.* f. 67.
Nautilus lævigatulus. *Turt. Lin.* iv. p. 306.—*Gualt.* t. 19. B?
Adams Microſc. p. 641. t. 14. f. 32.
Martini Conch. i. t. 19. f. 168?

N. ſpiral, with ſmooth joints; colour ſemi-pellucid, white, and gloſſy.

To this very conciſe deſcription Mr. WALKER adds, that it is found at *Sandwich* and *Seaſalter*, but not common.

We muſt confeſs this ſhell appears to be in great obſcurity, at leaſt nothing like the figure, or deſcription, has come under our examination. In a drawing we received from Mr. BOYS, with a reference to this ſhell of WALKER, and

and to a ſpecimen ſent at the ſame time, (which we conſider as the *N. Calcar,*) there was nothing in appearance like the figure of the *N. lævigatulus,* which is neither deſcribed or figured as carinated.

5.

Nautilus Calcar *Lin. Syſt.* p. 1162.—*Gmel. Syſt.* p. 3370. 2. CALCAR.
Turt. Lin. iv. p. 306. Tab. 15. f. 4.
Martini Conch. t. 20. f. 180. 181 ?
Walk. Min. Shells. f. 66 ?
Adams Microſc. p. 641. t. 14. f. 31 ?

N. with a ſmooth, ſpiral ſhell; with ſix joints on the body whirl, marked by as many flexuous elevated ſtriæ, radiating from the centre, but not quite extending to the margin: back ſtrongly carinated: both ſides equally convex, ſmooth, and rather more elevated in the middle: interior volutions loſt after entering the aperture, which is ſemi-cordate, claſping the body equally on both ſides, and furniſhed with a ſmall perforation.

It is perhaps very difficult to determine which of the various ſpecies, given by different authors for the *N. Calcar* of LINNÆUS, is the real ſhell: GMELIN quotes two figures in MARTINI, that appear perfectly diſtinct, vol. i. tab. 19. fig. 168. 169. the firſt of which is ſmooth on the back; the other is not only ſtrongly carinated, but furniſhed with ſpines on that part. The ſame figures alſo occur in GUALTIERI, t. 19. B. C. and are equally referred to by GMELIN: that we have quoted in MARTINI for our ſhell, is indeed with doubt, for in all we have examined, the

Carina

Carina was regular, ſmooth, and even; not undulated as there repreſented, nor is the centre furniſhed with ſuch elevated knobs.

The figure given by WALKER for the *N. Calcar*, appears to be our ſhell in a mutilated ſtate; that part of the body whirl which enters the mouth, having been broken, gives the aperture a very extended appearance. Such an appearance accident has thrown in our way, and therefore we are inclined to think, that the figure above quoted in WALKER, was taken from an imperfect ſpecimen of our ſhell. Much allowance indeed muſt be made, for the figures of ſuch minute objects, highly magnified under a microſcope; the eye which examines, and the pencil which delineates them, will occaſionally vary: indeed, we perceive ſo conſiderable a difference between the original drawings of this, and other ſhells of Mr. WALKER, and the engravings taken from them, that we ſhould ſcarce have known them to be the ſame; had they not been marked with the ſame numbers.

6.

DEPRESSULUS.

Nautilus: ſpiralis, utrinque ſubumbilicatus, geniculis depreſſis plurimis. *Walk. Min. Shells.* f. 68.

Nautilus depreſſulus. *Turt. Lin.* iv. p. 306.
Adams Microſc. p. 641. t. 14. f. 33.

N. with a ſpiral, ſub-umbilicated ſhell, with many depreſſed joints; colour opaque white.

From *Reculver:* very rare.

Nautilus

7.

Nautilus: ſpiralis, umbilicatus, geniculis ſulcatis. *Walk.* UMBILICATULUS
Min. Shells. f. 69.
Nautilus umbilicatulus. *Turt. Lin.* iv. p. 306.
Adams Microſc. p. 641. t. 14. f. 34.

N. with a ſpiral, umbilicated ſhell, with furrowed joints: colour opaque white.

From *Sandwich:* not common.

8.

Nautilus: craſſus, utrinque umbilicatus, geniculis lineatis. CRASSULUS,
Walk. Min. Shells. f. 70.
Nautilus craſſulus. *Turt. Lin.* iv. p. 306.
Adams. Microſc. p. 641. t. 14. f. 35.
Martini. Conch. i. t. 19. f. 171?

N. with a thick, ſpiral, doubly umbilicated ſhell, with fine joints; colour opaque white.

From *Reculver:* exceeding rare.

This, and the two preceding ſpecies, never having come under our examination, we have been obliged to borrow their deſcription from Mr. WALKER.

9.

Nautilus lacuſtris. *Phil Tranſ.* LXXVI. t. 1. *(Lightfoot.)* LACUSTRIS.
Helix lineata. *Walk. Min. Shells.* f. 28. Tab. 6. f. 3.
Helix nitida. *Gmel. Syſt.* p. 3624?—*Turt. Lin.* iv. p. 511.
Schroet Fluſſconch. t. 5. f. 27?

N. with

N. with a compreſſed, ſub-carinated, ſpiral, ſmooth, gloſſy, pellucid, horn-coloured ſhell; ſometimes rufous-brown: the upper ſide convex; *apex* depreſſed, concave, with three viſible volutions, and a fourth loſt in the depreſſion; theſe are bordered on their outer edge with an opaque, whitiſh line, or band, that runs ſpirally to the centre at the junction of the whirls: under ſide flat, and deeply umbilicated: concamerations diſtant; joints or diviſions, only three viſible in the exterior volution; theſe are nearly equidiſtant, and appear like ſo many curved, white lines, radiating from the *Umbilicus*, and are the ſhades of the *ſepta*, or plates that divide the chambers.

The firſt of theſe diviſions is placed a conſiderable way within the aperture, the third at about two-thirds the circumference: between the firſt two diviſions is ſometimes a ſtrong wrinkle, of a deeper colour than the reſt of the ſhell: aperture narrow, ſub-cordate, claſping the body whirl on both ſides nearly equal; but the edge, or margin, ſlopes obliquely to the flat or under ſide. Diameter two-tenths, rarely a quarter, of an inch.

Mr. WALKER was the firſt who noticed this ſhell, but had overlooked the very ſingular ſtructure of its internal parts; and indeed we might have ſuppoſed he had intended the *Helix fontana*, but that he expreſsly ſays, "The lineated ſnail, with two central, white lines, croſſing the *Umbilicus*. Theſe are the two moſt conſpicuous diviſions; and, frequently has no other perceptible ones.

Mr. LIGHT-

Mr. LIGHTFOOT has well deſcribed, and given good figures of both theſe ſhells, in the *Philoſophical Tranſactions* of 1786, in which he ſays, this has three or four white lines, which appear like rays from the central *Umbilicus*, to different and nearly equidiſtant, parts of the circumference.

We have not, however, yet met with a ſpecimen, that had more than three diviſions in the body volution, and ſometimes one in the ſecond whirl, not very diſtant from the line of the mouth: poſſibly theſe may encreaſe with age.

The *ſepta* or partitions of the cells do not exactly accord with Mr. LIGHTFOOT's deſcription: the aperture, or opening, in theſe partitions, is indeed triradiated, but the *ſepta* are not formed of one piece, but of three ſub-triangular plates, each perfectly diſtinct, and unattached to each other. Two of theſe are placed laterally, even with each other, on the ſides; the third is an elevated ridge on the interior volution, ſtanding before the other plates, and not in a line with them; but, projecting inwards, gives the opening the appearance deſcribed in a front view.

This formation of the *ſepta* is indeed expreſſed, by the ſections of the ſhell that gentleman has given.

This very ſingular and curious ſhell, though different from any known ſpecies of *Nautilus* in the formation of the *ſepta*, (which are uſually of one, compact plate, with

a tubular perforation) cannot, however, be placed in any other genus with ſo much propriety. Poſſibly many of the minute ſpecies of *Nautili*, would be found to be various in the ſtructure of the *ſepta*, and ſome not poſſeſſed of tubular apertures, could we diſſect them with perſpicuity: ſo that the formation of the aperture in the *ſepta*, had better be conſidered (as Mr. LIGHTFOOT juſtly obſerves) a ſpecific, rather than a generic, character.

This may, therefore, be accounted as the only ſpecies of freſh water *Nautilus* hitherto noticed.

The animal is an aquatic *Limax*, or *Slug;* it has two very long, ſlender, filiform *tentacula:* at the baſe of which are two eyes, placed on the head, not on their ſummits, and retractile, as in thoſe of the land kind.

When the animal extends itſelf, the head, tail, and part of the body, are protruded through the triradiated aperture, each at a ſeparate part; the head at that of the middle ray: after it is dead, it contracts within the two outer *ſepta*, but never as we could obſerve, beyond the third; which makes that diviſion always obſcure.

Mr. WALKER ſpeaks of its being found on flags, in *Hernhill* brooks, in *Kent:* it is alſo met with about *Sandwich*, from which place we have received it from Mr. BOYS.

Mr. LIGHT-

Mr. LIGHTFOOT ſays, in deep ditches of clear water, adhering to the roots of *Carices;* and that it was collected near *Upton* church, not far from *Eton*, in *Buckinghamſhire.*

It is alſo found in the neighbourhood of *London*, as we have been informed by Mr. SWAINSON, who favoured us with many ſpecimens taken on water plants, in ditches in the marſhes about *Rotherhithe*, where it is not unfrequent.

It appears Doctor SOLANDER was acquainted with this ſhell, as he returned it to Mr. BOYS by the name of *Nautilus Segmentinus*, previous to the publication of the *Minute Shells* by WALKER; and of courſe before it was deſcribed as a *Nautilus* by LIGHTFOOT.

10.

Nautilus oblongus carinatus apertura lineari ovali. *Walk.* CARINATULUS.
Min. Shells. f. 72.
Nautilus carinatulus. *Turt. Lin.* iv. p. 307.
Adams Microſc. p. 642. t. 14. f. 37.

N. with an oblong, carinated ſhell, with a narrow, oval aperture: colour whitiſh, tranſparent like glaſs.

From *Seaſalter* and *Sandwich:* very rare.

Such is Mr. WALKER's deſcription; but he does not ſeem to have well expreſſed it by the figure, if we may judge from a very good drawing we have been favoured with from Mr. BOYS. In this the joints are ſeven, the extreme one, though globoſe, is not a quarter the breadth

of thoſe near the aperture: the joints too, regularly decreaſe in ſize, from the mouth to the end: the back is arched, but does not appear carinated.

We ſhould certainly have conſidered this a diſtinct ſpecies, had there not been a reference on the drawing, to WALKER's figure; and as we have never had an opportunity of examining either of the ſhells, we dare not venture to give it a diſtinct place.

11. SEMILITUUS.

Nautilus ſemilituus. *Gmel. Syſt.* p. 3372. 12.
Turt. Lin. iv. p. 308.
Walk. Min. Shells. f. 73.
Martini Conch. i. t. 20. f. 186. 187.
Nautilus ſubarcuatulus. *Adams. Microſc.* p. 642. t. 14. f. 38.
Turt. Lin. iv. p. 307.

N. with an elongated, ſub-arcuated ſhell, with elevated joints; *apex* incurvated: aperture with a ſmall, produced *Syphon:* colour opaque brown.

From *Sandwich* and *Sheppey* iſland; rare.

Mr. WALKER's figure does not expreſs the produced *ſyphon,* and is much too large at that part; whereas, it tapers conſiderably from the middle towards the aperture, and the *ſyphon* is placed nearly in a line with the back, or outer margin.

We were obliged to Mr. BOYS for fine ſpecimens of this ſhell, as well as a very correct drawing, referring to WALKER's figure.

Nautilus

12.

Nautilus rectus geniculis depreſſis. *Walk. Min. Shells.* f. 74. RECTUS.
Nautilus Legumen. *Gmel. Syſt.* p. 3373 ?—*Gualt.* t. 19. P ?
Turt. Lin. iv. p. 309 ?
Martini Conch. i. vig. 1. f. E. e ?

N. with a ſtrait, or very little arcuated ſhell, with ſmooth joints: ſmaller at the poſterior extremity than at the mouth: aperture a ſmall *ſyphon.*

From *Sandwich;* very rare.

A ſpecimen of this ſhell, favoured us by Mr. BOYS, was a ſmall matter arcuated, of an opaque-brown colour: length about one tenth of an inch: the external part had ſcarce any appearance of its being concamerated, but one ſide being ground, eight or nine diſtinct chambers appeared. The ſhell is very thick and ſtrong for its ſize: though Mr. WALKER ſays, pellucid white.

We have very little doubt this is the *N. Legumen* of GMELIN, although neither the ſpecimen before us, nor the figure given by WALKER, has any appearance of being marginated.

13.

Nautilus Radicula. *Lin. Syſt.* p. 1164.—*Gmel. Syſt.* p. 3373. 18. RADICULA.
Turt. Lin. iv. p. 309. Tab. 6. f. 4.
Martini Conch. i. vig. i. G. G. g. Tab. 14. f. 6.

N. with a ſub-conic, elongated ſhell, with eight or nine ſub-globoſe articulations: ſmooth, opaque-brown; aperture a ſmall *ſyphon.* From *Sandwich;* and varieties with from two to five joints.

This

This ſpecies appears to be ſubject to very conſiderable variation, with reſpect to the ſhape of the extreme joint at each end, as well as in the number: in ſome the aperture is extended to a conic point; in others it is only a ſmall, round opening on the extreme articulation, which is globoſe: the ſmaller end in ſome, is rounded; in others, conic, pointed.

14.
SUBARCUATUS.
Tab. 6. f. 5.

N. with a ſub-cylindric, ſub-arcuated ſhell, with three conſpicuous, globoſe articulations at the larger end: the remaining joints ſcarcely defined: aperture a ſmall, produced *ſyphon:* colour pellucid, gloſſy white, ſometimes covered with a brown *epidermis.* Length one tenth of an inch.

Mr. BOYS favoured us with ſpecimens of this ſhell from *Sandwich,* and with them a drawing of what we conſider a variety, differing only in having ten diſtinct articulations; the extreme one at the ſmaller end longer than either of the others, except the anterior one, in which the aperture is placed.

15.
JUGOSUS.
Tab. 14. f. 4.

Nautilus obliquus. *Gmel. Syſt.* p. 3372. 14?
Turt. Lin. p. 308?—*Gualt.* t. 19. N?
Martini Conch. i. vig. i. f. H. h?

N. with a ſub-arcuated, ſub-cylindric ſhell, a little tapering: with nine, ridged, ſub-globoſe articulations: aperture extended to a ſmall conic *ſyphon:* the extreme joint, at

at the ſmaller end, longer than the others near it: colour opaque-brown. Length more than one eighth of an inch.

This ſhell, which we received from Mr. BOYS, differs from *N. ſubarcuatus* in being longitudinally ſtriated, or ridged; in other reſpects the ſhape is ſimilar to the variety deſcribed, of that ſpecies.

We are inclined to think this may be a variety of the *N. obliquus* of thoſe authors quoted: the only difference appears to conſiſt in that being truncated at the anterior end, and crenated round the margin, inſtead of being produced to a conic *ſyphon*. Such a variety would not be more extraordinary, if we conſider the variation incident to the *N. Radicula:* and indeed, the figure of the *N. obliquus*, given by MARTINI, is exactly what our ſhell would be, if the conic part, of the anterior articulation, was cut off. It is, therefore, very probable the *N. obliquus*, as generally deſcribed, is nothing more than a variety, or more probably a mutilated ſpecimen, of this ſhell.

16. COSTATUS. Tab. 14. f. 5.

N. with a ſtrait, ſub-cylindric ſhell, a little tapering; with twelve raiſed articulations, furniſhed with four equidiſtant, ſtrong, longitudinal ribs, running the whole length of the ſhell: aperture extended in a conic *ſyphon*. Length a quarter of an inch.

Mr. BOYS favoured us with an excellent drawing of this new, and curious ſhell, found on the coaſt of *Kent:* and with it, a variety with only ſix joints.

GEN.

GEN. XX.

CYPRÆA.

Animal a LIMAX.

SHELL, univalve; involuted, ſub-ovate, obtuſe, ſmooth.

Aperture, linear, extended the whole length of the ſhell, dentated on both ſides.

1. PEDICULUS.

Cypræa Pediculus. *Lin. Syſt.* p. 1180?
Gmel. Syſt. p. 3418. 93?
Don. Br. Shells. ii. t. 43.
Turt. Lin. iv. p. 345.
Cypræa Pediculus, ſeu Monacha. *Da Coſta* p. 33. t. 2. f. 6. 6.
Borlaſe Cornw. t. 28. f. 12.—*Gualt.* t. 15. R.
Pult. Cat. Dorſet. p. 39?

C. with an oval, gloſſy ſhell, tumid or raiſed on the back, ſurrounded tranſverſely with elevated ſtriæ, which terminate within the lips, giving them a crenated appearance; the ſurrounding ſtriæ in ſome places divided by intermediate ſhorter ones, or elſe bifurcated; colour pale purple, with generally, three dark ſpots on the ridge of the

the back, the middle one frequently very faintly marked; outer lip and under part white. Length five-eighths of an inch.

This ſpecies, which is not uncommon on many of our ſhores, has generally been conſidered as a variety of the *Pediculus* of LINNÆUS; a ſhell very common in the *Weſt Indian* ſeas; but we cannot help expreſſing ſome doubts reſpecting this matter.

We believe this is never found to poſſeſs that ſulcus along the back, ſo invariable in the foreign ones: the colour of that ſhell too is different, and the ſpots are generally ſix, three on each ſide the dorſal depreſſion.

Thoſe, who have deſcribed this ſulcus as a character in the *Britiſh* ſpecimens, have certainly confounded them with foreign ſhells; for in the thouſands we have examined from various parts of our coaſt; no ſuch circumſtance has ever occurred. The fineſt coloured, and largeſt, of theſe ſhells, we ever ſaw, were dredged up alive in *Salcomb* bay; thoſe frequently found dead on the ſhores have generally loſt their purple colour, or only faintly tinged.

2.
ARCTICA.

Cypræa arctica. *Pult. Cat. Dorſet.* p. 39.
Martini. Conch i. t 29. f. 309.
Liſt. Conch. t. 707. f. 57.—*Id. Angl.* t. 3. f. 17.
Borlaſe Cornw. t 28. f. 13.—*Gualt.* t. 14. O. P.
Cypræa Pediculus. *Br. Zool.* t. 70. f. 82.

C. with a very pale, purpliſh, fleſh-coloured ſhell, much like the preceding, but ſmaller and deſtitute of ſpots.

Whether this is really a diſtinct ſpecies, or only the young, or variety of the other, is very difficult to determine: all we can ſay is, that it is more common on our ſhores, and is frequently found where the other is not; and in ſome places, where the other is dredged up alive, we have not been able to procure a ſingle ſpecimen of this. It muſt, however, be remarked, gradations are ſometimes obſerved, that run ſo much into each other, as to create ſtrong ſuſpicion of this being the ſame ſpecies.

It was ſeparated by Doctor SOLANDER, who gave it the name we have here prefixed to it, in the *Muſeum Portlandicum.*

3.
BULLATA.
Tab. 6. f. 1.

C. with a thin, pellucid, white ſhell, in ſhape much like the *C. Pediculus;* ſome are quite deſtitute of tranſverſe ſtriæ; others are faintly ſtriated half way from the back to the inner lip, the other half to the outer lip marked with extremely fine longitudinal ſtriæ: the margin of the outer lip is not thickened, the edge finely crenated: the inner lip, even of thoſe which are quite ſmooth, is a little denticulated: the *apex* is ſomewhat produced and formed into two or three ſmall convolutions: in ſome the volutions are well defined by a ſeparating line, in others they are nearly even.

Doctor

Doctor PULTENEY informed us he had long poſſeſſed this ſhell in his Cabinet, and had called it *Cypræa Bullata;* which name we have retained. Whether it may be ſpecifically diſtinct from the *Pediculus* admits of ſome doubt, as in ſome inſtances the tranſverſe ſtriæ ſurround the ſhell, though almoſt obſolete: the external volutions and the tranſparency of the ſhell, certainly beſpeak diſtinction: to which we muſt add, that it is nearly equal in ſize, and conſequently cannot be a young unformed ſhell: beſides, we never found it but in *Salcomb* bay, except a ſingle inſtance at *Falmouth* in *Cornwall.*

We have taken more than a dozen alive, by dredging, of different ſizes, from a quarter to half an inch in length.

In that part of thoſe which are tranſverſely ſtriated is a little purple tinge.

4. VOLUTA. Tab. 6. f. 7. 7.

C. wih a conoid, convoluted ſhell, of a pale greeniſh colour, with the outer lip white: extreme volutions two, very ſmall; aperture linear, terminated by a groove, or gutter; both lips denticulated, the inner one but faintly; *Columella* ſub-plicated. It is a very ſtrong thick ſhell, with a beautiful poliſh, and quite ſmooth; the outer lip much thickened, with ſometimes along the under edge, and both angles of the aperture a ſlight tinge of pink. Length not quite half an inch.

This elegant ſpecies has never before been given as an *Engliſh* ſhell; but we have ſeen it amongſt a parcel of ſmall ſhells from the *Weſt Indies:* and Doctor PULTENEY informed us, it was in the *Portland* Cabinet by the name of *Voluta edentula.* It does not however appear to have ſo much the character of that genus as of this, but may be conſidered as a connecting link. How it came to obtain the trivial name of *edentula* is not eaſily determined, as it is denticulated on both ſides of the aperture.

This ſhell is certainly very rare; the only place we have found it in, is *Salcomb* bay, where it is ſometimes taken alive by the *Oyſter* dredgers; but is never found on the contiguous ſhores.

The animal, when alive, extends a thin membrane from each ſide the aperture, and almoſt covers the ſhell; this is elegantly ſpeckled with bright yellow: the more fleſhy parts of the body, before and behind, are ſpeckled with pink.

It is probable many of the *Cypræa* genus, have the property of extending theſe lateral membranes over their ſhell, the *C. Pediculus* has it to a great degree, and when in motion under water, has a very elegant appearance, from its diverſity of colours: generally black, orange, and pink, diſpoſed in minute ſpots.

GEN. XXI.

BULLA.

The Animal was conſidered by LINNÆUS *as a* LIMAX,

But later obſervations have proved, that whatever the animal may be, it is not a *Limax* in ſeveral ſpecies of the *Linnæan Bullæ*. For an account of the animal of *Bulla lignaria*, we refer the curious to the ſecond volume of the *Linnæan Tranſactions*, page 15.

SHELL, univalve, convoluted, ſmooth.

Aperture for the moſt part ſomewhat contracted, oblong, longitudinal, the baſe entire.

Columella, ſmooth, oblique.

1.

Bulla lignaria. *Lin. Syſt.* p. 1184. —*Gmel. Syſt.* p. 3425. 11. LIGNARIA.
Liſter Conch. t. 714. f. 71.—*Br. Zool.* t. 70. f. 83.
Martini Conch. i. t. 21. f. 194. 195.
Borlaſe Corn. t. 28. f. 14.—*Lin. Tranſ.* ii. t. 2. f. 18.
Da Coſta p. 26. t. 1. f. 9.—*Turt. Lin.* iv. p. 351.
Pult. Cat. Dorſet. p. 40.

B. with

B. with an oval, thin, brittle, ſub-pellucid, yellowiſh-brown ſhell, with numerous tranſverſe ſtriæ, of a lighter colour; in ſome approaching nearly to white, giving it the appearance of a piece of veined wood.

It has no external volution, but at the top is depreſſed into a *ſub-umbilicus:* aperture large, extending the whole length of the ſhell, but contracts ſomewhat at the upper part. Inſide gloſſy white; *Columella* viſible to the end.

This is the largeſt ſpecies of *Bulla* found in *England:* it ſometimes grows to nearly two inches in length, but more commonly not exceeding one inch and a half.

We have obtained this ſhell in *Cornwall* and *Devonſhire* rarely: and we are informed it is ſometimes dredged up at *Weymouth;* but is by no means plentiful any where.

This is not the only ſpecies of *Bulla* whoſe inhabitant poſſeſſes a gizzard of a teſtaceous nature.

2.
AMPULLA.
Tab. 7. f. 1.

Bulla Ampulla. *Lin. Syſt.* p. 1183.—*Gmel. Syſt.* p. 3424. 10.
Martini Conch. i. t. 22. f. 202. 204.—*Id.* t. 21. f. 188. 189.
Br. Zool. No. 84.—*Turt. Lin.* iv. p. 350.
Gualt. t. 12. E. F.—*Favan.* t. 27. F. 6.
Petiv. Gaz. t. 50. f. 13. & t. 99. f. 14.

B. with an oblong oval, ſmooth, gloſſy ſhell, of an opaque whitiſh colour, mottled and veined with light cheſnut:

cheſnut: no external volution, but in its place an *Umbilicus:* aperture moderately wide: on the lower end of the pillar lip the ſhell is thickened, of an opaque white colour; but this duplicature does not ſpread up the body of the ſhell, as in the *B. lignaria: Columella* not viſible to the end. We found two or three of this ſpecies in ſand from *Falmouth* harbour, the largeſt not above three-eighths of an inch in length: foreign ſpecimens grow to a much ſuperior ſize. Poſſibly this is the ſame as deſcribed by Mr. PENNANT for a young ſhell of the *B. Ampulla;* who ſays it was found near *Weymouth.* DA COSTA has conſidered Mr. PENNANT's ſhell as his *B. Navicula,* the *Hydatis* of LINNÆUS.

3.

PATULA.

Bulla patula. *Br. Zool.* t. 70. f. 85 A.
Pult. Cat. Dorſet. p. 40.

B. with a ſmooth, gloſſy, white, pellucid, oblong, involuted ſhell, upper end extending beyond the body; baſe more extended; aperture large, terminating in a ſhort canal or gutter at each end, moſt contracted at the top: *Columella* twiſted, forming a *ſub-umbilicus* or furrow on the pillar lip: outer lip plain, and very thin. Mr. PENNANT firſt deſcribed this ſpecies from the *Portland* Cabinet, taken at *Weymouth.* Doctor PULTENEY favoured us with a ſpecimen from the ſame place, the length of which is an inch, breadth half an inch.

The animal belonging to this ſhell is ſaid to poſſeſs a gizzard, ſimilar to that of the *Lignaria.*

Bulla

4.
APERTA.

Bulla aperta. *Lin. Syſt.* p. 1183.—*Gmel. Syſt.* p. 3424. 8.
Martini Conch. i. p. 266 vig. 13. f. 3.
Chem. Conch. x. t. 146. f. 1354. 1355.
Pult. Cat. Dorſet. p. 40.
Turt. Lin. iv. p. 350.—*Gualt.* t. 13. E. E.
Don Br. Shells. iv. t. 120. f. 1. 1.
Bulla, the Bubble, *Da Coſta*, p. 30. t. 2. f. 3.

B. with a ſub-orbicular, thin, pellucid, brittle, white ſhell: no external convolution or *Umbilicus: Columella*, or rather inner lip, very ſmall, ſlightly involuted, viſible to the end: the aperture occupies nearly the whole of the ſhell: the outſide is a little wrinkled, but gloſſy.

This ſpecies has generally been conſidered as rare on our ſhores: DA COSTA was the firſt who gave it as *Engliſh*, and ſays it is fiſhed up at *Weymouth;* and no where elſe, to his knowledge, on the *Britiſh* coaſt.

That author, however, ſeems to have confounded the *B. aperta* with the *B. patula* of PENNANT, (which as yet we believe has only been found on the *Dorſetſhire* coaſt,) as he has quoted that ſhell for this; whereas this ſpecies is not mentioned in the *Britiſh Zoology;* nor was that ſhell known to DA COSTA. GMELIN and CHEMNITZ have followed DA COSTA's error.

Its uſual ſize does not much exceed half an inch in length; but on the north coaſt of *Devon*, about *Biddeford* bay (where it is extremely plentiful) it is no uncommon thing

thing to find them of an inch in length, and three-quarters of an inch broad.

We have alſo found it of an inferior ſize on the oppoſite ſhores in *Wales*, particularly about *Laugharne:* rarely in *Cornwall*, *South Devon*, and *Dorſetſhire*, about *Weymouth*, and on *Studland* beach, between *Swanage* and *Poole*. It is not uncommon on ſome parts of the coaſt of *Kent*, at *Sandwich*, and *Whitſtable* bay, from whence we have received it with the animal, but not large.

The inhabitants of many of the *Bullæ* are larger than their ſhells, ſo that they cannot wholly recede within them: in this and the two following ſpecies the animal has all the appearance of being truly molluſcous, encloſing the ſhell ſo entirely, that no part of it is to be ſeen.

MARTINI has badly figured ſeveral views of the animal, ſeparate and attached to the ſhell, in the table above quoted; with figures of the teſtaceous plates found within the body, which conſtitute the ſtomach or gizzard.

PLANCUS has alſo deſcribed the animal, and has given a figure of the ſhell. Appendix, Tab. xi. fig. F. G.

The animal is rather a ſhapeleſs maſs, of a ſub-oval form; pellucid white, with numerous minute, opaque ſpecks: no viſible eyes, or *tentacula;* the anterior end rounded, but capable of variation: a ſhield, with a mem-

branaceous margin in front, covers the anterior half, divided longitudinally by a pellucid ſtreak: another ſort of ſhield covers the hind part, and extends into a membranous margin, making four lobes; the body, on each ſide, runs into an angle, pointing backward, cloſe to the poſterior ſhield. Beneath, the animal is divided into two parts; that before is the *Suſtentaculum*, behind which is the membrane that forms the lobated end; and which is capable of extending laterally, and becoming quite even; the lobes being only formed by folds; on the poſterior ſhield above, are a few ſtreaks of opaque white.

Length of the largeſt examined, an inch and a half; breadth one inch; length of the ſhell rather more than half an inch.

The gizzard, or ſtomach, is large in proportion, of a priſmatic ſhape, compoſed of three teſtaceous plates, two of which are of an inequi-lateral, ſub-triangular form, and exactly ſimilar; the other is ſmaller, of an ovate-oblong, inclining to lozenge-ſhape, with the angles rounded; theſe are concave on the outſide, and united together by ſtrong cartilages.

The circumſtance of ſome of the animal inhabitants of this claſs of ſhells being furniſhed with teſtaceous ſtomachs, has been noticed by others, and indeed ſeems to have inclined ſome perſons to an opinion, that no ſhell can be a *Bulla*, but where its inhabitant is poſſeſſed of this teſtaceous organ of digeſtion.

We

We ſhall however take the liberty of remarking, that this ſyſtem will not hold good with reſpect to Conchology, where the ſhells, and not the animals, have been claſſed: could we examine the animal inhabitant of every ſpecies of ſhell, we ſhould find that, on the preſent arrangement, ſome in each genus would differ from the generic character. But as we never can poſſibly have an opportunity of examining more than a very ſmall portion of ſhells with their living animals, ſuch new ſyſtematiſts muſt again be reduced to claſſification by the ſhell, and not by the animal. That an attention to the animal inhabitants of ſhells is of eſſential ſervice in the diſcrimination of ſpecies, cannot be denied, but muſt be wholly confined to ſpecific, not generic diſtinctions.

5. HALIOTOIDEA. Tab. 7. f. 6.

B. with a ſub-oval, extremely thin, pellucid, white ſhell, with ſomewhat the habit of a *Haliotis*, but deſtitute of the ſmall perforations that mark that genus: it is ſmooth and gloſſy, but not quite deſtitute of wrinkles: aperture oval, not quite extending to the *apex*, which is ſmall, obtuſe, and convoluted ſideways, ſcarce making two volutions: the body of the ſhell is very ſmall, and only turns a little inwards, ſpirally: interior part viſible to the end. Length three-quarters of an inch; breadth half an inch.

This ſpecies differs from the *B. aperta* in the aperture not extending to the upper end, and in having a contorted *apex*.

We have taken this new and rare ſhell by dredging in *Salcomb* bay; and have found it of a very inferior ſize on other parts of the ſouth coaſt of *Devonſhire*, particularly at *Torcroſs*; and once on *Studland* beach, in *Dorſetſhire*. It has alſo been found at *Weymouth*, by Mr. BRYER.

The animal, like that of the preceding ſpecies, ſo completely envelopes the ſhell, that not the leaſt appearance of it is to be diſcovered, either in a dead or living ſtate. It is of an oval ſhape, and of a reddiſh, or brown colour; ſometimes nearly white: has much the appearance of a contracted, naked *Limax*, and indeed ſeems to be nearly allied to that claſs of animals.

The upper part of the body is very convex, covered with a thick, tough, ligamentous ſkin, that conceals the ſhell, and extends downwards on each ſide, where the edges are thin, and detached from the body: in the fore part of this margin is a *ſinus*, through which the animal protrudes an appendage, or arm, ſomewhat flat, a quarter of an inch in length, the extremity of which is bifid; the lower diviſion terminating in a thread-like proceſs. The body of the animal beneath, or rather the *Suſtentaculum*, is oblong and flat, with a deep depreſſion between it and the marginal ſkin: the head is furniſhed with two ſmall, white *tentacula*, at the baſe of which, are two ſmall black eyes.

The ſhell may be felt under the ſkin on the back, but is difficult to be extracted without breaking, from the extreme

extreme toughneſs of the part that covers it; the beſt method of effecting it, is to make a longitudinal inciſion on the back, with a pair of ſharp pointed ſciſſars.

The animal is poſſeſſed of conſiderable locomotive power; and when in motion, frequently contracts the margin or looſe ſkin into wrinkles, or folds, expoſing the ſides of the body.

It is in ſize three times as large as its ſhell, and is incapable of much contraction, or expanſion: at firſt ſight might be miſtaken for the animal of *B. aperta*, but on compariſon, will be found eſſentially different externally, and more particularly in being deſtitute of the teſtaceous gizzard, ſo remarkable in that animal.

At the time the plate was engraved, we had not been fortunate enough to obtain a larger ſpecimen of the ſhell than the figure repreſents; but have ſince found it of the ſize deſcribed.

In the ſingular circumſtance of the ſhell being encloſed within the animal of ſome of this claſs, there is a conſiderable analogy between them and the *Laplyſia*. The *L. depilans* poſſeſſes a flexible, corneous ſubſtance, under the ſkin on the back, termed a ſhield; which differs only from theſe ſpecies of open *Bullæ* in not being of a teſtaceous ſubſtance: this is of an oval ſhape, pointed at one end, which turns inward, and a little to one ſide, in a ſub-convoluted manner: it is marked with concentric wrinkles: colour purpliſh-brown.

This

This, therefore, ſeems to be the link between the true *molluſca* animals, and the *teſtacea:* and it is probable future reſearches may diſcover, that many which have hitherto been conſidered as belonging to the *molluſca* tribe, are really *teſtaceous,* upon diſſection.

6.
PLUMULA.
Tab. 15. f. 9.

B. with an ovate-oblong, depreſſed, pellucid, thin ſhell, of a yellowiſh-white colour, tinged with brown at one end; the other end minutely convoluted on the back, or upper part, like the *Bulla Haliotoidea,* but much ſmaller; the convolution makes one turn: it is ſtrongly wrinkled concentrically for ſo delicate a ſhell, and is poſſeſſed of two or three ray-like indentations, running from the margin towards the *apex.* The inſide, as well as the outſide, is ſomewhat gloſſy and wrinkled; the aperture extends the whole of the ſhell, like the *B. aperta:* the pillar lip is ſlightly turned inward, to form the ſmall depreſſed volution; but the aid of a glaſs is requiſite to diſcover the formation of this part. Length half an inch; breadth near a quarter.

This is another of thoſe ſingular *molluſca* animals, with a concealed ſhell under the ſkin upon the back: its ſhape is ſub-oval, but variable; the *Suſtentaculum* is large, and ovate, but uſually in folds at the edges: the front is generally roundiſh; the body is ſmall, covered with a broad, thin, ſub-orbicular, reticulated membrane, variable in ſhape, frequently turning back at the margin: the head, which is moſt times concealed under the membrane or ſhield, is furniſhed with two broad *tentacula,* which are ſometimes

ſometimes quite expanded, and conic; at other times rolled up, and look like cylindric tubes: at the baſe of theſe above, are two ſmall black eyes: on the right ſide of the body is a protruded *foramen;* immediately behind which is a large plumoſe appendage; the ſhape is compreſſed, broad towards the baſe, and tapering to an obtuſe point; *pinnatified,* the *pinnæ* ſtanding alternate; theſe are ſomewhat retractile, and changeable in form: beneath the *tentacula* is a broad, bifid membrane, uſually projecting into an angle on each ſide, but very variable in ſhape. Diameter nearly double that of the ſhell: colour pale yellow above; beneath pellucid, yellowiſh-white. It does not poſſeſs a teſtaceous gizzard.

We diſcovered this new and ſingular ſpecies on the rocks at low-tide, at *Milton* ſands, on the ſouth coaſt of *Devon.*

7

Bulla punctata. *Lin. Trans.* v. p.2. t.1. f. 6. 7. 8? *(Adams.)* CATENA. Tab. 7. f. 7.

B. with a pellucid, white, gloſſy ſhell, cloſely and finely ſtriated tranſverſely all over; which, under a ſtrong magnifier, are ſeen to be interwoven or formed into links like a chain: *apex* obtuſe, with a viſible involution: aperture extremely large, occupying almoſt the whole of the ſhell, except a ſmall part at the top; in figure very much reſembling the *B. aperta.* A variety with a more tranſparent zone round it, taking in eight or t n of the *catenæ,* which are more ſtrongly defined; the reſt of the ſhell appears

pears as it were froſted, and not ſo gloſſy, poſſeſſing a *ſub-umbilicus*, and the outer margin of the aperture cloſe to the body is winged, or reflected a little, forming a depreſſion or *ſulcus* on that part.

This beautiful ſpecies is an elegant object for the microſcope, rarely exceeding one-tenth of an inch in diameter.

We found ſeveral of theſe ſhells amongſt the ſand at *Bigberry* bay, on the ſouth coaſt of *Devon*.

If this is the ſame as the *B. punctata* deſcribed by Mr. ADAMS, which we ſuſpect, it is found alſo on the ſouth ſands at *Tenbigh*.

It is probable this, and all the open ſpecies of *Bullæ*, are incloſed under the ſkin on the back of ſome *molluſca* animal, like the *Bulla aperta* and *Haliotoidea*.

8.
EMARGINATA. Bulla teſtâ gibbâ aperturâ emarginatâ. *Lin. Trans.* v. t. 1. f. 9. 10. 11. *(Adams)*

Mr. ADAMS's obſervations on this ſhell run thus:

Shell pellucid, ſmooth: lip ſub-arcuated. *B. emarginata*, *punctata*, and *denticulata*, agree in their general habits; and *truncata* is moſt nearly allied to *cylindrica*.

Bulla

9.

Bulla, teſtâ oblongâ ſubæquali obtuſâ lævi, aperturâ ad api- DENTICULATA.
cem denticulâ acutiſſimâ. *Lin. Trans.* v. t. 1. f. 3. 4. 5. *(Adams)*

Mr. ADAMS's obſervations are, "Shell pellucid white. Sand at the Waſh not common."

10.

Bulla Hydatis. *Lin. Syſt.* p. 1183.—*Gmel. Syſt.* p. 3424. 9. HYDATIS.
Chem. Conch. ix. t. 118. f. 1019.
Pult. Cat. Dorſet. p. 40.—*Gualt.* t. 13. D. D.
Turt. Lin. iv. p. 350.
Bulla Navicula. *Da Coſta*, p. 28. t. 1. f. 10.

B. with an oval, ſub-pellucid, thin, fragile ſhell, of a greeniſh or yellowiſh horn-colour, ſometimes covered with a thin, ferruginous *epidermis:* the body is tumid, no external volution, but in its place an *umbilicus:* aperture large at the baſe, contracting more at the top, and extending rather beyond it: outer lip very thin; inner, or pillar lip a little thickened, and whitiſh. Young ſhells are ſometimes very gloſſy and pellucid; older ones generally ſomewhat opaque, a little wrinkled longitudinally, and very finely ſtriated tranſverſely, only obſervable by the aid of a glaſs; the *Columella* is not viſible to the end. Length one inch; breadth three-quarters of an inch.

DA COSTA mentions this ſpecies as being found at *Weymouth*, but rare, and has quoted the *B. Ampulla* of PENNANT for his ſhell; probably for no other reaſon than that the *Ampulla* was not known to him as *Engliſh*.

It does not appear to be uncommon on ſome parts of the weſtern coaſt. We obſerved it in the cabinet of Mr. BRYER at *Weymouth*, and was informed by that gentleman, that he had frequently picked it up between that place and *Portland*.

Doctor PULTENEY found it in the harbour at *Poole*, where we alſo noticed it; but no where ſo plentiful as on *Studland* beach, in *Purbeck:* an eaſterly wind having prevailed for ſome time, a large quantity of *algæ* was thrown upon this extenſive ſandy ſhore, amongſt which were thouſands of theſe ſhells, in all ſtages of growth, from the largeſt to the moſt diminutive, not equal in ſize to a hempſeed; moſt of which contained the animal.

We have likewiſe taken it in *Salcomb* bay in *Devonſhire*, and at *Southampton*, but have never been able to aſcertain it on any more eaſtern or northern part of our coaſt.

It is ſaid to be a *Mediterranean* ſpecies, and is deſcribed by GMELIN as like the *B. aperta;* ſurely he could never have compared theſe two ſhells: if he had likened it to the *Bulla Naucum* we ſhould have coincided with him in ſimile.

The animal inhabitant is a ſhapeleſs maſs, deſtitute of either eyes or *tentacula;* the head, or forepart, has a tranſverſe opening, which runs along the ſides, and forms fin-like membranes, that expand on part of the under ſide of the

the ſhell: the ſkin is warty, tough, and of a duſky-brown colour. The gizzard or ſtomach is a very ſingular ſtructure: it is ſmall in proportion, and conſiſts of three ſub-oval, corneous plates, held together at their edges by ligaments, and ſurrounded by a ſtrong, cartilaginous, or muſcular ſubſtance: it is of a ſub-triangular ſhape, with the alimentary canal attached to its centre. The plates on the inſide are well formed for comminuting its food: they are of a dark purpliſh-brown, or chocolate colour, with a longitudinal ridge, and ſeveral tranſverſe furrows on each; the upper parts reflect outward, and are bare of covering even when connected together, ſo that their ſtructure is partly ſeen without opening the ſtomach: the lower part of the gizzard is convex and muſcular.

To a conchologiſt, perhaps, it would be difficult to deſcribe the appearance of the corneous organs of digeſtion better, than by ſaying they reſemble ſo many ſmall *Chitons*.

11. AKERA.

Bulla Akera.	*Gmel. Syſt.* p. 3434.
	Turt. Lin. iv. p. 358.
Bulla ſoluta parva.	*Chem. Conch.* x. t. 146. f. 1358. No. 1. 2. 3.
Bulla ſoluta magna.	*Id.* x. t. 146. f. 1359. 1361?
Bulla ſoluta.	*Gmel. Syſt.* p. 3434. 48?
	Turt. Lin iv. p. 358.
Bulla reſiliens.	*Don Br. Shells.* iii. t. 79.

B. with an extremely thin, pellucid, horn-coloured ſhell, of an elaſtic nature: ſhape oval, ſomewhat wrinkl-

ed longitudinally; *apex* obtuſe, convoluted, canaliculated; the volutions even with the body: aperture large at the baſe, much contracted at the top; the outer lip extremely thin, frequently only a film, the upper part of which lies cloſe to the body whirl, but does not adhere until it has taken almoſt one volution: pillar lip a little thickened, and white. Inſide white; *Columella* viſible to the end. Sometimes this ſhell is ſo exceſſively thin, that it is ſcarce more than membranaceous, except the body part, and is not ſo pellucid: others are almoſt tranſparent horn-colour within and without.

The remarkable character of this ſpecies is its elaſticity; for though it ſeems ſo extremely delicate, as ſcarce to bear handling, yet it is ſo tough and flexible, that it does not eaſily break. Length about three-quarters of an inch; breadth not quite half an inch.

This ſingular, and elegant ſhell has been confounded with the *B. Hydatis*, though ſo eſſentially different. We have ſeen it placed with that ſpecies in more cabinets than one. It is true their general habit is ſomewhat ſimilar; but the elaſticity, and external volutions of this, are at once ſufficient to diſtinguiſh it: beſides, the *Columella* is viſible to the end in this, which is not the caſe in the other.

Donovan has given ſeveral very good figures of it, but of an extraordinary ſize; and ſays, it was diſcovered ſome years ago on the ſhores of *Bamff* in *Scotland*; and ſince that, at *Lymington*, and in a moat near *Portſmouth*.

This

This author obſerves, that in a young ſtate it has the appearance of a winged inſect, and ſports in its watery element with all the livelineſs of a butterfly, and formed a pleaſing object when kept alive in a glaſs of ſea-water.

We have found this ſpecies in the harbour at *Poole;* and on the ſhore near *Southampton,* it is by no means uncommon between that town and the *Itchin,* where the fiſhermen call them *ſea-ſnails,* and aſſured us they were very lively in the water in warm weather, and ſometimes quitted their ſhells; this circumſtance however is to be doubted. CHEMNITZ has deſcribed and figured it very well, and ſpeaks of it as a *Dutch* and *Norwegian* ſhell: he has alſo given another from *Ceylon,* which ſeems to differ only in being of ſuperior ſize.

12.
CYLINDRACEA.
Tab. 7 f. 2.

Bulla cylindracea. *Br. Zool.* t. 70. f. 85.
Don. Br. Shells. iv. t. 120. f. 2. 2.
Liſter Conch. t. 714. f. 70.
Bulla cylindrica. *Pult. Cat. Dorſet.* p. 40.

B. with a ſlender, cylindric, ſmooth, gloſſy, white ſhell; aperture the whole length, very narrow, a little dilated at the baſe: no external volution, but in its place a deep *umbilicus:* outer lip thin, acute, ſtraight: inner lip thickened, opaque white: *Columella* a little indented. Length five-eighths of an inch: breadth not two-eighths.

Doctor PULTENEY informs us, this rare ſhell has been found

found at *Weymouth*. We have taken it at *Falmouth* in *Cornwall*, and in *Devonſhire*, about *Teignmouth* and *Dawliſh* in the ſouth, and *Biddeford* bay in the north: alſo on the coaſt of *Caermarthenſhire*, ſparingly.

LISTER mentions it from *Barnſtable*.

This ſpecies has frequently been confounded with the *Voluta pallida*, but is at once diſtinguiſhed by not being convoluted, and in the *Columella* being deſtitute of folds.

Mr. ADAMS is miſtaken in the diſtinguiſhing characters between this and the *V. pallida*, (*Lin. Tranſ.* vol. iii. p 253.) by ſaying this has no poliſh: his ſpecimen muſt have been worn. It has not, indeed, ſo fine a poliſh; but recent ſhells poſſeſs conſiderable gloſs.

Doctor TURTON has given the *B. cylindracea* of PENNANT, for the *B. cylindrica* of GMELIN, which is a very different ſhell.

13. UMBILICATA. Tab. 7. f. 4.

B. with an oblong-oval, ſmooth, white ſhell: *apex* rounded, *umbilicated:* aperture extremely narrow, the whole length of the ſhell, dilating a little at the baſe. Length one-eighth of an inch; breadth one half its length.

This ſhell has much the habit of *B. cylindracea*, but is not ſo cylindric, and is broader in proportion to its length.

We

We found this ſpecies, ſparingly, amongſt ſand from *Falmouth* harbour.

14.

Bulla truncata. *Lin. Trans.* v. t. 1. f 1. 2. *(Adams.)* TRUNCATA.
Turt. Lin. iv. p. 358. Tab. 7. f. 5.

B. with a ſub-cylindric, opaque, white ſhell; the upper part longitudinally ſtriated, the lower plain: *apex* truncated, and largely *umbilicated*, ſhewing the involutions: aperture the whole length, extremely narrow, but dilated a little at the baſe, and contracted moſt in the middle.

This ſhell has ſomewhat the habit of the laſt, and of the ſame ſize; but differs in being truncated at the top, in the involutions being conſpicuous within the *umbilicus*, and in being partly ſtriated. We found this not uncommon in ſand at *Falmouth;* rare from *Salcomb* bay, *Devonſhire*, and *Weymouth.*

Worn ſhells are ſometimes deſtitute of ſtriæ.

Not *B. truncata* of GMELIN.

15.

Bulla craſſa, apertura medio coarctata. *Walk. Min. Shells.* f. 62. OBTUSA.
Bulla Regulbienſis. *Turt. Lin.* iv p 351. Tab. 7. f. 3.
Adams. Microſc. t. 14. f. 28.

B. with

B. with a moderately ſtrong, ſub-cylindric, opaque white ſhell, wrinkled longitudinally: apex convoluted, obtuſe; volutions four or five, very little produced: aperture nearly the whole length of the ſhell, narrow, rather more compreſſed in the middle, dilated at the baſe: inner lip thickened, ſmooth, white.

Length two-tenths, rarely a quarter of an inch; breadth about half its length.

We were firſt favoured with this ſpecies from Mr. Boys, for the ſhell figured by Mr. Walker, as above quoted; and have ſince found it in great abundance on the ſhore near *Southampton;* rarely at *Salcomb* in *Devonſhire:* and not uncommon about *Laugharne* on the coaſt of *Caermarthenſhire.*

In a recent ſtate it is frequently covered with a cheſnut-coloured *epidermis.* It was once ſent to us for the *Voluta pallida;* but from that ſhell it is readily diſtinguiſhed by being much ſhorter, the volutions more deeply divided, more obtuſe, and in wanting the eſſential character of a *Voluta,* the plicated *columella.* It is, indeed, more nearly allied to the laſt ſpecies of *Bulla,* but differs not only in being much larger, but in the produced volutions, and the aperture not reaching quite to the top, as well as being deſtitute of the regular longitudinal ſtriæ on the upper part of the ſhell.

B. with

16.

B. with a ſmooth, gloſſy, pellucid, white, ſub-oval ſhell; body large, ventricoſe, with three very ſmall volutions: *apex* ſomewhat pointed, but not much produced: aperture ſub-oval, nearly the length of the ſhell; outer lip attenuated; inner lip ſmooth; *Columella* plain, not viſible to the end. Length rarely exceeding three-eighths of an inch; breadth two-eighths. DIAPHANA. Tab. 7. f. 8.

This is a ſcarce ſpecies, found only in *Salcomb* bay, except one mutilated ſpecimen at *Falmouth;* from the former place we have taken it alive by dredging, adhering to the inſide of old oyſter ſhells.

Is ſo extremely thin and brittle, that it is difficult to obtain perfect; and is ſufficiently tranſparent for the *Columella* to be ſeen through the ſhell.

It is not very unlike the figure of *Voluta Jonenſis* in the *Britiſh Zoology*, but not quite ſo long, and the outer lip ſpreads more upwards; it cannot, however, be that ſhell, as it wants the plicated *Columella*, the eſſential character of that genus.

Conchologiſts have thought that ſome of the *Cyprææ* aſſume a very different appearance in their young and adult ſtates; ſuch a prevailing opinion, from perhaps a ſingle inſtance in a foreign ſpecies, poſſibly not well authenticated, may lead to a conjecture that this is no other than the young of *Cypræa Pediculus;* a circumſtance

 which

which has been hinted by one or two of our conchological friends. To this we ſhall only obſerve; the animal is eſſentially different, not poſſeſſing any of that beautiful membrane which the animal of *Cypræa Pediculus* throws over the whole of its ſhell; but is like a common aquatic *Limax;* of a pale colour.

17.
FONTINALIS.

Bulla fontinalis. *Lin. Syſt.* p. 1185.—*Gmel. Syſt.* p. 3427. 18.
Liſter Conch. t. 134. f. 34.—*Id Ang.* t. 2. f. 25.
Chem. Conch. ix. t. 103. f. 877. 878.
Pult. Cat. Dorſet. p. 40 — *Gualt.* t. 5. C. C.
Schroet. Fluſſconch. t. 6. f. 11.
Turt. Lin. iv. p. 352.
Planorbis Bulla. *Muller Verm.* p. 167. No. 353.
Turbo adverſus. *Da Coſta* p. 96. t. v. f. 6. 6.
Favan. t. 61. E. 9.

B. with four or five reverſed volutions, of a gloſſy, pellucid, light horn-colour: the body whirl large, the others very ſmall, and not much produced: aperture oblong-three-fourths the length of the ſhell.

Old ſhells are ſomewhat ſtriated, or rather wrinkled longitudinally, with two or three faint tranſverſe ridges on the body whirl. Length half an inch; breadth a quarter.

This ſpecies is not uncommon in ſtagnant pools, as well as running waters, in many parts of the kingdom; but is in general, not above half the ſize deſcribed.

It

It is moſt frequently found on the under part of the leaves of aquatic plants.

The animal is of a light colour, with a yellowiſh caſt: *Tentacula* two, ſetaceous, long: eyes two, black, placed underneath, at the baſe of the *Tentacula.* When in motion, it covers great part of the ſhell with a thin, pinnated membrane, thrown out on the right ſide, extending quite behind, and partly on the left ſide, covering the ſmaller volutions: this membrane is very deeply divided or digitated, the points of which meet, and ſometimes interſect on the back of the ſhell; and are ſo tranſparent as ſcarce to be diſtinguiſhed, but by the aſſiſtance of a glaſs. The *Suſtentaculum*, or foot, is long and narrow: the *foramen*, or common aperture, is on the left ſide, as muſt be the caſe with all the animals of this kind inhabiting *heteroſtrophe* ſhells.

It has very conſiderable loco-motive power, and tranſports itſelf by adhering to the ſurface of the water, with the ſhell downwards: againſt which it crawls with as much apparent eaſe as on a ſolid body; and will ſometimes let itſelf down gradually by a thread affixed to the ſurface of the water, in the manner of the *Limax filans** from the branch of a tree.

The property of crawling under water, againſt its ſurface, is not wholly confined to this ſpecies; but we know of no other teſtaceous animal capable of ſuſpending itſelf under water in the ſame way.

* For an account of the *Limax filans*, ſee *Lin Trans.* vol. iv. p. 85. tab. 8.

It has the power of throwing its ſhell about in an extraordinary manner, either in defence, or to remove obſtructions, continuing at the ſame time fixed by its foot. Probably this ſingular motion is ſometimes occaſioned by a minute ſpecies of *Hirudo*,* which infeſts this and many other freſh-water teſtaceous animals; twenty or more may be ſeen adhering to its ſides like ſlender white filaments. This *Leech* is not uncommon on the *Helix peregra*, *H. foſſaria*, and *H. nautileus;* as well as the *Patella fluviatilis;* and probably on all other animals belonging to univalve *teſtacea* at particular ſeaſons, which inhabit freſh-water.

18. HYPNORUM.

Bulla Hypnorum.	*Lin. Syſt.* p. 1185.
	Gmel. Syſt. p. 3428. 19.
	Chem. Conch. ix. t. 103. f. 882. 883. a. b. c.
	Turt. Lin. iv. p. 353.
	Schroet Fluſſconch. t. 6. f. 9. & f. 15. a. b.
Bucc. heteroſtrophon.	*Liſter Conch.* t. 1059. f. 5.
	Petiv. Gaz. t. 10. f. 8.
	Favan. t. 61. F. 18.
Turbo	*Walk. Min. Shells.* f. 54.
Planorbis turritus.	*Muller Verm.* p. 169. No. 354.

B. with five or ſix, reverſed, taper, ſmooth, gloſſy, pellucid, horn-coloured ſpires: the body-whirl half the length of the ſhell, the others tapering to a fine point; aperture narrow at the top, ſpreading a little at the baſe; outer lip extremely thin; pillar lip a little thickened:

* Gordius inquilinus. *Mull. Verm.* i. p. 33. No. 164.

Columella

Columella within ſomewhat indented. Length five-eighths of an inch; breadth two-eighths.

This ſpecies has ſometimes been confounded with the laſt deſcribed, but is readily diſtinguiſhed by its taper, produced ſpires; and by the aperture, which is much ſhorter, and more contracted: is alſo much more gloſſy, and of a darker colour. It is a more local ſhell; we have found it tolerably plentiful in a watery ditch near *Exeter;* and in *Wiltſhire* of an extraordinary ſize, meaſuring nearly three-quarters of an inch. In a pond, ſubject to be overflowed by the *Avon* in that county, we have ſeen great abundance; and in the ſame field were plenty of the *B. fontinalis*, and yet they had never communicated with each other, for in neither place were they to be found together. This is PETIVER's *Buccinulum fluviatile heteroſtrophon*, who ſays, it is found in ſome ponds and ditches about *London*. We have received it from *Kent*.

DA COSTA was unacquainted with this ſhell, but erroneouſly quoted it for his *Turbo adverſus;* the *Bulla fontinalis* of LINNÆUS; as is evident by his deſcription and figure.

This and the preceding are two of the few known ſpecies which are *heteroſtrophe* ſhells, or turn from right to left, from the *apex* to the aperture; that is, the ſpires repreſent a left-handed ſcrew, turning contrary to the ſun's apparent motion.

Both

Both LINNÆUS and GMELIN appear to be perfectly unacquainted with the natural hiſtory of this ſhell, having deſcribed it to inhabit wet moſs, which beſpeaks it to be a land ſhell; whereas, it is an aquatic; the animal of which is incapable of reſiding out of water. The latter author has alſo expreſſed his doubts, whether it was not a variety of *B. fontinalis*. How ſuch doubts could ever have exiſted, even from a compariſon of the two ſhells, independent of their natural hiſtory, is very extraordinary: the animals too are eſſentially different.

Animal duſky-black; *Tentacula* two, moderately long, ſetaceous, black; eyes placed on the head, at the baſe of the feelers: *Suſtentaculum* not quite ſo long as the ſhell.

No fins, or membrane that covers the ſhell, like that of the *Bulla fontinalis*.

GEN XXII.

VOLUTA.

Animal a LIMAX.

SHELL, univalve, ſpiral.

Aperture, longitudinally extending near the whole length of the ſhell, ecaudated.

Columella, plicated: no *umbilicus,* nor interior lip.

1.
TORNATILIS.

Voluta tornatilis. *Lin. Syſt.* p. 1187.—*Gmel. Syſt.* p. 3437.
Liſter Conch. t. 835. f. 58.
Martini Conch ii. t. 43. f. 442. 443.
Br. Zool. t. 71. f. 86.
Pult. Cat Dorſet. p 41.
Don. Br. Shells. ii. t. 57.
Turt. Lin iv. p. 360.
Turbo ovalis. *Da Coſta* p 101. t. 8. f. 2. 2.

V. with an oval ſhell of eight ſpires, the firſt very large, the others ſmall, and tapering to an extreme fine point: of

of a pale purpliſh red, finely ſtriated ſpirally; with two white *faſciæ*, or bands, on the body whirl: aperture long and narrow; outer lip thin; *Columella* with one fold. Length three-quarters of an inch.

This elegant ſpecies appears to be local, and rather ſcarce upon the *Engliſh* coaſt. DA COSTA ſays he received it from *Teignmouth* and *Exmouth* in *Devonſhire*. It muſt, however, be extremely rare at thoſe places, as a long continuance there never furniſhed us with a ſingle ſpecimen: but further to the weſt on the ſame coaſt, at *Torcroſs*, we have ſometimes taken it by dredging.

Doctor PULTENEY ſpeaks of it as rare in *Dorſetſhire*, but that it has been found at *Weymouth*.

Mr. PENNANT notes it from *Angleſea*.

We found it not unplentiful on the flat, ſandy ſhore, near *Laugharne* in *Caermarthenſhire*, among the drifted ſand about high-water mark: at this place a diligent ſearcher might pick up a dozen in a morning. Is alſo found ſparingly on other parts of the ſouth coaſt of *Wales*.

2. PALLIDA.

Voluta pallida. *Lin. Syſt.* p.1189.—*Gmel Syſt.* p.3444.30.
Liſter Conch. t. 714. upper left hand figure.
Lin. Trans. iii. p. 253. *(Adams.)*
Turt. Lin. iv. p. 365.
Bulla cylindracea. *Da Coſta.* p. 31. t. 2. f. 7. 7.
Bulla pallida. *Don. Br. Shells.* ii. t. 66.

V. with

V. with a ſmooth, gloſſy, white, cylindric ſhell: upper volution extremely ſmall, and ſcarcely defined by a ſeparating line: *apex* obtuſe: aperture narrrow, extending near the length of the ſhell, ſpreading a little at the baſe; outer lip thin: *Columella* plicated, with four ſtrong folds. Length half an inch; breadth a quarter.

It is very extraordinary DA COSTA ſhould have made this the *Bulla cylindracea* of the *Britiſh Zoology*, a ſhell neither convoluted nor plicated on the *Columella*. Mr. PENNANT expreſsly ſays, his ſhell is *umbilicated* at the end: a character ſufficient to diſtinguiſh it from this.

The *V. pallida* is certainly a very rare ſpecies on the *Britiſh* coaſt. DA COSTA muſt have been miſinformed with reſpect to its being found plentiful on the weſtern coaſts, for not a ſingle ſpecimen has ever come within our frequent reſearches in thoſe parts; nor does Doctor PULTENEY mention it in his *Catalogue of Dorſetſhire Shells*. Mr. ADAMS, however, notes it from *Tenby*.

This ſhell is of a finer poliſh, and ſmoother than the *Bulla cylindracea*; broader in proportion to its length, the aperture not ſo much contracted, and is at once diſtinguiſhed by the true characters of a *Voluta*.

3. JONENSIS.

Voluta Jonenſis. *Br. Zool* t. 71. f 87.
Turt. Lin iv. p. 360.

V. with a very thin, brittle ſhell, with two ſmall ſpires. Inhabits the iſle of *Jona*, or *Y Columb-kil*.

This is all Mr. PENNANT ſays of the ſhell. Was it not placed in the *Britiſh Zoology* as a *Voluta*, we ſhould have been inclined to think it a variety of our *Bulla diaphana*.

4.

DENTICULATA. Turbo bidentata. *Walk. Min. Shells.* f. 50, & f. 53. young.

V. with ſeven or eight volutions, tapering to a fine point, the lower one large, the others gradually decreaſing: of a ſemi-pellucid horn-colour, inclining to purpliſh-brown towards the top: aperture oblong-oval, half the length of the ſhell; outer lip furniſhed with two or three tubercles near the margin, and frequently with three or four white denticulations further within the aperture: *Columella* plicated, with three or four white folds, which are much elevated, and appear like teeth, but ſpirally turn with the *Columella*. Length near half an inch; breadth not a quarter. It is ſubject to ſome variety with reſpect to the denticulations on the outer lip; ſome have more, others leſs, or even deſtitute of them in young ſhells: the plications on the *Columella* vary alſo from two to four, but moſt commonly three.

If we had not received this ſhell from Mr. BOYS for WALKER's *Turbo bidentata*, as above quoted; we ſhould hardly have conſidered it as the ſame; as he ſays it is found

on

on the roots of ruſhes in marſhes near *Faverſham*. Poſſibly the marſhes where they were found, were ſubject to the flux of the tide; for it is evidently a marine ſhell. We have found it plentiful on the ſhore between *Plymouth* and *Dock*, feeding on *algæ* at high-water mark; and alſo ſparingly on another part of the ſouth coaſt of *Devonſhire*, as well as at *Barnſtable* and *Ilfracomb* in the north; near *Aberavon* in *Wales*; and at *Southampton*.

Very young ſhells ſometimes poſſeſs only one fold on the *Columella*; in which ſtate we conſider it to be WALKER's ſhell, figure 53.

A remarkable character of this ſhell is, that the *Columella* extends no further than the upper part of the body volution; the ſuperior ſpires being deſtitute of any pillar, or internal ſpiral diviſion.

5. ALBA.

Voluta alba opaca longitudinaliter ſtriata. *Walk. Min. Shells.* f. 61. *Turt. Lin.* iv. p. 361. *Adams Microſc.* t. 14. f. 27.

V. with an oval, white ſhell, with four volutions, finely ſtriated: aperture long, narrow. Length one tenth of an inch.

Mr. BOYS favoured us with this minute ſpecies, for WALKER's ſhell above quoted. It is opaque, but gloſſy. Said to be not uncommon at *Sandwich* and *Shepey Iſland*.

6.
CATENATA.
Tab. 6. f. 2.

V. with an oblong-oval, ſtrong, ſub-pellucid, white, and extremely gloſſy ſhell, with four bands of opaque, white, oblong ſpots, connected by ſmall rufous ſpots or ſtreaks, in a very elegant manner, like ſo many ſmall chains: upper volution ſcarcely defined; *apex* indented, involuted: aperture the whole length of the ſhell, linear: outer lip thick, but not marginated, and obſoletely denticulated: *Columella* quadriplicated, with two ſtrong, and two faint folds. Length a quarter of an inch; breadth at the top one eighth. We obſerved ſeveral of this new and elegant ſpecies in Mr. SWAINSON's cabinet of *Britiſh* ſhells, under the title of *Cypræa catenata;* who obligingly favoured us with a ſpecimen.

The trivial name we have therefore continued it by, but have been induced to place it in this genus, from the ſtructure of the *Columella,* and not being denticulated on the inner lip. It is, however, a connecting link between the two *genera.* We are wholly indebted to that Gentleman for all we have been able to collect concerning this ſhell: who, in a letter upon the ſubject, ſays,

"I never found this ſhell alive; I got three or four dead ſpecimens, in the ſediment at the bottom of pools of water, (if they may be ſo called) left in the holes of the rocks in *St. Auſtle* bay, near *Fowey:* have heard of its being taken off the *Lizard,* and alſo at *Penzance.*"

Is ſaid to be found in *Guernſey* of a ſuperior ſize.

GEN.

GEN XXIII.

BUCCINUM.

Animal a LIMAX.

SHELL, univalve, ſpiral, gibboſe.

Aperture, ovate, ending in a ſhort canal or gutter, to the right.

1.
UNDATUM.

Buccinum undatum. *Lin. Syſt.* p. 1204.
Gmel. Syſt. p. 3492. 93.
Liſter Conch. t. 962. f. 14. 15.
Id. Angl. t. 3. f. 2. 3.
Martini Conch. iv. t. 126. f. 1206. 1211.
Br. Zool. No. 90.—*Turt. Lin.* iv. p. 404.
Pult. Cat. Dorſet. p. 42.
Buccinum vulgare. *Da Coſta* p. 122. t. 6. f. 6. 6.
Buccinum ſtriatum. *Br. Zool.* t. 74. f. 91.
Turt. Lin. iv. p. 404.

B. with ſeven or eight, ventricoſe ſpires, undulately ribbed, tranſverſely ſtriated, and croſſed with finer longitudinal ſtriæ.

This

This common ſpecies is ſtrong, and grows to a large ſize, frequently five inches in length; is ſubject to vary in colour, from white to cheſnut-brown, but more frequently the former, in part tinged with rufous brown. In ſome ſhells the ribs are ſtrong; others are only a little ribbed towards the top; this variety is the *B. ſtriatum* of Mr. PENNANT.

There are ſcarce any of our ſhores but what produce this ſhell. Is commonly taken in dredging by fiſhermen, who either uſe the animal for bait, or deſtroy it, from a ſuppoſition that it is very deſtructive to the large ſcollop, *Pecten maximus*; by inſinuating its tail (as it is termed) into the ſhell, and deſtroying the inhabitant: this we have been aſſured they will do even in a pail of ſea water.

Small ſhells are ſometimes very thin, and prettily marked with brown: old ones are frequently covered with a brown *epidermis*, or rough extraneous matter.

The ſpawn of this ſpecies is found in large cluſters upon moſt parts of our coaſt, in which the young are frequently ſeen. In this ſtate, and for ſome time after they are excluded, they have an obtuſe globular *apex*; and have been deſcribed as a diſtinct ſpecies. The *Murex decollatus* of PENNANT and DONOVAN is no other than this, or the fry of *Murex deſpectus*.

2.

Buccinum Lapillus. *Lin. Syſt.* p.1202.—*Gmel Syſt.* p.3484.53. LAPILLUS.
Liſter Conch. t. 965. f. 18. 19.
Id. Angl. t. 3. f. 5. 6.
Martini Conch. iii. t. 121. f. 1111. 1112.
Id. iv. t. 122. f. 1124. 1125. & var.
Petiv. Gaz. t. 18. f. 5.
Br. Zool. t.72. f.89.—*Turt. Lin.* iv.p.397.
Pult. Cat. Dorſet. p. 41.
Don. Br. Shells. i. t. 11.
Purpuro-Buccinum. *Da Coſta.* p. 125. t. 7. f. 1. 2. 3. 4. 9. 12.

B. with a thick ſhell, with five or ſix ſpires, ſtrongly ſtriated ſpirally, and fine, elevated, irregular, undulated ſtriæ, longitudinally: *apex* ſmall, pointed: aperture oval; outer lip waved, or ſub-denticulated; pillar lip ſmooth, replicated. Length rarely exceeds two inches; breadth an inch.

This ſpecies is ſubject to great variety; in ſome the longitudinal ſtriæ are membranaceous and ſharp; others are almoſt ſmooth and deſtitute of any: the colour is uſually dirty-white, or yellowiſh; but ſometimes prettily banded with cheſnut-brown, or yellow. Young ſhells vary ſo much in ſhape as ſcarcely to be aſcertained; ſome are extremely ventricoſe in the body whirl, with the upper volutions very ſmall; and the whole ſhell muricated with concave, ſpinous ridges: others are more taper, and only ſpirally ridged.

This is one of the moſt common ſhells upon our coaſt, adhering to rocks quite up to high-water mark.

The

The famous purple, or *Tyrian dye*, has been, amongſt others, extracted from the animal of this ſhell, an account of which is detailed in the *Philoſophical Tranſactions*, No. 1684 by Mr. COLE; and is inſerted in DA COSTA and the *Britiſh Zoology*. M. REAUMUR has alſo written upon it, in the *Paris Memoirs* for the years 1712 and 1717. It is ſuppoſed that ſingular and beautiful dye is yielded only by the *ovarium;* if ſo, it is no wonder many have been diſappointed in their reſearches for it, as probably it is only to be found at a certain ſeaſon of the year, when that part is dilated by impregnation.

3.
RETICULATUM

Buccinum reticulatum. *Lin. Syſt.* p. 1264.
Gmel. Syſt. p. 3495. 111.
Martini Conch. iv. t. 124. f. 1162. to 1164
Liſter Conch. t. 966. f. 21.
Br. Zool. t. 72. f. 92.
Turt. Lin. iv. p 406.
Da Coſta p. 131. t. 7. f. 10.
Pult. Cat. Dorſet. p. 42.
Don. Br. Shells. iii. t. 76.
Buccinum vulgatum. *Gmel. Syſt.* p. 3496. 120.
Martini Conch. iv t. 124. f. 1165. 1166.
Buccinum Pullus. *Br. Zool* t. 72. f. 88.

B. with a ſtrong, reticulated ſhell, with ſeven or eight coſtated volutions tapering to a fine point, and wrinkled with tranſverſe elevated ſtriæ, which riſe into tubercles upon the ribs, and gives it a decuſſated appearance: aperture.

ture ſub-oval; outer lip even, not thickened at the back, denticulated within; inner lip replicated, gloſſy white, ſometimes faintly crenated: colour uſually brown.

A variety has the outer lip attenuated, and no denticulations: another variety is ſmaller, with the ribs more diſtant, and ſometimes with one rib larger and more raiſed than the reſt; colour purpliſh brown: inſide purple. This appears to be the *B. vulgatum* of GMELIN, and the *B. Pullus* of PENNANT. It muſt, however, be remarked, that all theſe varieties run ſo much into each other, both in the ribs and colour, that no permanent diſtinction can be made.

Worn ſhells ſometimes become quite white, eſpecially the young ones. The largeſt ſhells are an inch and a half long, and nearly three-quarters wide at the baſe. Common on many of our ſhores.

4.

Buccinum minutum. *Br. Zool.* t. 79. inner angle beneath left hand. MACULA. Tab. 8. f. 4.

Buccinum minimum. *Turt. Lin.* iv. p. 387.

B. with ſix or ſeven ribbed ſpires, tranſverſely ſtriated like the *B. reticulatum: apex* pointed: aperture ſub-orbicular; outer lip gibboſe at the back, denticulated within; inner lip replicated, and faintly denticulated: colour various, mottled rufous, brown, and white, or wholly pale purple, and ſometimes red; but rarely wholly white. In

all theſe variations it preſerves the invariable characteriſtic mark of a ſmall ſpot of a dark purpliſh colour at the outer edge of the canal; and has generally a purpliſh tip. It is at once diſtinguiſhed from the young of *B. reticulatum*, by the gibboſe outer lip. The length of this ſpecies rarely exceeds half an inch; breadth one quarter of an inch.

It is not uncommon in ſome of the ſmall bays about *Falmouth;* we have alſo found it on the north and ſouth coaſts of *Devonſhire*, in *Dorſetſhire*, and in *Wales:* and once received it from a friend on the *Kentiſh* coaſt for the *B. Pullus* of LINNÆUS, but is certainly not that ſhell.

5.
AMBIGUUM.
Tab. 9. f. 7.

Buccinum ambiguum. *Pult. Cat. Dorſet.* p. 42.

B. with a thick, ſtrong, ſub-conic, white ſhell, with ſix ſtrongly ribbed ſpires, finely ſtriated tranſverſely: the ribs are diſtant, and ſwell at the junction of each ſpire into knobs or tubercles: aperture ſub-orbicular; outer lip thickened by the rib, ſlightly denticulated; inner lip replicated, with generally two faint diſtant folds. Length rather more than half an inch; breadth three-eighths.

We were firſt favoured with this ſpecies from Doctor PULTENEY, who ſays, it is found between *Weymouth* and *Portland* on the ſands, and on the north ſhore at *Poole*. The Doctor is certainly miſtaken, in quoting the *B. Pullus* and *B. minutum* of PENNANT for this ſhell; the former being only a variety of the *B. reticulatum*, and the latter

latter we believe our *B. Macula.* This is perfectly diſtinct from either of thoſe ſhells, not only in being much broader in proportion to its length, but in the ribs being much more diſtant, and gibboſe at the ſpiral junctures. It is, we believe, a very rare ſpecies: many of thoſe we have examined, were ſtained in part with a ferruginous colour, not natural to the ſhell.

Mr. BRYER, who has taken ſeveral of theſe ſhells on the ſhore between *Weymouth* and *Portland*, informed us, they were all of that colour; though we obſerved ſeveral in Doctor PULTENEY's cabinet perfectly white, that appeared to be live, or recent ſhells.

6.

Buccinum hepaticum. *Pult Cat. Dorſet.* p. 41. HEPATICUM.
Liſter. Conch. t. 975. f. 30. Tab. 8. f. 1.

B. with a ſtrong, browniſh ſhell, with ſeven or eight ribbed volutions: a tranſverſe line, or depreſſion, near the top of each ſpire; which, cutting the ribs, forms that part into ſmall knobs; in other reſpects it is ſmooth, except a few ſtriæ at the baſe of the body whirl, and is ſomewhat gloſſy: the volutions are rather tumid, and ſtrongly divided; *apex* ſharp: outer lip thick, turning inwards to an edge, beneath which are ſeveral denticulations or ſtriæ; inner lip folded back, with one tooth-like ridge on the upper part: colour a little varying with a few ferruginous ſpots, and ſometimes a white *faſcia* on the inſide of the outer lip. Doctor PULTENEY favoured us with this ſpecies,

which he ſays is found in *Purbeck*, and dredged up at *Weymouth*; but rarely.

It ſeldom exceeds an inch in length; and five-eighths of an inch in breadth.

7.
BILINEATUM.

Buccinum bilineatum. *Gmel. Syſt.* p. 3476.
Turt. Lin. iv. p. 391.
Buccinum porcatum. *Pult. Cat. Dorſet.* p. 41.
Buccinum decuſſatum. *Br. Zool. App.* t. 79. two bottom figures.
Liſter Conch. t. 998. f. 63.

B. with an ovated, ſmooth, whitiſh ſhell, girdled with two, three, or four bands of brown ſpots; the upper part ſet round with two ſeries of tubercles, upper volutions ſmooth: aperture large, ſub-oval; outer lip ſlightly dentated; inner lip rugoſe, and granulated.

Foreign ſpecimens exceed two inches in length: that figured by Mr. PENNANT is a young ſhell, ſcarcely an inch long, and was found at *Weymouth*.

8.
PERDIX.
Tab. 8. f. 5.

Buccinum Perdix. *Lin. Syſt.* p. 1197.—*Gmel Syſt.* p. 3470. 3.
Liſter Conch. t. 984. f. 43.
Martini Conch. iii. t. 117. f. 1078. 1080.
Pult. Cat Dorſet. p. 41.—*Gualt.* t. 51. f. F.
Turt. Lin. iv. p. 385.

B. with

B. with a ſub-oval ſhell, with five or ſix volutions; the firſt very large and tumid, the others ſmall in proportion, marked with flat, tranſverſe ridges, broader than the interſtices: colour yellowiſh-brown, marbled and ſpotted with white: aperture large, oval; outer lip thin, plain; lower part of the inner lip a little replicated, forming a *ſub-umbilicus*.

Exotic ſhells grow to a large ſize; thoſe which have been found in *England* are not larger than a hazel nut, as we are informed by Doctor PULTENEY; who ſays, it has been dredged up at *Weymouth*, and thrown up after ſtorms. We obſerved it in Mr. BRYER's cabinet, who aſſured us he found it on the ſame coaſt.

9.
LINEATUM.

Buccinum lineatum. *Da Coſta*. p. 130. t. 8. f. 5.
Pult. Cat. Dorſet. p. 41.
Don. Br. Shells. i. t. 15.
Turt. Lin. iv. p. 387.

B. with a ſtrong, ſmooth, conic ſhell, with five or ſix volutions, regularly banded with alternate, ſpiral lines, of chocolate-brown and white, that gives it the appearance of being ſtriated: *apex* ſharp, pointed: aperture oval; outer lip a little ſpreading, margin marked by the brown lines, that look like *crenulæ*. Length a quarter of an inch; breadth one eighth.

DA COSTA ſays, this ſhell is found in great abundance in *Cornwall*, but does not mention any particular part of that coaſt. If we did not know that ſhells are extremely local, we ſhould be induced to think he had been deceived; as we never could find it on any of the ſhores in that county, nor in *Devonſhire*. Doctor PULTENEY ſays, it is common on the coaſt of *Dorſet;* ſometimes in great numbers adhering to *fuci* and graſs wrack.

On ſuch good authority the exiſtence of this ſhell as *Engliſh* could not be doubted, though we always conſidered it as extremely rare, or at leaſt very local; never having been fortunate enough to find it till lately, and that ſparingly, between *Weymouth* and *Portland*. From the ſame place we have been favoured with ſeveral ſpecimens from Mr. BRYER, amongſt which was one entirely white, and another variety lineated with pale brown and white.

10.

CINCTUM. Tab. 15. f. 1.

B. with a conic, white ſhell, marked with a fine thread-like girdle, of a rufous-brown colour, round the middle of each ſpire: volutions ſix or ſeven, nearly even, finely and cloſely ribbed, and obſoletely ſtriated tranſverſely in the depreſſions between the ribs: *apex* ſharp: aperture narrow, oval; outer lip thickened with a broad rib at the back, and denticulated within; inner lip ſub-crenulated by the tranſverſe ſtriæ at the baſe; on the edge of the outer lip, near the end, is a ſmall rufous ſpot, and another at the upper angle of the aperture; from theſe,

two

two obſolete broken lines are to be traced round the baſe of the ſhell.

Whether theſe markings are permanent characters, we dare not determine, as only one ſpecimen of this new ſhell has come under our examination: but in other reſpects is ſo very different from any *Britiſh* ſpecies of *Buccinum* hitherto deſcribed, that it cannot be confounded.

Found by Mr. BRYER on the ſhore near *Weymouth*, together with ſeveral other new and rare ſhells, which will enrich this work. Length barely a quarter of an inch.

11. MINIMUM. Tab. 8. f. 2.

B. with a ſtrong ſhell, with five reticulated, taper ſpires: the ribs that run longitudinally are conſiderably raiſed, which being cut by the tranſverſe ſtriæ, gives it a decuſſated appearance: aperture oval; both lips ſmooth: colour varying from light to dark cheſnut-brown, without any ſpots or markings. Length ſcarce two-tenths of an inch, and more than double its breadth.

We found this ſpecies in conſiderable abundance on the ſouth coaſt of *Devon*, at the mouth of the *Aun*, amongſt the drifted ſand; and rarely alive by dredging at *Salcomb* and *Torcroſs*.

It does not appear to be noticed before by any conchologiſt and is probably a local ſhell.

12.
TERRESTRE.
Tab. 8. f. 3.

Buccinum Acicula.	*Muller. Verm.* p. 150. No. 340.
	Walk. Min. Shells. f. 60.
	Gualt t. 6 B. B.
Buccinum longiuſculum.	*Adams. Microſc.* t. 14. f. 26.
Buccinum obtuſulum.	*Turt. Lin.* iv. p 416.
	Schroet. Fluſſconch. t. 8. f. 6. a. b.
	Id. Erdconch. p. 142.

B. with ſix ſlender, ſmooth, gloſſy, pellucid, white ſpires, terminating in an obtuſe point: the volutions not much raiſed, but well defined by the ſeparating ſpiral groove; aperture oblong, ſub-oval; outer lip thin, even; pillar lip thickened, forming a ſmall gutter: no teeth. Length a quarter of an inch; breadth ſcarce one fourth its length.

The remarkable characters of this ſhell are the uncommon obliquity of the ſpiral turns of the volutions, and the length of the firſt ſpire, which, more than double, exceeds that of the ſecond, and is nearly equal to the three ſucceeding.

Mr. BOYS originally favoured us with this ſpecies for the ſhell figured by WALKER as above quoted; who ſtates it to be found in *Faverſham Creek* only; which implies it to be marine: but was doubtleſs carried there by ſome neighbouring ſtream; for it is a land ſhell.

We have procured it from the top of *Barham* downs in *Kent*, where it is common on the roots of the graſs, and under

under moſs: and have found great abundance, amongſt a varietyof ſhells brought down by the floods in the river *Avon* at *Lackham* in *Wiltſhire*. Theſe are ſuperior in ſize to thoſe from *Kent*, but of courſe dead ſhells though perfect.

SCHROETER was at a loſs whether to place this amongſt his land or freſh-water ſhells, and has therefore given it a place both in his *Fluſſconchylien* and *Erdconchylien*; and what is extraordinary, has affixed to it the ſynonyms of *Helix octona*, notwithſtanding he expreſsly ſays, it does not anſwer to the deſcription of the *Linnæan* ſhell, as it neither has a *ſub-umbilicus*, or roundiſh mouth.

MULLER has committed the ſame error, and has equally quoted GUALTERI's figure; which is a minute ſpecies, and not the leaſt correſponding with the *Linnæan* deſcription of *H. octona*.

GMELIN has continued the error of thoſe authors, not having been acquainted with the ſhell in queſtion; and, in order to correſpond with their deſcriptions, tells us it has ſometimes ſix ſpires, the firſt twice as large as the next; and the *umbilicus* inconſpicuous. This, though it accords partly with SCHROETER's and MULLER's ſhell, certainly does not correſpond with, "*teſta ſubperforata turrita: anfractibus octo, apertura ſubrotunda*," the ſpecific characters given by LINNÆUS to his *H. octona*.

That GUALTERI ſhould make this an aquatic, is not ſurpriſing, as all our land-ſhells are occaſionally carried

into ſtreams and rivers, and cannot be aſcertained but by a knowledge of their ſeveral animals; ſo that when a ſhell is found in water that has never before occurred, it has at once been conſidered as belonging to that element; and has led to innumerable errors.

13. OBTUSULUM.

Buccinum obtuſulum. *Turt. Lin.* iv. p. 387.
Adams Microſc. t. 14. f. 25.
Walk. Min. Shells. f. 59.

"The bellied whilk of three ſpires with an oval aperture: colour opaque white." From *Faverſham Creek;* very rare.

This is one of the few of Mr. WALKER's ſhells we have not had an opportunity of examining; have therefore copied the deſcription from his work. It is a microſcopic ſpecies.

14. BREVE.

Buccinum breve: teſta quinque anfractibus: longitudinaliter coſtatis: tranſverſim ſtriatis: color albus opacus, caudâ breviſſimâ. *Lin. Trans.* iii. t. 13. f. 3. 4. *(Adams.)*

Shell white, with five whorls, which are longitudinally ribbed and tranſverſely ſtriate. *Turt. Lin.* iv. p. 387.

15. MINUTUM.

Buccinum minutum: tribus anfractibus: longitudinaliter coſtatis: color albus opacus. *Lin. Trans.* iii. t. 13. f. 5. 6. *(Adams)*

Shell

Shell white, opaque, with three whorls, which are longitudinally ribbed. *Turt. Lin.* iv. p. 387.

16.

Buccinum læve: teſta lævi tribus anfractibus, cauda elongata: color albus opacus; anfractus primus ſecundo multo ventricoſior; apertura ovalis. LÆVE.

Lin. Trans. iii. t. 13. f. 7. 8. *(Adams.)*

Shell ſmooth, with three whorls and a long beak. *Turt. Lin.* iv. p. 387.

17.

Buccinum obtuſiſſimum: teſta lævi, tribus anfractibus, aperture coarctata, cauda elongata. OBTUSISSIMUM.

A præcedente differt et in aperturæ forma, et quod anfractus ipſi ſunt quam proxime magnitudinis æqualis.

Lin. Trans. iii. t. 13. f. 9. 10. *(Adams)*

Shell ſmooth, with three whorls, and a long beak: aperture contracted. *Turt. Lin.* iv. p. 387.

The four preceding ſhells we have been obliged to copy from Mr. ADAMS, who found them on the coaſt of *Pembrokeſhire;* they are all microſcopic ſpecies.

The two firſt ſeem to differ in nothing but the number of volutions. The two laſt appear to be young unformed ſhells not perfected at the *apex*; poſſibly the young of *Murex deſpectus* juſt eſcaped from the egg.

It muſt be remarked, that moſt turbinated univalve ſhells, when firſt produced, have few volutions, and their *apex* abrupt, ſwelling into a round knob: even the common garden ſnail, *Helix aſperſa*, is ſo different in its infant ſtate, as to have been conſidered a diſtinct ſhell: great care is therefore requiſite in diſcriminating the minute ſpecies.

We have always rejected thoſe whoſe *apex* was globoſe, and deſtitute of a finiſhed ſpire.

GEN XXIV.

STROMBUS.

Animal a LIMAX.

SHELL, univalve, ſpiral.

Aperture ending in a canal to the left: outer lip for the moſt part much expanded.

1.

Stromb. Pes Pelecani. *Lin. Syſt.* p. 1207. PES PELECANI.
Gmel. Syſt. p. 3507. 2.
Martini Conch. iii. t. 85. f. 848. 850.
Liſter Conch. t.865. f.20. —t.866.f.21.b.
Br. Zool. No. 94.
Pult. Cat. Dorſet. p.42.
Don. Br. Shells. i. t. 4.
Turt. Lin. iv. p. 417.
Aporrhais quadrifidus. *Da Coſta.* p. 136. t. 7. f. 7.

S. with a pyramidal ſhell, tapering to a fine point, with ten ribbed, or rather tuberculated, volutions; on the body whirl are two rows of ſmaller tubercles beneath the larger ones: outer lip much expanded, quadrifid, the upper angle

angle running far up the ſpire; the lower one formed by the tail or canal; theſe are more or leſs channelled beneath: fleſh-colour. Length near two inches.

This ſhell is ſubject to great variety with reſpect to the outer lip, which increaſes by age: young ſhells have all the appearance of a *Murex*, without the leaſt expanſion of the lip, and all gradations are to be met with from that to the perfect ſhell.

Da Costa ſpeaks of this ſpecies as pretty general on many parts of the *Engliſh*, *Welch*, and *Scottiſh* coaſts.

We have found it not uncommon at the mouth of the *Ex*, on *Dawliſh Warren* in *Devonſhire*, but rarely perfect, except after violent ſtorms.

Live ſhells are ſometimes obtained at *Torcroſs* by deep dredging; but more frequently old and worn ſpecimens, which are invariably inhabited by a new and ſingular ſpecies of *Sipunculus*, who cloſes up the aperture with agglutinated ſand, leaving only a ſmall round hole, within which it recedes. This animal is capable of withdrawing its anterior part within the other, in the ſame manner that the common *Limax* draws in the larger *tentacula*, to which the eyes are affixed; it has no other mode of contracting or expanding.

The animal of the *S. pes. Pelicani* has a long ſnout, and two filiform *tentacula* of a pink colour; the former ſpotted

ſpotted with white: eyes black, at the baſe of the *tentacula* beneath; *ſuſtentaculum* ſhort, white.

2.

COSTATUS.

Strombus coſtatus. *Pult. Cat. Dorſet.* p. 42.
Don Br. Shells. iii. t. 94.
Strombiformis coſtatus. *Da Coſta* p. 118. t. 8. f. 14.

S. with ten or eleven volutions of a dark brown colour, tapering to a fine point; furniſhed with numerous, fine, cloſe-ſet ribs, and an elevated, ſpiral line, turning round the bottom of each volution, becoming double at the baſe of the ſhell, and is loſt in the upper part: aperture ſub-orbicular, outer lip a little expanded; inner lip ſmooth, with a ſub-canal. Length rather leſs than half an inch.

It varies in colour from light brown to a deep cheſnut, but uſually the latter. In ſome the outer lip is a little thickened at the margin.

DA COSTA ſays this ſpecies is found on the coaſts of *Cornwall.* We have taken it on *Milton* ſands on the ſouth coaſt of *Devon;* but is certainly a rare *Engliſh* ſhell.

GEN. XXV.

MUREX.

Animal a LIMAX.

SHELL, univalve, ſpiral, moſt times rough with membranaceous folds, or knobs.

Aperture ending in a ſtrait, entire canal: ſometimes ſlightly reflecting.

1. DESPECTUS.

Murex deſpectus. *Lin. Syſt.* p.1222.—*Gmel. Syſt.* p.3547. 74.
Liſter Conch. t. 913. f. 4.—*Id. Angl.* p.155. t. 3. f. 1.
Martini Conch. iv. t. 138. f. 1292. & 1294.
Br. Zool. No. 98.—*Turt. Lin.* iv. p. 445.
Pult. Cat. Dorſet. p. 43.
Don. Br. Shells. i. t. 31.
Buccinum magnum. *Da Coſta* p. 120. t. 6. f. 4.

M. with a thick, ſtrong, white ſhell, with ſeven or eight ventricoſe volutions, tapering to a fine point, faintly ſtriated both tranſverſely and longitudinally: aperture ſuboval; outer lip plain; inner lip replicated, ſmooth; *Columella*

mella at the baſe, in old ſhells a little twiſted; tail, or canal, a little reflected; inſide yellowiſh. Length five inches. Young ſhells ſometimes of a ferruginous-brown.

This, the largeſt turbinated ſhell of the *Britiſh* ſeas, is local, but not uncommon in ſome parts. Inhabits the deep; ſometimes dredged up with *Oyſters*, and eaten by the poorer people; but more frequently uſed as a bait for *Cod* and other fiſh.

DA COSTA ſays, it is found in *Eſſex*, *Yorkſhire*, *Scotland*, and *Ireland*. Doctor PULTENEY mentions it on the *Dorſet* coaſt, but not plentiful. It muſt be extremely rare on the more weſtern ſhores, as not a ſingle ſpecimen has ever occurred in *Devonſhire*, or *Cornwall:* and we are aſſured by Mr. BRYER, it is a perfect ſtranger to the coaſt about *Weymouth*. Is ſometimes taken in *Kent*.

2.
ANTIQUUS.

Murex antiquus. *Gmel. Syſt.* p. 3546. 73.
Don. Br. Shells. iv. t. 119.
Martini Conch. iv. t. 138. f. 1293. & 1296.
Br. Zool. No. 97.—*Turt. Lin.* iv. p. 445.
Murex carinatus. *Br. Zool.* t. 77. f. 96.—*Turt. Lin.* iv. p. 438.
Don. Br. Shells. iv. t. 109.

M. with a ſtrong ſhell of a pale brown colour: volutions eight, ſtriated tranſverſely, marked with faint longitudinal ſtriæ: the middle of each volution riſing into a ſtrong, undulated, carinated ridge; ſometimes two, but

the lower one is moſt uſually faint; the two ſmalleſt volutions are generally ſmooth: aperture oval, ending in a long canal; outer lip even, except where the ridges terminate; pillar lip a little replicated, ſmooth; inſide livid-white. Length three inches and a half.

This ſhell ſeems to be ſubject to great variety: ſome are irregularly ribbed, which riſe into angulated protuberances on the carinated ridge; others are ſtrongly bicarinated, without the angular undulations. Mr. PENNANT's figure appears to have three plain ridges on each volution. GMELIN quotes a ſhell of MARTINI, which is not unlike our *deſpectus*. MARTINI ſeems to conſider this as a variety of that ſhell, and has given ſeveral figures, that appear to run ſo much into each other, as to favour the opinion; one of which is not unlike the *carinatus* of the *Britiſh Zoology*. If it is a variety of the *deſpectus*, it is rarely found in our ſeas, except in *Scotland;* from whence we have received it.

3.
CORNEUS.

Murex corneus. *Lin. Syſt.* p. 1224.—*Gmel. Syſt.* p. 3552.97.
Liſter Conch. t.913. f.5.—*Id. Angl.* t.3. f. 4.
Br. Zool t. 76. f. 99.
Pult. Cat. Dorſet. p.43.—*Turt. Lin.* iv.p.449.
Don. Br. Shells. ii. t. 38.
Buccinum gracile. *Da Coſta.* p. 124. t. 6. f. 5.

M. with eight ſtrong, taper, white ſpires, tranſverſely ſtriated, and faintly wrinkled longitudinally; volutions rounded, divided by a ſtrong ſeparating line, or depreſſion: aperture

aperture oblong-oval; canal long, and a little reflexed. Length three inches; breadth an inch and a quarter. Live ſhells are uſually covered with a brown *epidermis*.

Da Costa ſays it is found in *Yorkſhire*, *Northumberland*, and *Eſſex*; and in the *Orknies*, and other ſhores of *Scotland*; as well as on the *Iriſh* coaſt.

Doctor Pulteney ſpeaks of it as not very uncommon on the *Dorſet* coaſt, at *Weymouth*, *Studland*, and *Poole*; moſt probably dead and mutilated ſpecimens.

It is a pelagic ſhell, and rarely taken in a recent ſtate, but by dredging in deep water. We have found it on ſome of the ſhores of *South Devon*, particularly at *Torbay*; and have taken it not uncommonly by dredging at *Torcroſs*; and ſometimes at *Salcomb*; but in no one inſtance alive, though occaſionally perfect; yet always more or leſs covered with extraneous matter. From this it muſt be inferred, that they either inhabit the deeper parts beyond the reach of the dredge, or the more rocky ſituations which cannot be ſearched by the uſual means.

4.

Murex erinaceus. *Lin. Syſt.* p.1276.—*Gmel. Syſt.* p.3530. 19. Erinaceus.
Liſter Conch. t.942 f. 38?—*Gualt* t. 49 H.
Br. Zool t.76. f 95.—*Turt. Lin.* iv. p.432.
Don. Br. Shells. i. t. 35.
Pult. Cat. Dorſet. p. 43.
Buccinum porcatum. *Da Coſta.* p. 133. t. 8. f. 7. 7.

M. with a very rough, ſtrong, angulated ſhell, of a dirty white, or browniſh colour; with ſeven or eight rugoſe ſpires much produced, and terminating in a fine point: on each volution are ſix or ſeven rugged, prominent, longitudinal ribs, croſſed by tranſverſe, elevated ſtriæ: the whole ſhell imbricated with ſmall concave, or arched ſcales, very conſpicuous on the body: aperture oval; canal tubular; outer lip thickened by a rib, inner margin dentated; pillar lip ſmooth gloſſy-white. Length an inch and three-quarters, and nearly an inch wide.

In very young ſpecimens the gutter or canal is open, and the whole ſhell is covered with elevated points, which being ſometimes worn, gives it a pretty cancellated appearance, and in this ſtate may readily be miſtaken for a diſtinct ſpecies.

This is not uncommon on many of our ſhores; but the fineſt and moſt perfect ſpecimens are taken by dredging; ſometimes a pretty variety, mottled or zoned with ferruginous and white.

5.

PURPUREUS. Tab. 9. f. 3.

M. with a very rugoſe ſhell, of a dark purple colour, with ſometimes a few ſpots or blotches of white: volutions nine or ten, rounded, and tapering to an extremely fine, ſharp point, furniſhed with nineteen or twenty ribs, running a little oblique to the right; croſſed by numerous ſharp, elevated ridges, which riſe into angles upon the ribs, making

making the ſhell very rough, and giving it a cancellated appearance: aperture narrow, oval, terminating in a ſtrait canal; outer lip thin; margin white, crenated by the ſtriæ: *Columella* ſtriated tranſverſely oblique to the end of the canal, and ſomewhat tuberculated; inſide purple, marked by the ribs. Length five-eighths of an inch; breadth a quarter of an inch.

This new, elegant, and rare ſpecies, we have taken a few of alive, by dredging in *Salcomb* bay, in *Devonſhire*.

In all the ſpecimens we have ſeen, the outer lip has been more or leſs white, with here and there a few obſcure ſpots of the ſame colour, without regularity, on other parts of the ſhell.

6.

M. with a rūgoſe ſhell, of a light brown colour: voluti- LINEARIS.
ons ſeven or eight, rounded, and ſtrongly ribbed, croſſed by Tab. 9. f. 4.
elevated ſtriæ or ridges, the ſummits of which are purpliſh-brown, and form fine, ſpiral, thread-like lines, all up the ſhell; theſe are, however, ſometimes interrupted, as in ſome ſpecimens a few of the ridges are plain brown: the ſhell tapers to a fine point, and is generally darkeſt at the *apex:* in dead ſpecimens that are bleached white, and have loſt the lineated appearance, the *apex* is generally of a purple colour: the ribs are nine or ten in number: aperture oval, terminating in a ſtrait canal; outer lip thickened at the back by a rib; margin within crenated;

pillar

pillar lip ſmooth. Length exceeding a quarter of an inch; breadth one eighth.

This new and elegant ſpecies, we firſt diſcovered in ſand from *Falmouth* harbour, and afterwards took ſeveral alive by dredging in *Salcomb* bay, in *Devonſhire;* but is a rare ſhell in both places.

7.
MURICATUS.
Tab. 9. f. 2.

M. with a ſtrong, rough ſhell, with ſix or ſeven ventricoſe, tuberculated volutions, tapering to a fine point: the tubercles are formed by interrupted, longitudinal ribs, croſſed by ſtrong, elevated ſtriæ; and in ſome parts are pointed, or angulated: *apex* ſmooth: aperture oval, terminating in a long ſlender canal, which together, rather exceed the length of the reſt of the ſhell; outer lip ſharp, and dentated at the edge; margin within crenulated; pillar lip ſmooth. Length half an inch; breadth a quarter.

We procured a few of this new, and rare ſpecies, by dredging in *Salcomb* bay. It is generally covered with a thick orange-red *epidermis*, or extraneous matter, that obſcures the markings; beneath which the ſhell is white, tinged with fleſh-colour, and ſometimes ſtained greeniſh.

8.
TURRICULA.
Tab. 9. f. 1.

M. with ſeven taper, ribbed ſpires, of a white colour, and ſomewhat gloſſy, terminating in a fine point, and ſtriated tranſverſely: the volutions are ſtrongly defined, not rounded,

rounded, but riſe perpendicular above each other, the top of each being almoſt flat; the ribs at that part angulated, or turrited, and ſuddenly decline to the ſeparating line: aperture narrow-oblong, ending in a broad canal; outer lip a little thickened by a rib; upper part angulated; pillar lip ſmooth. Length three-quarters of an inch; breadth rather more than a quarter.

We are indebted to Mr. Boys for our firſt acquaintance with this ſpecies, who informs us, it is not uncommon on the ſhore of *Sandwich* in *Kent*.

Have ſince found it at *Biddeford* bay, in *Devonſhire*, and on the ſouth coaſt of *Wales*, particularly about *Tenby* and *Laugharne*.

9.

M. with ſix taper ribbed ſpires, of a pale rufous-brown colour, and ſometimes cheſnut: the volutions are generally furniſhed with fifteen or ſixteen ſmall ribs, ſtriated tranſverſely: aperture narrow, oblong, ending in a ſhort canal; outer lip ſmooth, rarely thickened by a rib; pillar lip ſmooth. Length three-tenths of an inch; breadth one eighth. Rufus.

This ſpecies is found with the laſt at *Sandwich*, *Biddeford* bay, and on the coaſt of *Wales*: we have alſo taken it on the ſouth coaſt of *Devon*, and in *Dorſetſhire*, where the other has never occurred. It has indeed, ſomewhat

the

the habit of that ſhell, but is readily diſtinguiſhed from it, by being rather more ſlender, not ſo large in the body volution, the ſpires a little rounded, not flat at the top, and the colour is never white; the ribs, too, are generally more in number.

We have taken it alive by dredging on the coaſt of *Devonſhire*, of a dark purpliſh colour, probably its uſual appearance in that ſtate: as all thoſe of a different colour from other places were dead ſhells, and deprived of much of their beauty.

10.
SINUOSUS.
Tab. 9. f. 8.

M. with a ſtrong, thick, white ſhell, with ſix coſtated volutions, tapering to a fine point: the ſpires are very little raiſed, and ſeparated only by a fine thread-like line: the ribs are ſeven on each ſpire, ſtrong, much elevated, and arched, but do not quite extend to the upper part of each: the whole ſhell is finely and regularly ſtriated tranſverſely, or acroſs the ribs, and is moſt conſpicuous in the depreſſions between them: aperture narrow, oblong-oval; canal ſhort, and not much contracted; at the upper angle is a deep *ſinus;* the outer lip is ſlightly thickened by a rib; inner lip replicated on the *Columella.* Length three-quarters of an inch; breadth a quarter.

We were favoured with this new, and rare ſpecies, by Mr. BRYER of *Weymouth,* who found it on the ſhore near that place. It is at once diſtinguiſhed from all other *Britiſh* ſpecies,

ſpecies, by the ſingular *ſinus* or gutter in the upper part of the outer lip:

Buccinum coſtatum.	*Da Coſta* p. 128. t. 8. f. 4.	11.
Murex coſtatus.	*Br. Zool.* No. 100. t. 79? inner quadrangle upper left figure.	COSTATUS.
	Pult. Cat. Dorſet. p. 43.	
	Don Br. Shells. iii. t. 91.	
Murex truncatus.	*Turt. Lin.* iv. p. 446.	

M. with ſix taper volutions, furniſhed with eight or nine elevated ribs, deſtitute of any ſtriæ, and frequently gloſſy: colour various; ſome are wholly of a deep purpliſh-brown, or chocolate, or partly mixed with white; others yellowiſh-white, with fine ſpiral ſtreaks of brown, that look like ſtriæ; and not unfrequently quite plain dull white, but ſuch muſt be conſidered as dead, and injured ſhells: aperture narrow, terminating in a canal, very little more contracted than the reſt of the mouth, and is nearly ſtrait; outer lip uſually thickened by a rib at the back, the margin thin; inner lip very little replicated. Length three-tenths of an inch at moſt; breadth one-eighth.

DA COSTA ſpeaks of this ſpecies from *Cornwall* and *Devonſhire*. We alſo found it in both thoſe counties, particularly at *Falmouth* in the former; and at *Biddeford* bay, and *Salcomb* bay, in the latter; but only alive in the laſt place. It is likewiſe met with on ſome of the ſandy ſhores of *South Wales*, eſpecially about *Laugharne*.

Doctor PULTENEY informs us, it is rare on the coaſt of *Dorſet*; and Mr. PENNANT notes it from *Angleſea*.

Mr. BRYER favoured us with it from *Weymouth*.

It does not, however, appear to be plentiful any where; and is rarely procured in a recent ſtate.

12.
ATTENUATUS.
Tab. 9. f. 6.

M. with an elegant, ſlender ſhell, with eight ſpires, regularly tapering to a very fine point, deſtitute of ſtriæ, and furniſhed with nine equidiſtant, ſtrong ribs: volutions ſcarcely raiſed, and ſeparated only by a very fine line; the ribs are arched, or undulated, as they riſe in the middle of each volution: aperture narrow, contracting a little at the canal, which is moderately long, and nearly ſtrait: outer lip thickened at the back with a rib; inner lip plain. Length half an inch; breadth one-eighth, or rather more.

This ſhell, which we do not find deſcribed by any author, appears to be very rare, never having been able to procure more than three or four ſpecimens; the firſt was in ſand from *Falmouth* harbour, others from *Biddeford* bay, of an inferior ſize: all of which were of the ſame plain, yellowiſh-white colour, without ſtriæ, or markings of any kind; one or two of which poſſeſſed a little gloſs between the ribs.

It bears ſome reſemblance to the *M. coſtatus*, but is much

much more elegant in ſhape, more contracted in the aperture, and formed with a greater number of volutions.

In ſize it is nearly double that of the *coſtatus*, and is readily diſtinguiſhed by its more ſlender form.

13. GRACILIS. Tab. 15. f. 5.

M. with a ſlender ſhell, with nine or ten coſtated volutions, tapering to a fine point: the ribs are eleven or twelve in number croſſed with numerous ſtriæ: theſe ribs do not continue throughout the ſhell, but are ſeparated at the juncture of each ſpire by a flat ſpace, at which part the tranſverſe ſtriæ are uninterruptedly continued in a ſpiral direction up the ſhell, like fine threads; at the baſe of the body whirl, which is deſtitute of ribs, the tranſverſe ſtriæ are ſtronger and more diſtant: the ribs are very convex or arched, giving the volutions a tumid appearance: aperture narrow; canal moderately long, aſcending; outer lip a little ſpread, margin arcuated; inner lip very ſlightly thickened. Length ſeven-eighths of an inch; breadth two-eighths.

This new, and elegant ſpecies, was picked up on the ſands of *Biddeford* bay in *Devonſhire*, and is the only one we could procure: the colour is yellowiſh, inclining to pale ferruginous in the ſutures, or diviſions of the ſpires.

14. NEBULA. Tab. 15. f. 6.

Murex acuminatus. *Br. Zool.* t. 79? inner quadrangle lower right hand.
Turt. Lin. iv. p. 446.

M. with eight taper, coſtated ſpires, terminating in a ſharp pointed *apex*, ſlightly, but elegantly reticulated, as if covered with fine gauze: the volutions are ſcarcely elevated between the ribs, and only ſeparated by a fine thread-like line: aperture narrow, oblong-oval, ending in a canal turning a little to one ſide; outer lip ſharp; inner lip replicate, ſmooth, gloſſy: colour various, ſometimes yellowiſh-white, others pale purpliſh-brown, or rufous; but the moſt beautiful variety is of a bluſh-colour, with the decuſſated ſtriæ white.

Worn ſhells, that have loſt the fine ſtriæ, might be confounded for the *M. coſtatus*, without proper attention: it is, however, in that ſtate aſcertained by the turn of the canal, by the aperture being much ſhorter and not ſo contracted, and by the ſuperior number of ribs, which is ten or eleven, and thoſe not ſo much elevated.

We have found this pretty ſhell at *Falmouth;* and on the north and ſouth coaſts of *Devonſhire*, particularly *Bideford* bay: and have received it from the ſouth coaſt of *Wales*, where it is not uncommon about *Tenby* and *Laugharne*. Alſo from *Weymouth*. It is, however, by no means plentiful, and good ſpecimens rare: the largeſt rather exceed half an inch in length; and two-tenths of an inch in breadth.

15.
SEPTANGULARIS Tab. 9. f. 5.

M. with ſeven or eight, ſtrong, ſmooth, taper volutions, terminating in a fine point, of a light purpliſh-brown colour

lour, and ſomewhat gloſſy; with ſeven longitudinal ridges, that run the whole length, ſcarcely interrupted by the ſeparating line: the ſides, or ſpace between the ribs, are but little concave, which gives the ſhell a heptagonal appearance: aperture oblong-oval, ending in a ſhort canal; outer lip ſharp at the edge, thickened at the back by a ridge, the upper part contracted to an angle, where the margin is a little indented; pillar lip a little replicated. Length five-eighths of an inch; breadth two-eighths; but rarely ſo large.

Sometimes this ſhell is white at the junction of each volution; worn ſpecimens are dull, opaque white.

We found this rare ſpecies firſt at *Falmouth*, and ſince alive in *Salcomb* bay, taken by dredging.

Have alſo received it, amongſt ſome ſmall ſhells, from Mr. BRYER, who found it at *Weymouth*.

16. FUSCATUS.

Murex fuſcatus. *Lin. Syſt.* p. 1225.
Gmel. Syſt p. 3562. 145.
Gualt t. 56 H.
Liſter Conch. t. 121 17.
Pult. Cat. Dorſet. p. 43.
Turt. Lin. iv. p. 458.
Turbo tuberculata. *Br. Zool.* t. 82. f 111*?
Turt. Lin. iv. p. 494.

M. with

M. with ten or twelve tuberculated ſpires, of a yelloweiſh-brown colour, tapering to a fine point; the volutions are curiouſly wrought, with three or four ſeries of crenulated ſtriæ between the tuberculated ſpiral ridges: aperture ſmall, oval, ending in a ſlight canal: the baſe ſpirally ſtriated.

The tubercles in large ſhells extend into ſtrong conic ſpires, on the lower volution; and ſometimes run together into a ſharp ſpiral ridge, like a ſcrew.

This very rare *Britiſh* ſhell has been found at *Weymouth* by Mr. BRYER; it was about an inch and a half in length, and half an inch broad at the baſe.

Mr. PENNANT's ſhell is of this ſize, and was found on the coaſt of *Northumberland.*

PETIVER has given the figure of a ſhell, very much like that in the *Britiſh Zoology*, but does not ſtate it to be *Engliſh.* Vide PETIVER's *Gazophylacium Naturæ*, Tab. 5. f. 5.

17.
TUBERCULARIS. M. with nine or ten, ſlender, taper, tuberculated volutions, ſeparated only by a ſlight depreſſion: colour cheſnut-brown: *apex* pointed; aperture ſmall, oval, ending in a canal, ſomewhat encloſed by the *Columella* turning inward. Length a quarter of an inch.

We

We found this ſpecies, in drifted ſand, at the month of the *Aun* in *Devonſhire*, ſparingly. It has alſo been picked up on the coaſt of *Sandwich*, by Mr. Boys.

18.

ADVERSUS.

Turbo turritus perverſus novem anfractibus punctatus apertura coarctata. *Walk. Min. Shells.* f. 48.
Chem. Conch. ix. t. 113. f. 966?
Turbo Punctatus. *Turt. Lin.* iv. p. 501.
Adams Microſc. t. 14. f. 21.

M. with ten or eleven, reverſed, tuberculated ſpires, tapering to a fine point: the volutions ſcarcely defined by the ſeparating line, with three ſeries of tubercles on each, the middle row ſmaller than the others: aperture oval, ending in a ſtrait canal: baſe with two or three ſmooth, ſpiral ridges. Length three-eighths of an inch; ſometimes, though rarely, half an inch; breadth not quite one-eighth. Colour opaque light brown.

This ſpecies has much the habit of the preceding, but is at once diſtinguiſhed by the volutions turning the contrary way.

It differs alſo a little in the ſhape of the aperture and canal: and particularly, in the middle ſeries of the tubercles being ſmaller.

We firſt received this ſhell from Mr. Boys, for that of Walker's above quoted; and have ſince found it ſparingly on the *Corniſh* and *Devonſhire* coaſts.

Strom-

19.
RETICULATUS.

Strombiformis reticulatus. *Da Coſta* p. 117.
Murex reticulatus. *Pult. Cat. Dorſet.* p. 43.
Borlaſe Corn. p. 277.

M. with eleven or twelve, much reticulated volutions, of a rufous-brown colour; ſtrong, ſlender, and tapering to a very fine point: on each volution are four ſpiral ridges, interſected by longitudinal furrows, running a little oblique, forming the whole ſurface equally reticulate: the ſeparating line ſmall, and not much depreſſed: aperture oval, angulated at the upper part, the lower end a little contracted into a ſlight canal, or gutter; outer lip thin, a little indented by the ſpiral ridge; pillar lip replicated; baſe not reticulated. Length five-eighths of an inch; rather more than one eighth broad.

This ſpecies is extremely common on ſome parts of the *Corniſh* coaſt, particularly in the ſand, dredged from *Falmouth* harbour for the purpoſe of manure: and frequently found adhering to ſhips cables in heaving the anchor.

It ſeems to grow more ſcarce eaſtward; though we have found the largeſt ſpecimens in *Devonſhire*. Is noticed by Doctor PULTENEY on the *Dorſetſhire* coaſt: and has very rarely been taken at *Sandwhich* in *Kent*. Have alſo met with it in *South Wales*.

A variety has one or two ſtrong ribs croſſing ſome of the volutions.

This

This ſhell may eaſily be diſcriminated from the *M. tubercularis* by the aperture, which is only a little contracted at the end, forming a ſub-canal; whereas the other is a perfect ſlender tail, or gutter.

20.

Murex quinque anfractibus ſpiraliter ſtriatis, coſtis remotis, canali clauſo. *Lin. Trans.* iii. p. 65. *(Adams.)* MINUTISSIMUS?

Shell with five ſpiral ſtriated whorls, and remote ribs: beak cloſed. *Turt. Lin.* iv. p. 460.

A minute, elegant, and pellucid ſhell, from the coaſt of *Pembrokeſhire*.

GEN XXVI.

TROCHUS.

Animal a LIMAX.

SHELL, univalve, ſpiral, ſub-conic.

Aperture, ſub-tetragonal, in ſome angulated, in others rounded; tranſverſely contracted.

Columella, oblique.

1. ZIZIPHINUS.

Trochus ziziphinus. *Lin. Syſt.* p. 1231.—*Gmel. Syſt.* p. 3579. 80.
Chem. Conch. v. t. 166. f. 1592. 1594.
Liſter Conch. t. 616. f. 1.—*Id. Angl.* t. 3. f. 14.
Br. Zool. t. 80. f. 103.
Da Coſta. p. 37. t. 3. f. 2. 2.
Borlaſe Corn. t. 28. f. 7.
Turt. Lin. iv. p. 472.
Pult. Cat. Dorſet. p. 44.
Don. Br. Shells. ii. t. 52.
Trochus Conulus. *Br. Zool* t. 80. f. 104.

T. with a conic ſhell, terminating in a very fine point, with ſeven or eight volutions, wrought with ſeveral ſpiral ridges;

ridges; the firſt of theſe in each volution is larger, and more prominent than the reſt, and ſerves to mark their diviſions: colour livid, or reddiſh; in ſome darker, and of a purpliſh hue, ſtreaked with longitudinal, broad, waved lines of a deeper ſhade, which are moſt diſtinct on the larger ridge, at the bottom of each volution: aperture ſomewhat compreſſed, angulated: inſide nacred: baſe flattiſh, with circular ridges, generally of a paler colour than the reſt of the ſhell, and without ſpots; imperforated.

The upper volutions are frequently finely tuberculated, but not eaſily perceived by the naked eye.

It is a common ſpecies on many of our ſhores; plentiful about *Marazion* in *Cornwall*, and on the coaſt of *South Devon;* frequently found with *Turbo littoreus*, adhering to ſtones, between high and low-water mark. Length one inch; breadth at the baſe nearly the ſame.

Animal yellowiſh, mottled with reddiſh-brown; *tentacula* filiform, rufous-brown, paler beneath; eyes pedunculated; on each ſide the body above the *ſuſtentaculum*, four very ſmall filiform appendages on each ſide.

2.
TENUIS.
Tab. 10. f. 3.

Trochus fragilis. *Pult. Cat. Dorſet.* p. 44.
Trochus papilloſus. *Da Coſta*, p. 38. t. 3. f. 3?
Gualt. t. 61. G. M.
Trochus Granatum. *Gmel. Syſt.* p. 3584?—*Turt. Lin* iv. p. 476?
Chem. Conch. v. t. 170. f. 1654—5?

T. with a thin, fragile, conic ſhell: in ſhape and general appearance much like *T. ziziphinus;* but is readily diſtinguiſhed by the fine granulated ridges that compoſe each volution, without the larger one at the baſe of each, ſo conſpicuous in that ſhell. The aperture is not ſo much angulated; the baſe more rounded, and marked with numerous, ſmall, reddiſh ſpots, never obſerved in the other ſpecies; the volutions too are more rounded; and the ſhell not ſo thick and ſtrong: baſe imperforated: the *Columella* reflects a little, and forms a ſmall ridge and depreſſion in the place of an *umbilicus:* colour brown, with broad, longitudinal, deeper coloured ſtripes; ſometimes fleſh-coloured, with a few faint pink markings. Length an inch and a quarter; breadth rather leſs.

This ſpecies has probably been confounded with the *T. ziziphinus*, and may poſſibly be the variety of that ſhell deſcribed by LINNÆUS, in the *Muſeum Reginæ*, as being *tota pallida anfractibus baſi gibbis, ſtriatis, ſubtiliſſime punctis papilloſis.*

Doctor PULTENEY, who favoured us with this ſhell, ſays it is found on the north ſhore at *Poole*, and at *Weymouth.*

DA COSTA's deſcription anſwers in moſt reſpects; but his ſhell is ſtated to have a wide and deep cavity at the baſe, at the bottom of which a tortuous *umbilicus* is ſeen.

This, however, his figure does not in the leaſt expreſs; he adds alſo, that the inſide is white, but not pearly: this might

might be in a dead and worn ſpecimen, but in recent ſhells that part is of a fine pearlaceous hue. Poſſibly ſome variety of this ſpecies may be umbilicated, as in ſome ſpecimens we have ſeen a ſtrong inclination towards it. DA COSTA received his from *Cornwall*, but ſays, he never met with it from any other *Britiſh* coaſt.

Not *T. fragilis* of GMELIN; have therefore not adopted Doctor PULTENEY's name, which at the time of writing he had probably overlooked the circumſtance of its being preoccupied for a different ſhell.

3.
EXIGUUS.

Trochus exiguus.	*Pult. Cat. Dorſet.* p. 44.
	Liſter. Conch. t. 616. f. 2.
Trochus exaſperatus.	*Br. Zool.* No. 105.
Trochus Conulus.	*Da. Coſta.* p. 40. t. 2. f. 4. 4.
	Don. Br. Shells. i. t. 8. f. 2.
Trochus erythroleucos.	*Gmel. Syſt.* p. 3581?
	Turt. Lin. iv. p. 473?
	Chem. Conch. v. t. 162. f. 1529. a. b.

T. with a ſtrong conic ſhell, with ſix volutions, terminating in a fine point; each volution wrought with four or five ſmall, ſpiral, crenated ridges: the wreaths defined by a broad, and more elevated ridge, finely cut diagonally with ſtriæ, or notches, that give it the appearance of twiſted cord; the interſtices between the ridges, are very finely ſtriated in the ſame direction: colour various, cinereous-brown, or purpliſh: the larger ridge frequently red,

and

and ſometimes ſpotted with white: the *apex* almoſt uniformly of a fine deep crimſon: the baſe imperforated, marked with circular ridges: aperture angulated; inſide white, not pearlaceous. Length rarely three-eighths of an inch; breadth a quarter of an inch.

This is not the *T. Conulus* of LINNÆUS. It has much the habit of *T. ziziphinus*, but on compariſon will be found perfectly diſtinct; that ſhell not poſſeſſing the fine crenulated ridges, ſo conſpicuous in this ſpecies; is alſo more pyramidal than that ſhell; and moſt times readily diſtinguiſhed by the crimſon tip.

DA COSTA received it from the coaſt of *Devonſhire;* and ſays that it is not uncommon on the *Suſſex* coaſt.

Doctor MATON in his *Weſtern Tour* ſays, he found it at *Treryn cove*, near the lands end, in *Cornwall.*

Doctor PULTENEY gives it as a *Dorſet* ſhell, but ſpeaks of it as rare. We have not been fortunate enough to find it either on the *Devon* or *Corniſh* coaſts, and conſider it as a ſcarce ſhell in *England*, never having occurred to us, except on the ſhore between *Weymouth* and *Portland.*

4. STRIATUS.

Trochus ſtriatus. *Lin. Syſt.* p. 1230.—*Gmel. Syſt.* p. 3579. 78.
Pult. Cat. Dorſet. p. 44.
Turt. Lin. iv. p. 471.—*Gualt.* t. 61. f. N.
Liſter Conch. t. 621. f. 8.

Trochus

Trochus ſtriatus. *Chem. Conch.* v. t. 162. f. 1527. 28.
Trochus parvus. *Da Coſta* p. 41.

T. with a conic ſhell, tapering to a fine point: volutions ſix, flat, and ſcarcely defined by any ſeparating line; each wrought with eight or nine fine ſpiral ridges, interſected by very ſmall longitudinal ſtriæ, moſt conſpicuous in the larger volutions: colour cinereous, with interrupted, longitudinal, dark, purpliſh-brown lines; ſometimes of a dull crimſon or purpliſh hue, with darker lines of the ſame colour; the ſtreaks in ſome are broad, in others narrow: aperture angulated; inſide pearlaceous, except at the margin of the lip: baſe flat, with fine circular ridges: imperforated. Size of the *exiguus*, and has much the habit of that ſhell, but is readily diſtinguiſhed, not only by the colour, but by being broader at the baſe, and in wanting the large ſpiral ridge at the bottom of each volution; as well as the crimſon tip. The pearlaceous inſide appears alſo another diſtinguiſhing character, as well as the ſuperior number, and fineneſs of the ridges on each volution.

We have found this ſpecies plentiful amongſt ſand from *Falmouth* harbour; and not uncommon in *Devonſhire*, particularly in one part of *Salcomb* bay, where we have taken them alive from the rocks at extraordinary low tides; but are ſeldom uncovered by the water. It is alſo found on the *Dorſet* coaſt ſparingly. Is not the *T. parvus* of Mr. Adams given in the *Linnæan Tranſactions*, vol. iii. t. 65. the young of this ſpecies?

Trochus.

5.
TUMIDUS.
Tab. 10. f. 4. 4.

Trochus Naſſavienſis. *Chem. Conch.* v. t. 171. f. 1676 ?

T. with a ſtrong, ſub-conic, tumid ſhell, with five volutions, wrought with extremely fine, cloſe-ſet, ſpiral ſtriæ, interrupted only by a deep ſeparating line; the volutions project conſiderably, but are not rounded: the point is ſmall, but not taper; at the bottom of the body whirl is a ſub-carinated edge: the baſe is a little rounded, and furniſhed with a ſmall *umbilicus*, frequently decreaſing with age, and ſometimes almoſt cloſed in the larger ſhells: aperture ſub-quadrangular, pearlaceous within: colour principally cinereous-brown, ſometimes with a yellowiſh caſt, and rarely of a dark purpliſh-brown; all more or leſs ſtreaked with fine, obſcure, undulated lines, longitudinally: the purpliſh coloured ſpecimens are ſometimes ſpotted with white at the top of each volution. Length ſeldom more than a quarter of an inch, and never quite three-eighths; breadth uſually more than its length. The outer coat of this ſhell is extremely thin, under which the mother of pearl, gives it a ſingular bronze appearance, in ſome particular points of view.

This may be conſidered by no means a plentiful ſpecies. We have hitherto only taken it alive, by dredging, in *Salcomb* bay, where it is frequently found adhering to ſtones and broken ſhells: dead ones are met with ſometimes on other parts of the coaſt of *Devon*, particularly at *Torcroſs*, amongſt *algæ* brought on ſhore by the ſeine, and other fiſhing nets; theſe are moſt times occupied by the ſmaller *Cancer Bernardus*.

Have

Have alſo received a ſingle ſpecimen from *Wales*, and another from *Kent;* and obſerved one in Mr. BRYER's cabinet at *Weymouth*, found on that ſhore.

Animal pale, with a few duſky ſpots above at the poſterior end, and a tranſverſe ſtreak of the ſame behind the lip: *tentacula* two, ſetaceous; eyes black, placed on pedicles behind the *tentacula*, and capable of turning about in various directions: on the ſides of the poſterior end are four ſlender appendages, originating from under the corneous *operculum*, which is fixed to that part.

6.
CRASSUS.

Trochus craſſus. *Pult. Cat. Dorſet.* p. 44.
Trochus lineatus. *Id.* p. 44.
Turbo lineatus. *Da Coſta* p. 100. t. 6. f. 7.
Don. Br. Shells. ii. t. 71.
Turt. Lin. iv. p. 480.

T. with a ſtrong, thick, ſub-conic ſhell, with five rounded volutions, ſeparated by a ſmall depreſſed line: *apex* moderately pointed when perfect, but generally worn and decorticated; colour cinereous, or light brown, covered with fine, cloſe ſet, zigzag lines, of purpliſh-brown; and ſometimes dark purpliſh-black: aperture rounded on the outer lip, angulated at bottom, furniſhed at that part with a blunt, tooth-like protuberance; outer lip acute, inner margin purpliſh; pillar lip ſmooth, white, not pearly; the white part extends almoſt acroſs the baſe, and is a little flattened as if worn, but is an invariable character: in ſome a ſlight

 umbilicus,

umbilicus, others totally devoid of ſuch a mark: inſide pearlaceous. Length an inch; breadth rather leſs.

This ſpecies varies a little in ſhape; ſome are more conic, and the volutions more round and tumid than others; but are always readily diſtinguiſhed from any other of the genus by the tooth, and the flat white ſpace at the baſe.

The outer coat is rather thick, but when removed, the whole ſhell except the *apex*, is of a beautiful mother of pearl.

DA COSTA, who firſt noticed this ſhell from *Cornwall*, *Devonſhire*, *Dorſetſhire*, *Caernarvonſhire*, *Hampſhire*, and *Norfolk*, has placed it in the *Turbo* genus, from the ſub-orbicular ſhape of the mouth. It is, however, ſufficiently angulated to rank it amongſt the *Trochi*.

We have found it plentiful in many of the places mentioned by DA COSTA, particularly on the rocks at *Marazion* in *Cornwall*, not unfrequent near *Falmouth*, and very common on many parts of the coaſt of *South Devon*.

It is always found adhering to rocks, or looſe ſtones, and ſeldom below mid-tide.

Doctor PULTENEY ſent us the young of this ſhell, rather more than half grown, for his *Trochus lineatus*.

Animal duſky-cinereous, frequently ſpeckled with white, with two long, ſlender, pale *tentacula*, ſtreaked tranſverſely,

ly, or annulated with black: eyes at the baſe of the *tentacula* behind, placed on ſhort, broad pedicles: margin of the body, above the *fuſtentaculum*, furniſhed with a ſcalloped, fin-like membrane; beneath which, on each ſide, are three long filiform appendages annulated with black, that are continually in motion: behind the left eye is a ſort of plume, compoſed of ſeveral ſimple contiguous fibres.

7.

Trochus Magus. *Lin. Syſt.* p. 1228.—*Gmel. Syſt.* p. 3567. 7. MAGUS.
Liſter Conch. t. 640. f. 32?
Chem. Conch. v. t. 171. f. 1656 to 1660.
Br. Zool. t. 80. f. 107.—*Turt. Lin.* iv. p. 462.
Pult. Cat. Dorſet. p. 44.
Don. Br. Shells. i. t. 8. f. 1.
Trochus tuberculatus. *Da Coſta.* p. 44. t. 3. f. 1. 1.

T. with five or ſix, tumid, but rather depreſſed volutions, marked by a deep ſeparating line, and terminating in a very fine point: the volutions are wrought with fine ſpiral ridges, or ſtriæ, and the upper part of each undated, or tuberculated, moſt conſpicuous in the two largeſt: colour various, but moſt times white, or bluſh, elegantly marked with undulated ſtripes and blotches of crimſon, purple, or cheſnut-brown; and ſometimes prettily ſpotted all over with pink: aperture compreſſed, angulated: *umbilicus* large and deep. Size, uſually about an inch diameter at the baſe, and three-quarters of an inch high; ſometimes, though rarely, an inch and a half broad.

The young of this ſpecies is frequently of a plain, light-brown colour, ſtrongly marked with cloſe-ſet, longitudinal ſtriæ between the ridges: the baſe projecting into a ſub-carinated edge, above which the ſulcus is crenated.

It is not uncommon on many of our ſhores; very plentiful at *Falmouth*, amongſt the ſand from the harbour, of an extraordinary ſize; but moſtly worn, and mutilated.

We have taken it alive, by dredging, in *Salcomb* bay, and other parts of *Devonſhire;* but is rarely found in that ſtate above the loweſt water-mark.

Animal with two moderately long, ſetaceous *tentacula*, annulated with black; behind which, at the baſe, are placed the eyes on peduncles: upper lip ciliated: the ſides of the body furniſhed with ſeveral filiform appendages.

3 CINERARIUS.

Trochus cinerarius. *Lin. Syſt.* p.1229.—*Gmel Syſt.* p.3568.12. *Liſter Conch.* t. 641. f. 31.—*Id Angl.* t. 3. f. 15?
Chem. Conch. v. t. 171. f. 1681? f. 1686.
Br. Zool. No.106.*—*Turt. Lin.* iv. p.463.
Don. Br. Shells. iii. t. 74. two upper and two lower figures.
Trochus lineatus. *Da Coſta.* p. 43. t. 3. f. 6. 6.

T. with a conic, ſpirally ſtriated ſhell, not quite regularly taper, but terminating in a ſmall produced *apex:* the volutions

volutions are not much raiſed, but ſeparated by a fine line: colour cinereous, marked with fine, approximate, undulated lines of brown; ſometimes of a purpliſh hue, that cover the whole ſhell in a longitudinal direction: aperture angulated; *umbilicus* ſmall, but deep. Size at the baſe five-eighths of an inch diameter; height the ſame. Young ſhells are more flattened, or at leaſt are broader in proportion to their height; but the *apex* is always produced and pointed.

This is a very common ſpecies on moſt of our ſhores, but has frequently been confounded with the next, though ſo eſſentially different.

Doctor PULTENEY has certainly fallen into this error, in making the *T. cinerarius* of PENNANT, and the *umbilicalis* and *cinereus* of DA COSTA the ſame.

Animal very like that of the *T. craſſus*, but paler; *tentacula* and *cirri*, or feelers on the ſides of the body, rather leſs annulated, the former in ſome points of view appear ſlightly ciliated: on the forehead a ſcalloped membrane divided in the middle. In a very pretty drawing executed by Mr. HENRY BOYS, we perceive four ſlender filaments on one ſide of the body and three on the other; but in all thoſe we have examined there were only three on each ſide; and were deſtitute of the plume, obſervable in the animal of *T. craſſus*. It is probable theſe *cirri* on the ſides may belong to the whole of this genus.

Trochus

9.
UMBILICATUS.

Trochus umbilicaris. *Br. Zool.* t. 80. f. 106.
Liſter. Conch. t. 640. f. 29?
Chem. Conch. v. t. 171. f. 1685.
Trochus umbilicalis. *Da. Coſta.* p. 46. t. 3. f. 4. 4.
Trochus cinerarius. *Pult. Cat. Dorſet.* p. 44.
Don. Br. Shells. iii. t. 74. three middle figures.

T. with a ſtrong, flattiſh ſhell, rounded at the top; the *apex* depreſſed, and not pointed: the volutions are five, nearly even, defined only by a fine, thread-like line, and wrought with nearly obſolete ſpiral ſtriæ: colour white, or greeniſh, marked with longitudinal, waved, or zigzag lines of a light or dark purple: aperture compreſſed, angulated: *umbilicus* large, and perforated to the *apex*. Diameter, at the baſe, three-quarters of an inch; height not five-eighths of an inch. Young ſhells are extremely flat; thoſe of three-eighths of an inch at the baſe, ſcarce riſe in height one eighth.

No two ſhells ſeem to have puzzled conchologiſts more than this and the preceding, and even the later authors have heaped confuſion upon confuſion; ſome have made them the ſame, others have reverſed their trivial names, or multiplied them into three diſtinct ſpecies, from ſome accidental markings. Mr. PENNANT, though very conciſe, ſeems to have defined the diſtinction pretty well; but has erred in marking this ſhell the *umbilicaris* of LINNÆUS; that ſpecies is very different, and not found in *England*.

Upon

Upon a ſtrict examination of a great variety of both theſe ſpecies, we are aſtoniſhed they could ever have been confounded. This ſhell is invariably more rounded at the top, more compreſſed or flattened, and the *apex* more depreſſed; and, what is remarkable, the *apex* is ſo thinly covered, that it is uſually worn, and the *Columella* becomes pervious; ſo that if a ſmall pin is introduced at the *umbilicus* the point may be felt at the *apex*.

In the colour they are eſſentially, and invariably different; the ſtreaks of this are always broader, and of a much finer colour; whereas the *cinerarius* is conſtantly of a dull cinereous, with the ſtreaks ſo fine and regularly diſpoſed, as to make the ſhell appear longitudinally ſtriated.

Animal much like that of *T. cinerarius*, but darker and more ſtrongly marked with black annulations on the *tentacula*, and lateral *cirri:* eyes pedunculated the ſame, and ſituated behind or rather on the outſide of the *tentacula*.

10.
TERRESTRIS.

Trochus terreſtris. *Br. Zool.* t. 80. f. 108.
Don. Br. Shells. iv. t. 111.
Chem. Conch. ix. t. 122. f. 1045. a. b. c.
Liſter Conch. t. 61. f. 58.
Favan. t.64. O. 1.3.— *Turt. Lin.* iv. p.471.
Petiver Gaz. t. 22. f. 10.
Trochilus exiguus quatuor ſpirarum elegantiſſime ſtriatus. *Morton Northamp.* p. 416.
Trochilus terreſtris Mortoni *Da Coſta.* p. 36.
Trochus terreſtris tertius. *Id.* p. 36.

T. with

T. with a thin, conic ſhell, of a livid-white colour, with five or ſix volutions nearly flat, finely ſtriated longitudinally, divided by a very ſmall depreſſed line, and a prominent ridge at the baſe of each: *apex* produced, but not very pointed: aperture much compreſſed, angulated: baſe flat, ſtriated from the centre; umbilicated: round the baſe a ſtrong carinated edge. Diameter rather more than a quarter of an inch; height not quite ſo much.

There can be little doubt but this is the ſame as that found by MORTON in *Northamptonſhire*, and afterwards by Mr. HUDSON in the mountains of *Cumberland*, communicated to Mr. PENNANT. DA COSTA does not appear to have been acquainted with this ſhell, but has taken his deſcription from the authors above quoted. He alſo gives another ſpecies, which he calls *Trochus terreſtris Liſteri*, and quotes LISTER's *Anglica*, MORTON's *Northampton*, and the *Philoſophical Tranſactions*. This we are inclined to think is our *Helix trochiformis*.

The *Trochus terreſtris* is the only true land ſhell of that genus found in *England*, and may be conſidered as very rare. It may not however be improper to remark in this place, that many of the long *Turbines* may readily be miſtaken for *Trochi* in their infant ſtate, when only three or four volutions are formed; the baſe of which is generally flat, and the aperture tranſverſely compreſſed.

Such we have frequently received from our friends for new ſpecies of *Trochi;* in particular the *Turbo Muſcorum*.

11.
FUSCUS.

Trochus fuſcus. *Turt. Lin.* iv. p. 471.
Adams Microſc. t. 14. f. 24.
Trochus umbilicatus quinque anfractibus marginatus apertura ſubrotunda. *Walk. Min. Shells.* f. 58.

The five-ſpired, umbilicated, marginated top ſhell, with a roundiſh aperture.

The colour opaque-brown. From *Sandwich;* common.

Not being acquainted with this ſpecies, we have been obliged to copy Mr. WALKER's deſcription. The figure given is about the ſize of our *T. tumidus;* poſſibly a variety of that ſpecies, unleſs a ſmall figure was forgot to be given.

12.
CINEREUS.

Trochus cinereus. *Da Coſta.* p. 42. t. iii. f. 5. 5.

This ſpecies, which DA COSTA ſpeaks of as common in *Suſſex, Eſſex, Cornwall, Cheſhire, Northumberland,* and in the *Orknies,* we have never been fortunate enough to identify; poſſibly it is only a variety either of the *T. cinerarius,* or *T. umbilicatus.*

Doctor PULTENEY conſidered it as a variety of the former: but, notwithſtanding, we think it right to give it a ſeparate place, on account of ſome characters which muſt create a doubt of its being either of thoſe ſhells.

It is thus deſcribed: "The ſhell is thick and ſtrong, of

the ſize of a cherry, ſhape obtuſely pyramidal, or not quite tapering to a point.

The baſe is very concave, with ſome circular furrows; the mouth roundiſh and capacious, within fine mother of pearl; the outer lip ſmooth and even: the inner, or pillar lip, has two jags or ſlight teeth, and two furrows croſsing it tranſverſely: from hence it widens, runs oblique, and forms a ſpacious cavity, at the bottom of which lies the *umbilicus*, deep, cylindric, and ſo hollow as to admit the head of a large pin. All this part is of a dark aſh, greatly variegated with blackiſh lines or ſtreaks, which run lengthways and acroſs: but the beginning of the *umbilicus* is generally pearly, and of a fine light greeniſh colour. The body and turban have five bellied, or ſwelled, wreaths or whirls, ſeparated by a very depreſſed line; they are circularly ſtriated, but faintly, and the colours are exactly the ſame as on the baſe.

The outer coat being taken off, the whole ſhell is fine mother of pearl.

DA COSTA has quoted WALLACE, LISTER's *Conchology*, DALE, and WALLIS, but we can find nothing that throws more light upon the ſubject.

The ſtructure of the aperture certainly indicates a diſtinct ſpecies, as none of the *Britiſh Trochi* poſſeſs any thing like two teeth, as a permanent character; at the ſame

ſame time, ſo common a ſhell as it is deſcribed to be, can hardly be ſuppoſed to eſcape the notice of concholo-giſts of the preſent day.

We muſt, therefore, either conclude DA COSTA was deceived with reſpect to its being common; that it is only a variety of one of the more plentiful ſpecies; or ſuſpect that the ſhell in queſtion is foreign, as is the figure quoted in LISTER, tab. 633.

END OF PART I.

Nokes, Printer, Romsey.

TESTACEA BRITANNICA

or

Natural History

of

BRITISH SHELLS,

MARINE, LAND, and FRESH-WATER

including the most minute

ILLUSTRATED and FIGURED

in

ORDER, GENUS, and SPECIES.

TESTACEA BRITANNICA

OR

Natural History

OF

BRITISH SHELLS,

MARINE, LAND, and FRESH-WATER,

including the most minute: systematically arranged and

EMBELLISHED with FIGURES,

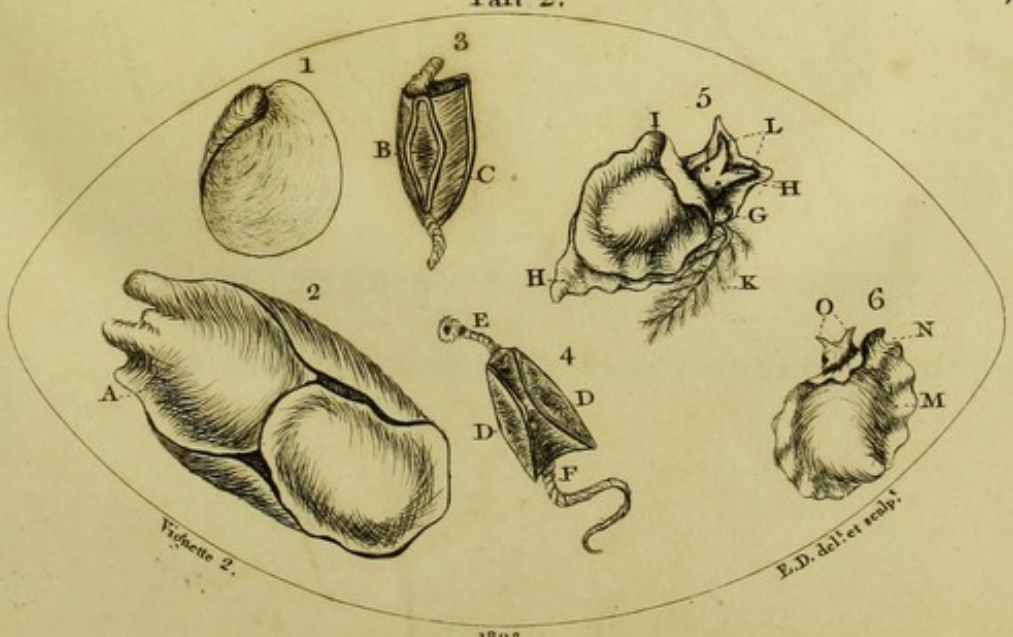
BY

GEORGE MONTAGU. F.L.S.

These are thy glorious works, thou source of good,
How dimly seen, how faintly understood!

Cowper.

Part 2.



1803.

TESTACEA BRITANNICA;

OR,

BRITISH SHELLS.

PART II.

PRINTED BY J. S. HOLLIS, ROMSEY:

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GEN. XXVII.

TURBO.

Animal a LIMAX.

SHELL, univalve, ſpiral.

Aperture, contracted, orbicular, entire.

*MARINE.†

1. TEREBRA.

Turbo Terebra. *Lin. Syſt.* p. 1239.—*Gmel. Syſt.* p. 3608.
Martini Conch. iv. t. 151. f. 1415. to 1419.
Liſter Conch. t. 590. f. 55?—t. 591. f. 57.
Id. Angl. t. 3. f. 8.
Br. Zool. t. 81. f. 113.
Don. Br. Shells. i. t. 22. f. 2.
Turt. Lin. iv. p. 497.
Strombif. Terebra. *Da Coſta.* p. 112. t. 7. f. 5. 6.
Turbo ungulinus. *Pult. Cat. Dorſet.* p. 45.

T. with

† It was not thought requiſite in a partial work, to follow the *Linnæan* ſubdiviſions in each genus; we have therefore divided this genus into Marine and Land: to the laſt are added all the freſh-water ſhells, and the reverſed, or *heteroſtrophe* ſpecies, are brought together at the end, for the facility of compariſon.

T. of a long, taper ſhape, with from twelve to ſixteen volutions, terminating in a very fine point; the larger whirls are ſomewhat rounded, the ſmaller ones leſs diſtinct, marked with many fine, ſpiral ſtriæ, or ſharp elevated ridges: colour light-brown, ſometimes rufous-brown: aperture orbicular; outer lip thin, fragile, and ſemi-pellucid. Length generally about an inch and a half, ſometimes two inches; breadth at the baſe five-eighths of an inch.

Worn ſhells, that have loſt the outer coat, are frequenly marked with ſtreaks of cheſnut-brown, or with an interrupted ſpiral belt. This ſpecies is not uncommon on ſome of our ſhores, but moſtly mutilated. We once found it alive, in great abundance, adhering to *algæ*, thrown up at *Dawliſh* in *Devonſhire*, after a ſevere ſtorm: and have dredged it up from *Salcomb* bay, and other parts of the ſame coaſt.

Doctor PULTENEY conſidered this as the *T. ungulinus* of LINNÆUS, and not the *Terebra*. GMELIN, however, quotes MARTINI's figures, which are certainly this ſhell; and does not quote any author for the *ungulinus* but MULLER.

Poſſibly both theſe ſhells are mere varieties, with the ſpiral ridges more or leſs numerous and prominent.

Animal yellowiſh, ſtriped with duſky: *tentacula* two, ſhort, with the eyes placed at their baſe.

Strombif. cinctus. *Da Coſta.* p. 114. t. 7. f. 8.
Martini. Conch. iv. t. 152. f. 1423.
Liſter Conch. t. 592. f. 60.
Turbo cinctus. *Don. Br. Shells.* i. t. 22. f. 1.
Turbo variegatus. *Lin. Syſt.* p. 1240?—*Gmel. Syſt.* p. 3608?
Turbo exoletus. *Turt. Lin.* iv. p. 496.

T. of a long taper ſhape, with twelve or fourteen volutions, rather raiſed, and ſeparated by a deep depreſſion; wrought with obſolete ſpiral ſtriæ, with two ſtrong, elevated ridges in the middle of each volution: colour white, or purpliſh, marbled and variegated with cheſnut, generally in longitudinal, undulated ſtreaks; *apex* ſharp pointed: aperture orbicular. Length two inches and a half; breadth at the baſe, five-eighths of an inch.

This is a much ſtronger ſhell than the preceding ſpecies, and is at once diſtinguiſhed by the two remarkable, elevated ridges. DA COSTA received it from the coaſt of *Lincolnſhire*, and *Lancaſhire*, and ſuſpected it to be the *T. exoletus* of LINNÆUS. MARTINI's figure above quoted, expreſſes the ſhell pretty well, and which GMELIN has referred to for the *T. variegatus*. Doctor TURTON has conſidered it the *exoletus* by his quotations.

This is certainly a very rare ſpecies on the *Engliſh* coaſt.

We have received it from *Sandwich* in *Kent*.

This and the preceding ſpecies are the two moſt perfectly turrited ſhells of the larger ſpecies found in *England*;

land; for we cannot conſider *Turbo duplicatus* of LINNÆUS, at preſent, as properly belonging to the ſhells of *Great Britain.*

LISTER had no better authority for placing it in his *Anim. Angliæ* tab. 3. fig. 7. than that he bought it of a fiſherman at *Scarborough.* On the ſame ground PENNANT admitted it into the *Br. Zoology,* fig. 112. DA COSTA did the like, under the title of *Strombiformis bicarinatus,* tab. 6. f. 3. DONOVAN, following theſe examples, has figured it in his *Br. Shells,* tab. 102. Well aware from experience, that the ſimple authority of a fiſherman is not ſufficient to ſtamp its validity, we have omitted it in our catalogue, thoroughly believing it never has been found on the *Britiſh* coaſt. Is generally ſuppoſed to be an oriental ſpecies.

3.
CLATHRUS.

Turbo Clathrus. *Lin. Syſt.* p. 1237.—*Gmel. Syſt.* p. 3603. 63.
Borlaſe Corn. t. 28. f. 9.
Liſter Conch. t. 588. f. 51.
Martini Conch. iv. t. 153. f. 1434. to 1438.
Br. Zool. t. 81. f. 111. 111. A.
Pult. Cat. Dorſet. p. 45.
Don. Br. Shells. i. t. 28.
Turt. Lin. iv. p. 493.
Strombif. clathratus. *Da Coſta.* p. 115. t. 7. f. 11.

T. with from nine to twelve taper ſpires, terminating in a fine point; the volutions extremely rounded, ſeparated by a deep depreſſion, and regularly barred the whole length

length of the ſhell, with from nine to twelve regular, and diſtant, high, membranaceous ribs, running a little oblique: aperture orbicular, margin thickened by a rib that ſurrounds it: colour white, ſometimes with a few brown markings. Length an inch and an half; breadth at the baſe half an inch. Exotic ſpecimens are frequently larger, and have the ribs and markings ſtronger.

This elegant ſpecies, which much reſembles that once coſtly and much coveted ſhell, the *Wentle-trap*, is found on ſeveral parts of our coaſt, but no where plentiful. We have taken it at *Falmouth* in *Cornwall*, and on the ſhores of *South Devon*; but ſeldom perfect, except ſmall ones.

Young recent ſpecimens are beautifully white, and poliſhed between the ribs.

Da Costa ſpeaks of it as plentiful on the eaſtern coaſts of *Wales*, and in *Scotland*. Is alſo found in *Dorſetſhire* and *Kent*.

4.

Turbo clathratus ſex anfractibus apertura ovali marginata. CLATHRATULUS
Walk. Min. Shells. f. 45.
Turbo Clathratulus. *Turt. Lin.* iv. p. 500.
Adams Microſc. t. 14. f. 19.

This ſpecies originally deſcribed by Mr. Walker, differs in nothing from the preceding, except in ſize, and in the number of volutions, and ribs. We were firſt favoured

voured with a ſpecimen of this ſhell from Mr. Boys, with reference to the figure in *Teſta minuta rariora:* have ſince found it on the coaſt of *South Devon* ſparingly; and have received it from Mr. Bryer of *Weymouth,* as a ſhell of that ſhore.

It has generally five or ſix volutions, and the ribs are about fifteen in number, placed nearer together, and the ſhell rather more ſlender than the *T. Clathrus,* of the ſame ſize: there is, however, ſo much ſimilitude, that doubts muſt be entertained whether they are really diſtinct, eſpecially as the number of ribs in that ſhell is apt to vary; nor does there appear any eſſential difference in the aperture, although Mr. Walker calls it oval.

5. Elegantissimus. Tab. 10. f. 2.

Turbo turritus novem anfractibus ſtriatis apertura rotunda. *Walk. Min. Shells.* f. 39.

T. with from nine to thirteen flat ſpires, well defined by the ſeparating line; long, taper, and terminating in a fine point; the volutions are cut longitudinally into regular, equidiſtant furrows, the whole length of the ſhell, ſcarcely interrupted by the ſeparating line, and run a little oblique to the right; the *ſulci* are moderately deep, but not ſo broad as the elevated ridges: aperture ſub-orbicular, a little angulated at the upper and lower parts; inner lip ſomewhat reflected: colour gloſſy, ſemi-pellucid, white. Length commonly a quarter of an inch, rarely three-eighths; breadth not a fourth part of its length. A

remark-

remarkable character of this ſhell is, that the extreme ſpire turns perpendicularly upward, and then downward on the volution beneath, making half a lateral turn.

Mr. WALKER, who ſpeaks of this ſpecies as very rare at *Sandwich*, could only have taken his deſcription from ſmall and worn ſpecimens, as he ſtates it to have but nine ſpires, and to be opaque. In that ſtate we received it from Mr. BOYS for the ſhell above quoted. We have found it not uncommon in ſand from *Falmouth* harbour; and more rarely on the coaſt of *Devon*, but have obtained it alive from *Salcomb* bay in the ſouth, and from *Ilfracomb* in the north: in this ſtate it is covered with a brown *epidermis*, which obſcures the beauty of the ſhell.

6.

T. with nine extremely ſlender, ſmooth, pellucid-white ſpires, terminating in a fine point: the volutions greatly raiſed and much rounded, ſeparated by a deep depreſſion: aperture ſub-orbicular; inner lip a little reflected. Length one eighth of an inch. NITIDISSIMUS. Tab. 12. f. 1.

We found this ſpecies in ſand from *Falmouth* harbour, very rare.

7.

Turbo turritus ſeptem anfractibus ſtrigatis apertura ovali. *Walk. Min. Shells* f. 40. UNICUS. Tab. 12. f. 2.

Turbo albidus. *Turt. Lin.* iv. p. 500.
Adams Microſc. t. 14. f. 17.

T. with nine ſlender, gloſſy, pellucid-white ſpires, terminating in a fine point; the volutions rounded, ſeparated by a deep depreſſion, and wrought with fine longitudinal ridges, or ſtriæ, ſomewhat undulated; the intermediate ſpaces with extremely fine tranſverſe ſtriæ, ſcarce perceptible, except greatly magnified: aperture ſub-orbicular, inclining to oval. Length two-tenths of an inch.

This, and the preceding ſpecies, are the moſt ſlender ſhells hitherto known: found with it, and equally rare.

One we received from Mr. Boys for Walker's ſhell as above quoted, was not near ſo long, and was opaque as deſcribed by that author.

8.
Subtruncatus
Tab. 10. f. 1.

T. with ſix or ſeven rounded ſmooth ſpires, ſeparated by a deep depreſſed line, gradually tapering to an obtuſe point: aperture ſub-orbicular, inclining to oval: colour pellucid yellowiſh-white. Length two-tenths of an inch; breadth about one fourth its length. Some of this ſpecies are a little gloſſy, and faintly ſtriated longitudinally.

We found this on the ſhore at *Southampton*, and in ſand from *Salcomb*.

9.
Truncatus.
Tab. 10. f. 7.

Helix Truncatula. *Gmel Syſt.* p. 3659?
Turbo nitidus. *Lin. Trans.* iii. p. 65. *(Adams.)*
Turt. Lin. iv. p. 487.

T. with

T. with a cylindric, ſmooth, gloſſy, pellucid, horn-coloured ſhell, with four ſpires: *apex* abrupt, as if mutilated: the volutions conſiderably raiſed, and divided by a deep depreſſed line: aperture ſub-orbicular, ſlightly marginated, reflecting a little on the pillar lip. Dead ſpecimens are opaque yellowiſh white; and a rare variety is longitudinally ſtriated, or marked with *crenulæ* in the *ſutures*, or ſpiral diviſions.

We found this ſingular ſpecies, not uncommon, on the ſhore at *Southampton*, at *Plymouth*, and other parts of the *Devonſhire* coaſt ſparingly: have alſo received it from Mr. BRYER of *Weymouth*.

The number of volutions are almoſt invariably the ſame, one inſtance only occurred which had five; the ſhape of this ſhell was rather more ſlender. Length uſually two-tenths of an inch; breadth one third its length.

10. LITTOREUS.

Turbo littoreus. *Lin. Syſt.* p. 1252.—*Gmel. Syſt.* p. 3588. 3. *Chem. Conch.* v. t. 185. f. 1852. 1. 2. 3. 4. 5. 6. 7. 8.—*Br. Zool.* t. 81. f. 109. *Liſt Conch.* t. 535. f. 43.—*Id. Angl.* t. 3. f. 9. *Da Coſta.* p. 98. t. 6. f. 1. 1. *Pult. Cat. Dorſet.* p 45.—*Turt. Lin.* iv. p. 480. *Don. Br. Shells.* i. t. 33. f. 1. 2.

Turbo obtuſatus. *Lin. Syſt.* p. 1232?—*Gmel. Syſt.* p. 3588. 1? *Pult. Cat Dorſet.* p. 45.

Painted Turbo. *Walk. Min. Shells.* f. 31.

T. with

T. with a very ſtrong, ſub-oval ſhell: the firſt volution large, the others, which are four or five, are ſmall and nearly flat, ſeparated only by a fine line: aperture ſub-orbicular; outer lip thin; inner lip thick and ſtrong. Length frequently an inch. Full grown ſhells are uſually ſmooth, of a uniform brown colour: younger ones are often faſciated with broad, white, or purpliſh-brown bands, marked with fine ſpiral ſtriæ, and have the *apex* more acute than in adults.

This ſpecies is ſo various in ſhape and markings in its infant ſtate, that it has frequently been miſtaken for a different ſhell: and we ſuſpect a variety is the *T. obtuſatus* of LINNÆUS, figured in CHEMNITZ vol. v. t. 185. a. b. c. d. e. f. Such are not uncommon on our ſhores: the ſtriæ on ſome are numerous and ſmall; others deeply ſulcated, and the ridges ſharp, and a little reflexed: ſome marked with narrow *faſciæ*, others with one white band only on the body. Frequently found of an orange-yellow, finely ſtriated all over; the upper volutions ſcarce diſtinguiſhable from the ſtriæ, and ſometimes of a different colour.

A variety elegantly chequered with brown and white; (more rare) is alſo figured by CHEMNITZ.

The *littoreus*, uſually known by the name of *Periwinkle*, is frequently taken and ſold by meaſure in many of our ſea-port towns.

Animal ſtriped with black: *tentacula* two, ſetaceous, not

not quite round, annulated, or ſtreaked tranſverſely with black: eyes at the baſe of the *tentacula*, prominent.

11.

TENEBROSUS.

T. with a ſtrong, ſhort, conic ſhell, nearly as broad as it is long; of a dark chocolate-brown, with five, rather ventricoſe, ſpires: the lower volution occupies half the length of the ſhell: *apex* obtuſely pointed: aperture ſub-orbicular; outer lip thin, except at the lower angle, where it ſpreads a little, and from thence continues to thicken on the pillar lip; inſide very dark purpliſh-brown. Diameter a quarter of an inch.

This littoreal ſpecies, is found on the mud, and on rocks near high-water mark, and even in ditches ſubject to the daily flux of the tide.

We had for a long time conſidered this ſhell a variety of the young *T. littoreus*, or *T. rudis;* but late obſervations have inclined us to think it diſtinct; it is therefore given a ſeparate place, but not without ſome doubt.

It is by no means ſo common, having at preſent only found it in one or two places on the coaſt of *Devonſhire*, and once obtained it from *Kent:* and have obſerved, where it was moſt plentiful, no *littoreus* or *rudis* occurred. The colour is invariably darker than either of thoſe ſhells, and without markings of any kind: it is faintly wrinkled acroſs the ſpires, but rarely ſpirally ſtriated as in the young *littoreus*,

toreus, and that in an obſolete manner; add to this, the ſtrength of the ſhell ſeems to indicate its being formed and full grown: beſides it is to be remarked, that no intermediate ſizes are to be found of the ſame colour and ſhape, except from the tenth of an inch to one quarter.

We muſt however remark, that ſome of theſe littoreal ſhells are by no means eaſily aſcertained in the *pullus* or fry ſtate; and, indeed, ſome of them in the more advanced ſtages are not readily identified.

The aperture of this ſhell is guarded with a corneous *operculum*, like that of the *littoreus*.

When we conſider the vaſt variety the *T. littoreus* is ſubject to in different ſtages of growth, it is but right to acknowledge, that there is no ſmall difficulty in determining what are really belonging to that ſpecies, amongſt the littoreal ſhells of our coaſts; the ſhades and gradations are ſo intimately blended, that it is ſcarce poſſible to determine what marks a characteriſtic line of diviſion.

12. RUDIS.

Turbo rudis. *Don. Br. Shells.* i. t. 33. f. 3.
Turt. Lin. iv. p. 480.
Chem. Conch. v. t. 185. f. 1853.

T. with a thick, ſtrong ſhell, with five ventricoſe volutions, well defined by a ſeparating line; and ſometimes faintly marked with ſpiral ſtriæ, moſt conſpicuous at the baſe:

apex rather pointed: aperture ſub-orbicular; inner lip thick, a little reflected, and ſometimes in old ſhells forms a ſmall depreſſion, or *ſub-umbilicus:* colour dirty yellow-white, or brown. Length three-quarters of an inch; breadth rather leſs.

Very young ſhells are of a deep-brown colour, but in every other reſpect the ſame; except being proportionably more ſlender.

This ſpecies, which no doubt has been confounded with *T. littoreus*, is at once diſcriminated by the round tumid volutions, in all its various ſtages of growth. It is not ſo common as that ſhell, but is found plentiful on the ſhores about *Falmouth*, eſpecially under *Pendennis Caſtle*, adhering to the rocks. We have alſo found it at *Plymouth*, and other parts of the *Devonſhire* coaſt; but rarely above half an inch in length.

Animal yellowiſh, without ſpots or ſtripes, with two ſetaceous *tentacula* of the ſame colour, moſt commonly marked with a longitudinal duſky ſtreak on the outſide.

The invariable difference in the colour of the animals of this and the *littoreus*, is a ſtrong characteriſtic diſtinction. In the *operculum* they alſo differ; this is more round and more ſtrongly ſpirally ſtriated; but both are equally corneous, and permanent.

We have lately been favoured with ſome notes taken

by Mr. HENRY BOYS of *Sandwich*, accompanied with many elegant drawings of various ſubjects in natural hiſtory; amongſt which is a very good figure of this ſhell, with the following remarks:

"Has much the habits of *Turbo littoreus*, and the va-
"rieties of both ſhells run much into one another; it dif-
"fers however in the diſtinctneſs of the whirls, in the co-
"lour being generally yellow, being a ſmaller ſhell, and
"in being viviparous; beſides, the two ſhells are ſeldom
"found together; on the ſpot where this *Turbo* is found
"there are not any of the *T. littoreus*, though the latter
"are abundant in the neighbourhood. On ſtones be-
"tween high and low water-mark at *Whitſtable*, on the
"*Hearn* ſide of the copperas works."

13. STRIATULUS. Tab. 10. f. 5.

Turbo ſtriatulus. *Lin. Syſt.* p.1238.—*Gmel. Syſt.* p.3604.67. *Turt. Lin.* iv. p. 494.
Turbo carinatus. *Da Coſta*, p. 102. t. 8. f. 10.

T. with four or five volutions, each terminating in a flat top, which marks their diviſions; the baſe is wrought with fine ſpiral ſtriæ, which towards the upper part riſe into three diſtant, elevated, membranaceous ridges, continuing throughout the ſuperior volutions, but become faint towards the *apex*: the furrows are deep and rounded at the bottom: it is ſtrongly ſtriated longitudinally from top to baſe; but moſt conſpicuous in the furrows, being a little interrupted by the ridges, yet giving

ing it a pretty cancellated appearance, particularly on the lower part of the body whirl: *apex* not very pointed: aperture ſub-orbicular, angulated at the upper part, and marginated. Length two-tenths of an inch; breadth not quite ſo much. It is rather a ſtrong ſhell for its ſize; when recent is ſub-pellucid white: dead ſhells are opaque. Is a very rare ſpecies, and when perfect, is a moſt elegant and curious ſhell.

DA COSTA is the only author who has given it as an *Engliſh* ſpecies: he received it from *Cornwall.* We have alſo found it in ſand from *Falmouth* harbour, and on the coaſt of *South Devon;* but very rare in both places.

LINNÆUS ſays it is a *Mediterranean* ſhell.

14. VINCTUS.

T. with a ſmooth, conic ſhell, with ſix rounded volutions, of a ſub-pellucid, rufous horn-colour: the lower ſpire marked with four, and ſometimes five, purpliſh-brown, or cheſnut coloured bands, with a broad ſpace between the three lower and the upper ones; in the ſecond and third ſpires are only two bands: the *apex* is ſmall, but not very pointed: aperture ſub-orbicular; outer lip very thin; inner lip thick, white, furniſhed with a narrow channel, which terminates in a ſmall *umbilicus.* Length rather more than three-eighths of an inch.

This ſpecies is ſubject to ſome variety: ſometimes it

is of a light horn-colour, and the bands faint; others are quite plain, and might be miſtaken for *Turbo canalis*, was it not for the mouth of that ſhell being ſub-angulated, and the pillar lip with a much larger canal, and *umbilicus*. It alſo bears ſome reſemblance to *Turbo quadrifaſciatus*, but is vaſtly larger, not near ſo thick and ſtrong, and is deſtitute of the ſub-carinated edge at the baſe.

We diſcovered this ſhell alive in *Salcomb* bay, at low water-mark, adhering to *algæ;* ſome are of a greeniſh colour between the bands; and when examined under a magnifying glaſs, appear in ſome lights to be finely reticulated.

15. AURICULARIS.

T. with a conic, ſmooth, ſub-pellucid, light horn-coloured ſhell: volutions five, much rounded, and deeply divided by the ſeparating line: *apex* moderately pointed, and uſually of a darker colour: aperture ſub-oval, or rather ear-ſhaped; outer lip thin; inner lip much reflexed upon the body, forming an angle about the middle, behind which is a narrow *umbilicus*. Length three-eighths of an inch; breadth not quite two-eighths.

This ſomewhat reſembles *Helix foſſaria*, but beſides being a marine ſhell, is eſſentially different in the mouth. Is a rare ſpecies, never having found it any where but on the ſhore near *Southampton*, and there not common.

T. with

16

T. with a conic, pellucid, horn-coloured ſhell, with five ſmooth, rounded volutions, the lower one large in proportion to the reſt: *apex* pointed: aperture ſub-orbicular, ſub-angulated; outer lip extremely thin; pillar lip broad, white, furniſhed with a channel or groove, terminating in an *umbilicus*. CANALIS. Tab. 12. f. 11.

This ſpecies has ſomewhat the habit of *Helix tentaculata*, but is at once diſcriminated by the aperture, and groove on the *Columella;* is alſo a marine ſhell. It rarely exceeds three eighths of an inch in length, and a quarter in breadth. We found this only on the ſhore near *Southampton*, where it is plentiful: and with it what muſt be conſidered a variety, with two brown bands on the body; in every other reſpect the ſame: ſuch however is rare.

17.

Turbo lævis quinque anfractibus apertura ſub-rotunda marginata. *Walk. Min. Shells.* f. 24. CRASSIOR.

T. with a ſtrong, thick, opaque, yellowiſh-white, conic ſhell, with five rounded volutions, divided by a deep depreſſion, and terminating in a fine point: aperture ſub-orbicular; pillar lip wrinkled, that and the inſide white. Length half an inch; breadth a quarter. Live ſhells are covered with a thin, light yellowiſh-brown *epidermis*, beneath which a few obſolete ſtriæ are obſerved in a ſpiral direction on the body whirl.

It

It has ſomewhat the habit of the preceding ſpecies, but is readily diſtinguiſhed by being thick and opaque; in being longer in proportion to its breadth, and in having the volutions more raiſed; the body whirl too is not ſo large in proportion to the ſuperior ones. In ſome inſtances we have ſeen this ſhell, when young, with an inclination to a groove, and *umbilicus* on the pillar lip, but never ſo large as in the other, and which always cloſes up with age.

We are indebted to Mr. BOYS for our firſt acquaintance with this ſpecies, from whom we received a great many ſpecimens of all ſizes, with a reference to Mr. WALKER's figure as above quoted: and who informed us, it is not uncommon on the coaſt of *Sandwich*.

Have ſince found it in tolerable abundance on the ſhore of *Biddeford* bay.

It ſeems Mr. WALKER had by ſome accident made a miſtake, in placing a minute figure by the ſide of the large one.

18. PARVUS.

Turbo parvus. *Da Coſta*. p. 104.—*Walk. Min. Shells* f. 43.
Turbo æreus. *Lin. Trans*. iii. p. 66. t. 13. f. 29. 30. *(Adams)*
Turt. Lin. iv. p. 488.
Turbo lacteus. *Gmel. Syſt*. p. 3604?
Don. Br. Shells. iii. t. 90.
Turbo ſubluteus. *Lin. Trans*. iii. t. 13. f. 15. 16. var. *(Adams)*

T. with

T. with a ſtrong, conic ſhell, with five or ſix volutions, coarſely ribbed: colour various; ſome gloſſy white, others dark cheſnut-brown, or pale rufous, ſometimes variegated; but the moſt beautiful ſpecimens are dark with white ribs: aperture ſub-orbicular; outer lip thickened by a rib. A variety is only ribbed on the lower volution; others are ſometimes found worn quite ſmooth and gloſſy, and might readily be miſtaken for diſtinct ſpecies; but this is not unuſual with many ſmall ſhells taken amongſt fine ſand, by the conſtant friction of which they are worn and poliſhed. The general ſize is about one eighth of an inch in length. Perfect ſhells have the ribs ſtrong and diſtant, from nine to eleven on the body whirl.

We have found this ſpecies in great abundance in *Cornwall*, particularly at the land's end, and at *Falmouth;* and not uncommon on the coaſt of *Devonſhire*, *Dorſetſhire*, and various other parts; indeed, it appears to be one of the moſt common ſhells on all our ſandy ſhores.

DA COSTA mentions it from *Guernſey*.

19.

Turbo coſtatus. *Lin. Trans.* iii. p.65. t.13. f.13.14. (*Adams*) COSTATUS.
Turt. Lin. iv. p. 487. Tab. 10. f. 6.
Walk. Min. Shells. f. 47.
Turbo craſſus. *Turt. Lin.* iv. p. 500.
Adams Microſc. t. 14. f. 20.

T. with

T. with a ſtrong, ſub-pellucid, gloſſy, white ſhell, with four or five volutions, much raiſed, and well defined by the ſeparating line; furniſhed with ſtrong ribs, and finely ſtriated tranſverſely, moſt conſpicuous between the ribs: *apex* rather obtuſe: aperture ſub-orbicular; lip a little expanded, bordered by a ſtrong, prominent, ſulcated rim, ſtriated in the depreſſion: a ridge riſes at the upper angle of the aperture, and runs tranſverſely backward, then turns downward, and joins to the margin of the lip behind; this ridge is bordered above by a fine depreſſed line, where the longitudinal ribs terminate. Length nearly one eighth of an inch; breadth about one third its length. Dead and worn ſhells become opaque; in which ſtate Mr. WALKER deſcribes it as rare at *Sandwich*.

Mr. ADAMS found it on the coaſt of *Pembrokeſhire*. It is not uncommon on various parts of the coaſts of *Devonſhire* and *Dorſetſhire*, eſpecially in ſand from *Salcomb* bay; we have alſo taken it in ſand from *Falmouth*, and other parts of *Cornwall*. In a recent ſtate, it is one of the moſt beautiful microſcopic ſhells, hitherto diſcovered on the ſhores of *Great Britain*.

20.
STRIATUS.

Turbo ſtriatus. *Lin. Trans.* iii. p.66. t.13. f.25.26. *(Adams)*
Walk. Min. Shells. f. 49.
Turt. Lin. iv. p. 488.
Turbo Shepeianus. *Turt. Lin.* iv. p. 501.
Adams Microſc. t. 14. f. 22.

T. with

T. with a pellucid, gloſſy, white ſhell, with ſix volutions, ſomewhat rounded, and ſeparated by a well defined line: the upper part of each volution faintly ribbed; the whole ſhell very finely and regularly ſtriated tranſverſely: *apex* moderately pointed: aperture ſub-oval, marginated. Length one eighth of an inch; breadth rather more than one third of its length.

Live ſhells are covered with a brown *epidermis*, that obſcures their beauty; in this ſtate we found it plentiful at *Plymouth* at the roots of *algæ*. It is alſo common on other parts of the coaſt of *Devon*; and ſparingly at *Falmouth*, and other parts of *Cornwall*. Mr. WALKER ſays *Shepey* iſland, very rare: and Mr. ADAMS found it on the coaſt of *Pembrokeſhire*.

21.

T. with a ſtrong, conic, gloſſy, white ſhell, with ſeven ſmooth ſpires finely coſtated: the volutions are ſomewhat rounded, and well defined by the line of ſeparation; but ſcarcely interrupt the ribs, (which are ſeventeen or eighteen in number,) from continuing throughout the ſhell: aperture oval; outer lip ſtrong; pillar lip replicate, ſmooth. BRYEREUS. Tab. 15. f. 8.

A variety with ſtronger, and fewer ribs, not exceeding ten or twelve in number.

At firſt ſight this has ſomewhat the appearance of *T.*

coſtatus, but the ribs are finer, more numerous, and deſtitute of the tranſverſe ſtriæ: in the aperture alſo it is eſſentially different, not poſſeſſing the marginated lip ſo conſpicuous in that ſhell.

The ſize is double that of the *coſtatus*: length rather leſs than a quarter of an inch.

We received ſeveral of this pretty ſpecies from Mr. BRYER of *Weymouth*, who found them at different times on that coaſt. It is alſo an occidental ſhell.

22.
CONIFERUS.
Tab. 15. f. 2.

T. with a ſtrong, taper, white ſhell, with ſix volutions terminating in rather an obtuſe point, and furniſhed with about twelve undulated ribs, interrupted only by a fine ſeparating line; the interſtices between them, at the top of each volution, are formed into ſmall cavities, giving that part a ſcalloped or denticulated appearance; theſe ſingular indentations continue throughout the ſpiral diviſional line: the ribs are croſſed by extremely fine, cloſe-ſet ſtriæ, not diſcernable without the aſſiſtance of a lens: aperture oval, oblique, ſtrongly marginated; pillar lip not reflected. Length a quarter of an inch; breadth one-third its length.

This very elegant ſhell we were favoured with by Mr. BRYER, who found it at *Weymouth* with the preceding ſpecies.

T. with

23.

T. with a conic, ſub-pellucid, white ſhell, with ſix volutions, terminating in an obtuſe point, furniſhed with nine or ten coarſe ribs, that project at the top of each ſpire, forming ſtrong indentations like the preceding ſpecies: aperture ſub-orbicular; outer lip thickened by a rib; pillar lip ſmooth, indented, with one or two ſmall tubercles at the baſe adjoining the ribs. Length not quite a quarter of an inch; breadth one half its length. DENTICULATUS.

This ſpecies we have received with the laſt from *Weymouth*, and at firſt ſight took it to be a mere variety of that ſhell; but upon more attentive compariſon, it is found to have the aperture more approaching to round, and not properly marginated, but only thickened by a rib; it is much more conic, the ribs ſtronger, leſs numerous, and forming deeper denticulations at the junction of each ſpire; the interſtices between the ribs deſtitute of ſtriæ, and ſub-pellucid; and what ſeems the ſtrongeſt ſpecific diſtinction is, that the ribs do not undulate, but run oblique to the left, from the aperture to the *apex*.

24.

Turbo Cimex. *Lin. Syſt.* p. 1233.—*Gmel. Syſt.* p. 3589. 5. CIMEX.
Turt. Lin iv. p. 481.—*Gualt.* t. 44. X.
Don. Br. Shells. i. t. 2. f. 1. 1.
Turbo cancellatus. *Da Coſta.* p. 104. t. 8. f. 6. 9.

T. with four ſtrong, conic, cancellated, white volutions, well defined by a conſiderable depreſſed line: it is remarkably thick for its ſize, and the decuſſated ſtriæ are

coarſe, which gives it the appearance of being deeply punctured all over: *apex* rather obtuſe: aperture ſub-oval, margin thick; outer lip crenated on the inſide. Length one eighth of an inch; breadth nearly one half its length.

We have found this ſpecies at *Falmouth* in *Cornwall*, and on the ſouth coaſt of *Devon*, but rarely: have alſo received it from *Sandwich* in *Kent*.

It is ſometimes taken in *Guernſey*, and is a ſhell of the *Mediterranean;* but does not ſeem any where plentiful.

25. SUBUMBILICATUS.

T. with a ſmooth, ſub-gloſſy, conic, yellowiſh-white ſhell: volutions four or five, very tumid, the firſt occupying above half the ſhell: *apex* rather obtuſe: aperture oval; outer lip even; inner lip a little reflexed, forming a ſulcus or *ſub-umbilicus*. Length one eighth of an inch; breadth one half its length.

This ſpecies, noticed by Mr. BRYER on the ſhore at *Weymouth*, differs from *Turbo Ulvæ* in being more ventricoſe, and more tumid in the volutions, and eſſentially in the aperture; and in being more umbilicated.

From *T. ventroſus* it not only differs in the greater proportional breadth at the baſe, but in the aperture being exactly ovate, and not contracted into an acute angle at

at the upper end, as in that and the *Ulvæ:* it never grows to the ſize of the latter, and exceeds that of the former.

26. VENTROSUS. Tab. 12. f. 13.

Turbo eburneus. *Adams Microſc.* t. 14. f. 15.
Walk. Min. Shells. f. 36.

T. with a ſmooth, gloſſy, thin ſhell, with ſix ventricoſe, or much rounded volutions, of a light pellucid horn-colour; but when the animal is in it, the appearance is black: *apex* moderately pointed: aperture ſub-orbicular, cloſed by a thin, wrinkled, corneous *operculum:* margin almoſt intire the whole way round. Length one eighth of an inch; breadth about one third its length.

This ſpecies is not uncommon on the *Kentiſh* coaſt, at *Folkſtone* and *Sandwich*, confounded with *T. Ulvæ*, for which we have received it.

It is however perfectly diſtinct from that ſhell, and may be readily diſtinguiſhed by its ſtrongly elevated and rounded volutions, gloſſy appearance, and colour; the other being always dull-brown, opaque; and vaſtly thicker.

This ſhell retains the greater part of its black colour when preſerved with the animal in; but dead ſpecimens are opaque white, as Mr. WALKER deſcribes it; and was probably the only ſtate in which Mr. JACOBS had ever ſeen

ſeen it, by giving it the name of *eburneus*, (as Mr. ADAMS informs us.)

27.
ULVÆ.

Turbo Ulvæ. *Br. Zool.* t. 86. f. 120.—*Turt. Lin.* iv. p.499. *Da Coſta.* p. 105.
Helix Ulvæ. *Pult. Cat. Dorſet.* p. 49.

T. with from five to ſeven ſmooth volutions, not rounded, but nearly flat, ſeparated by a ſmall line; *apex* moderately pointed: colour opaque, dark, or rufous-brown: aperture ſub-oval; inner lip reflected on the *Columella*, forming a ſlight depreſſion behind, but no *umbilicus*. Length generally about a quarter of an inch; but we have found it at *Poole* of an extraordinary ſize, nearly three-eighths of an inch long, and one eighth broad. Dead ſhells are frequently of a dull opaque white; *operculum* corneous, radiated with arched ſtriæ from the inner margin.

This is a very common ſpecies in moſt of our inlets and harbours, but ſeldom on the open ſhores expoſed to the fury of the waves.

Is frequent on *ulvæ* and other marine plants, and on the mud about high water-mark; ſometimes in ſuch vaſt profuſion as to almoſt cover the ſurface: and it is obſervable, where theſe are found in quantity, ſcarce any other convoluted ſhell is ſeen, except perhaps *T. littoreus*, *T. rudis*, and one or two other common ſpecies.

Turbo

28.

Turbo Pullus. *Lin. Syſt.* p. 1233.—*Gmel. Syſt.* p. 3589. 6. PULLUS.
Pult. Cat. Dorſet. p. 45.—*Turt. Lin.* iv. p. 481.
Don. Br. Shells. i. t. 2. f. 2. to 6.
Borlaſe Cornw. p. 276.
Turbo pictus. *Da Coſta.* p. 103. t. 8. f. 1. 3.

T. with four or five rounded, ſmooth, gloſſy volutions; the firſt large, making nearly half the length of the ſhell; *apex* not very pointed: colour ſo various that ſcarce two are found alike, but all more or leſs ſtreaked and ſpotted in an elegant manner; generally pink, or purple with dark undulated lines, or ſpotted with white; ſometimes purpliſh-brown with white ſpots. One variety has the lines extremely fine, appearing like ſtriæ; others have them broad or marked with interrupted bands. Aperture ſub-orbicular, large; in old ſhells ſpreading on the *Columella.* Length three-eighths of an inch; breadth half as much.

The *operculum* belonging to this ſhell ſeeems to have eſcaped notice, indeed it is only to be found in live ſpecimens, which we believe do not frequently occur; it is remarkably ſtrong, thick, and teſtaceous, very convex, white, and ſmooth externally; the interior part, when ſeparated from the animal, is a little concave, and has a ſmall and ſingular ſpiral turn near to one end.

This beautiful ſpecies is not uncommon on many parts of the *Corniſh* coaſt, eſpecially at *Whitſand* bay, and at *Falmouth;* and is equally plentiful on ſome of the ſhores

of

of *Devonſhire*, particularly at *Milton* ſands in the ſouth, and *Ilfracomb* in the north; but is rarely procured alive, except at very low tides, or by dredging. Doctor PULTENEY ſpeaks of it as a rare ſhell on the ſhores of *Dorſetſhire*; and we believe grows ſcarcer eaſtward.

The animal is painted like its ſhell, with two very long filiform *tentacula;* beneath theſe, at the baſe, are two ſmall black eyes; cloſe to which are two minute feelers, or *cirri*, and on each ſide is another, little inferior in length to the *tentacula;* theſe appendages are in continual motion, and are capable of turning in all directions.

29.

PUNCTURA. Tab. 12. f. 5.

T. with ſix very gloſſy, rounded volutions, rather taper in ſhape, and finely reticulated: colour tranſparent yellowiſh-white: aperture ſub-orbicular. Length the tenth of an inch; breadth one third its length.

We found this elegant ſpecies at *Whitſand* bay in *Cornwall*, and in ſand from *Salcomb* bay in *Devonſhire*, but extremely rare; its beauty is only to be ſeen under a ſtrong magnifier, as the work is extremely fine; by the aid of a microſcope it appears delicately punctured all over, and wrought with extremely fine decuſſated ſtriæ.

30.

RUBER.

Turbo Ruber. *Lin. Trans.* iii. t. 13. f. 21. 22. *(Adams.)*
Turt. Lin. iv. p. 488.

T. with

T. with five pellucid, ſmooth, gloſſy, reddiſh-brown volutions, rounded, and divided by a fine ſeparating line: *apex* pointed: aperture ſub-orbicular, a little reflected on the pillar. Length one eighth of an inch, or more; breadth nearly one third its length.

We found this ſpecies at *Whitſand* bay in *Cornwall*, and with it a ſhell in every reſpect like, but in colour, which is perfectly white, and ſo tranſparent that the whole of the *Columella* may be ſeen through the ſhell.

31.

T. with a thin, pellucid, white, ſmooth, ſub-cylindric ſhell, with four very rounded volutions, ſeparated by a deep depreſſed line: *apex* rather obtuſe: aperture ſub-oval, contracted at the upper end; outer lip thin; inner lip a little thickened. Length one eighth of an inch; breadth one third its length. VITREUS. Tab. 12. f. 3.

This ſpecies muſt not be confounded for the white variety of the laſt deſcribed; it is more ſlender, the volutions are ſtronger, and run ſingularly more oblique; and is at once diſtinguiſhed by its ſub-cylindric ſhape, in which it reſembles more the *T. ſtriatus;* but differs from that ſhell in being perfectly ſmooth, and in not having a marginated aperture.

The *Columella* of this ſpecies is viſible through the ſhell.

We found it very ſparingly at *Whitſand* bay in *Cornwall*.

32.
DECUSSATUS.
Tab. 12. f. 4.

Turbo pellucidus. *Lin. Trans.* iii. p. 66. t. 13. f. 33. 34? (*Adams.*)—*Turt. Lin.* iv. p. 489. *Walk. Min. Shells.* f. 52?

T. with a ſub-pellucid, ſomewhat gloſſy, white ſhell, with five rounded volutions, well defined by the ſeparating line; ſtrongly ſtriated longitudinally, and croſſed with extremely fine ſtriæ, in a decuſſated manner: *apex* not very pointed: aperture ſub-oval, contracted at the upper part; outer lip thin; inner lip not ſpreading on the *Columella*. Length ſcarce one eighth of an inch; breadth not half its length.

We found this ſpecies very rare in ſand from *Salcomb* bay. It differs from *T. Punctura* in being more inclined to a cylindric form, more ſtrongly ſtriated longitudinally, and in the aperture being more oval.

33.
RETICULATUS.

Turbo reticulatus. *Lin. Trans.* iii. p. 66. t. 13. f. 19. 20. (*Adams.*)—*Turt. Lin.* iv. p. 488. *Adams Microſc.* t. 14. f. 14. *Walk. Min. Shells.* f. 32.

T. with a ſtrong, conic, opaque, light-brown ſhell, with ſix rounded, and much raiſed volutions, ſtrongly reticulated: *apex* pointed: aperture ſub-orbicular, margin thick; inner lip ſpreading on the *Columella*, forming

a

a groove or *ſub-umbilicus*. Length ſcarce one tenth of an inch; breadth full one half its length.

We received this ſpecies from Mr. BOYS for WALKER's ſhell above quoted. That author deſcribes it to be pellucid white: thoſe we have examined were all opaque, and of a dirty-white, or light-brown; poſſibly dead ſhells. This is perfectly diſtinct from the preceding, being much broader in proportion to its length, more conic, more ſtrongly ſtriated tranſverſely, and the aperture ſtronger, and more rounded.

34.

Turbo canaliculatus. *Lin. Trans.* iii. p. 253?*(Adams.)* SPIRALIS.
Walk. Min. Shells. f. 46. Tab. 12. f. 9.
Turt. Lin. iv. p. 489.

T. with a pellucid, gloſſy, white, conic ſhell, with four or five volutions; the largeſt marked with tranſverſe, ſpiral ridges, half way from the baſe; the reſt finely ribbed longitudinally: volutions nearly flat, but well defined by the ſeparating line, which is marked with a very fine ſpiral ridge: *apex* rather obtuſe; aperture ſub-orbicular, pillar lip turns inward and forms an apparent ſmall denticle, which in fact is a plication or ridge, that runs ſpirally ſome way up the *Columella*; a character in this and the three following ſpecies not ſubject to vary like the denticulations in ſome other ſhells, but is the conſtant formation of the *Columella*, occaſioned by the intortion of the pillar lip, as in the *Voluta tornatilis*;

to which genus they become a ſort of link. Length one line; breadth half its length.

We found this in ſand from *Salcomb* bay in *Devonſhire*, very rare.

35.
INTERSTINCTUS
Tab. 12. f. 10.

Turbo interſtinctus. *Lin. Trans.* iii. p. 66. t. 13. f. 23. 24. *(Adams.)*—*Turt. Lin.* iv. p. 488.

T. with a gloſſy, white, taper ſhell, with five, rather flat, but finely ribbed volutions, divided by a ſmall ſeparating line: *apex* obtuſe: aperture ſub-oval: pillar lip a little reflexed, with a ſingle ſmall tooth. Length one line; breadth one third of its length.

We found this ſpecies in ſand from *Bigberry* bay in *Devonſhire:* very rare.

36.
UNIDENTATUS.

T. with a ſtrong, conic, ſmooth, gloſſy, ſub-pellucid, white ſhell, with rather an obtuſe *apex:* volutions five or ſix, not much raiſed: aperture ſub-oval; outer lip plain; *Columella* furniſhed near the middle with one tooth. Length two tenths of an inch; breadth nearly one half its length.

We found this in ſand from *Salcomb* bay, and alive on the *Pecten maximus*, dredged out of deep water; but is by no means common.

It

It might readily be confounded for *T. ulvæ* by its ſhape, but its ſingle tooth is an invariable diſcriminating mark, independent of its colour, which is always gloſſy white, with uſually a tinge of purple, or roſe-colour at the tip.

37.

T. with a ſmooth, gloſſy, ſub-pellucid, white ſhell, PLICATUS. with ſix rather ſlender ſpires terminating in an obtuſe *apex;* the volutions are nearly flat, defined only by a fine, ſeparating line; aperture ſub-oval, contracted a little to an angle at the upper part; outer lip even; inner lip thickened, and furniſhed with a ſingle tooth-like fold. Length one eighth of an inch; breadth one third its length.

Found in ſand from *Salcomb* bay, but rare.

This ſpecies muſt not be confounded for *Turbo unidentatus*, which is vaſtly thicker and ſtronger, much broader at the baſe in proportion to its length, more tumid in the volutions, and larger in the aperture. It is more the ſhape of *Helix polita*, but is neither ſo finely pointed, nor is the aperture ſo long, and is at once diſtinguiſhed from that ſhell by its tooth-like plication.

38.

T. with a ſmooth, white ſhell, rather ſlender in ſhape, PALLIDUS. with ſix or ſeven ſpires tapering to a moderately fine *apex;* the volutions not much raiſed, but ſeparated by a well

well defined line: aperture ſub-orbicular; outer lip arcuated; a faint duplicature on the pillar lip deſtitute of any tooth, but a ſmall *umbilicus* is formed by its reflection. Length more than one eighth of an inch; breadth ſcarce one third of its length.

From *Salcomb* bay, ſand, very rare.

39.
NIVOSUS. T. with a ſmooth, gloſſy, white ſhell, rather ſlender, and tapering to an obtuſe point: volutions five or ſix, much rounded, and deeply divided by the ſeparating line: aperture ſub-oval; inner lip, and *Columella* quite ſmooth and even: no *umbilicus*. Length nearly one line; breadth ſcarce one third its length.

This ſpecies has ſomewhat the ſhape of *Turbo interſtinctus*, but is deſtitute of the tooth, as well as the ribs.

Found in ſand on the ſouth coaſt of *Devon*, very rare.

40.
SEMICOSTATUS. T. with a ſhort, conic, white ſhell, obtuſely pointed: volutions four or five, rounded, well defined by the ſeparating line, and wrought with faint ribs, and fine obſolete transverſe ſtriæ on the body whirl, both of which are inconſpicuous on the ſuperior ſpires; the ribs do not extend to the lower part even of the body, where the ſpiral tranverſe ſtriæ become moſt conſpicuous: aperture

ſub-

ſuborbicular; pillar lip a little reflexed, *Columella* ſmooth. Length half a line; breadth one half its length.

Found in ſand on the ſouth coaſt of *Devonſhire*, but very rare.

This at firſt ſight might be confounded with *Turbo ſpiralis*, but differs in the volutions being more rounded, in the ribs being coarſer, and in being deſtitute of the tooth-like plication of the *Columella*.

37. UNIFASCIATUS.

Turbo trifaſciatus. *Lin. Trans.* v. p.2. t.1. f.13. 14 ?*(Adams)* *Turt. Lin.* iv. p. 500.

T. with a ſmooth, conic, white ſhell, with one, and rarely two bands of purpliſh-brown on the body, one on the ſecond ſpire, and ſometimes alſo on the third: the number of volutions are five: and it is obſervable when it has two *faſciæ* on the lower ſpire, they occupy no more ſpace than when there is but one: the ſpires are very little raiſed, and divided only by a ſmall line: the bands on the ſuperior ones are cloſe to the ſeparating line: aperture ſub-oval; exterior lip thin, and turning outwards; inner lip ſpreading on the *Columella;* imperforated.

The figure given by Mr. ADAMS is longer in proportion than this ſhell, in every other reſpect correſponds. Length one eighth of an inch; breadth more than one third its length.

We

We found this ſpecies rare on the ſhore at *Southampton*, and in ſand from *Burrow* iſland in *Devonſhire*.

42.

CINGILLUS.

Tab. 12. f. 7.

T. with a conic, ſub-pellucid ſhell, with ſix volutions, marked with alternate bands of horn-colour and cheſnut-brown, uſually three of each on the body, and two on the other ſpires; frequently obſolete towards the tip, which is of a uniform brown. Recent ſhells are obſcurely ſtriated with the whirls, but very conſpicuous at the baſe: *apex* moderately pointed: aperture ſub-oval, contracted at the upper part; outer lip thin, not turning outwards as in the laſt deſcribed; inner lip a little thickened; imperforated. Length exceeding one eighth of an inch; breadth one third its length.

This ſhell is readily diſtinguiſhed from any varieties of the preceding, by the outer lip being in a line with the ſhell, not turning outward; by the brown bands being darker, and the intermediate ſpace not ſo white; and in live ſhells by the ſpiral ſtriæ, which are ſtrong at the baſe; it is alſo a more ſlender ſhell.

We found this ſpecies in great abundance alive on the ſhore at *Plymouth*, in one particular ſpot only; and alſo at *Salcomb* at very low water.

43.

QUADRIFASCIATUS.

Cochlea parva. *Da Coſta*. p. 85.

T. with

T. with a ſtrong, ſmooth, ſub-pellucid, ſub-conic ſhell, with four volutions; the firſt very large, occupying more than half the ſhell: colour white, uſually marked with four faint brown bands on the body, and ſometimes two on the ſecond ſpire; others have the bands united, and form two very broad ones on the firſt ſpire: *apex* rather obtuſe: aperture ſub-orbicular, thickened within, but ſloped to a ſharp edge on the outer lip; pillar lip broad, with a ſmall groove ending in an *umbilicus*. Length rarely a quarter of an inch; breadth one eighth.

A variety is quite white; but thoſe are old and worn ſhells; many appear plain white until carefully examined, when the faint bands may be traced. Live ſhells are darkeſt, and ſometimes tinged with green. This ſpecies has ſomewhat the habit of *T. canalis*, but is at once diſtinguiſhed by the thick outer lip; it never grows to half the ſize, is much ſtronger, more opaque, and at the baſe of the lower volution this has always an angulated appearance, or is ſub-carinated; whereas the other is perfectly rounded at that part.

We found this ſhell plentiful at *Falmouth*, amongſt ſand from the harbour: and alſo on the ſouth coaſt of *Devon*, particularly on the ſhore of *Salcomb* bay at low-water, inhabiting *algæ*.

44.

Turbo interruptus. *Lin. Trans.* v. p. 3. t. 1. f. 16. 17. *(Adams)* *Turt. Lin.* iv. p. 500. INTERRUPTUS.

T. with a pellucid, gloſſy white, conic ſhell, marked with interrupted, longitudinal, ochreaceous ſtreaks, moſt conſpicuous on the two larger ſpires; frequently forming two rows of oblong ſpots on the lower one: volutions five, not much raiſed: *apex* moderately pointed: aperture ſub-orbicular; outer lip not very thin; inner lip reflexed. Length one eighth of an inch; breadth one third its length.

We found this ſpecies at *Falmouth* in *Cornwall;* and on the coaſt of *Devonſhire* ſparingly at *Ilfracomb,* and in ſand from *Salcomb* bay and other parts.

45. RETIFORMIS.

Turbo tumidus quatuor anfractibus reticulatis apertura ſub-ovali. *Walk. Min. Shells.* f. 37.

The Turbo with four tumid reticulated ſpires, with an oval aperture: colour white and opaque.

From *Sandwich,* very rare.

46. FUSCUS.

Turbo quinque anfractibus ſtriatis apertura ſub-ovali. *Walk. Min. Shells.* f. 42.

The five-ſpired, ſtriated Turbo, with a ſub-oval aperture: colour opaque-brown.

From *Byſing Wood,* near *Faverſham,* very rare.

Turbo

47.

Turbo ſtrigatus. *Adams. Microſc.* t. 14. f. 16. STRIGATUS.
Turt. Lin. 4. p. 500.
Turbo tribus anfractibus primo ſtrigis tribus tranſverſis apertura ſubovata. *Walk. Min. Shells.* f. 38.

The three-ſpired Turbo, the firſt ſpire with three tranſverſe ridges, and a ſub-oval aperture; the colour opaque white.

From *Seaſalter*, very rare.

48.

Turbo carinatulus. *Turt. Lin.* iv. p. 500. CARINATULUS.
Adams Microſc. t. 14. f. 18.
Turbo turritus carinatus ſeptem anfractibus apertura coarctata marginata. *Walk. Min. Shells.* f. 44.

The taper, carinated Turbo, with ſeven ſpires, and contracted, marginated aperture: colour opaque white.

From *Sandwich*, very rare.

49.

Turbo ſtriatus quatuor anfractibus apertura ovali marginata. RIVULUS.
Walk. Min. Shells. f. 57.

The ſtriated, four-ſpired Turbo, with an oval marginated aperture: colour opaque white.

From a ſtream near *Faverſham*, very rare.

50.
SANDVICENSIS. Turbo Sandvicenſis. *Turt. Lin.* iv. p. 501.
Adams. Microſc. t. 14. f. 23.
Turbo tribus anfractibus reticulatis apertura unidentata.
Walk. Min. Shells. f. 55.

The three-ſpired, elegantly reticulated Turbo, with one toothed oval aperture: colour pellucid white.

From *Sandwich*, exceeding rare.

The ſix preceding, minute ſpecies, we have been obliged to copy from the *Teſtacea minuta rariora* in Mr. WALKER's own words.

51.
FULGIDUS. Helix fulgidus. *Lin. Trans.* iii. p. 254. *(Adams.)*
Turt. Lin. iv. p. 531.

T. with a ſub-conic, pellucid, ſmooth, gloſſy ſhell, variegated with white and bronze, uſually in bands: volutions three, the firſt very large: *apex* ſmall, obtuſe: aperture ſub-orbicular, margin attenuated. Length half a line.

We found this ſpecies in ſand from *Whitſand* bay *Cornwall.*

52.
ALBULUS. Turbo quinque anfractibus longitudinaliter coſtatis, apertura ſubrotunda. *Lin. Trans.* iii. t. 13. f. 17. 18. (*Adams.*)

Turbo

Turbo albulus. Shell opaque, with five longitudinal ribbed whorls: aperture roundiſh, not margined. *Turt. Lin.* iv. p. 488.

53.

Turbo teſta lævi tribus anfractibus, lineis fuſcis characteri- SCRIPTUS.
formibus, apertura ſubrotunda. *Lin. Trans.* iii. p. 65. t. 13. f. 11. 12. (*Adams.*) Obs. Iſtæ lineæ lineis Lichenis ſcripti omnino ſimiles.

Shell ſmooth, opaque, with three whorls, and brown lines, reſembling characters: aperture roundiſh. The lines exactly reſemble thoſe on the *Lichen ſcriptus. Turt. Lin.* iv. p. 487.

54.

Turbo decem anfractibus longitudinaliter coſtatis, teſta ad api- SUBARCUATUS.
cem ſubarcuata. Color albus. *Lin. Trans.* iii. p. 66. t. 13. f. 27. 28. (*Adams.*)

Shell pellucid, white, and a little curved towards the tip, with ten longitudinal, ribbed whorls. *Turt. Lin.* iv. p. 488.

55.

A. Turbo ſex anfractibus ſpiraliter ſtriatis, coſtis remotis, ELEGANS.
apertura ovali. *Lin. Trans.* iii. p. 66. t. 13. f. 31. 32. (*Adams.*)

Shell pellucid, with ſix ſpirally ſtriate whorls, and remote ribs: aperture oval. *Turt. Lin.* iv. p. 489.

Not

Not *Turbo elegans* of GMELIN.

56. DIVISUS.

Turbo quatuor anfractibus, lævibus et ſtriatis ; apertura ſub-ovali. *Lin. Trans.* iii. p. 254. (*Adams.*)

Shell pellucid, white, with four whorls, each divided into two parts; the upper one ſmooth, the lower one ſpirally ſtriate: aperture ſub-oval. *Turt. Lin.* iv. p. 489.

57. SUBRUFUS.

Turbo ſubrufus teſtâ lævi quinque anfractibus ſuperne ſub-angulatis. *Lin. Trans.* v. p. 3. t. 1. f. 18. 19. (*Adams.*)

Shell ſmooth, with five whorls ſomewhat angular above: opaque, dull red, the upper part of each whorl marked with a white tranſverſe band. *Turt. Lin.* iv. p. 500.

The ſix laſt ſhells never having come under our inſpection, we have been obliged to copy from the deſcriptions of minute ſhells, given by Mr. ADAMS in the *Linnæan Tranſactions*, as productions of the coaſt of *Pembrokeſhire.*

**LAND AND FRESH-WATER.†

58.

Turbo Muſcorum. *Lin. Syſt.* p. 1240—*Gmel. Syſt.* p. 3611. 94. MUSCORUM.
Chem. Conch. ix. t. 123. f. 1076.
Muller Verm. ii. p. 105. No. 304.
Schroet Erdconch. p. 140. t. 1. f. 7.
Br. Zool. t. 82. f 118?
Liſt. Angl. t. 2. f. 6.— *Turt. Lin.* iv. p. 499.
Petiv. Gaz. t. 35. f. 6.
Pult. Cat. Dorſet. p. 46.
Don Br. Shells. iii. t. 80.
Turbo cylindraceus. *Da Coſta.* p. 89. t. v. f. 16.

T. with a ſmooth, gloſſy, ſub-pellucid, ſub-cylindric ſhell, with ſix ſpires, of a yellowiſh-brown horn-colour; *apex* obtuſe: aperture ſub-orbicular, marginated; the margin white, a little reflexed, forming a depreſſion, or *ſub-umbilicus;* pillar lip frequently furniſhed with a ſingle tooth. Length rather more than the eighth of an inch; breadth about one third its length. Dead ſhells frequently become yellow, and in a further advance towards decay are white and opaque.

The young, even after they are nearly arrived at full growth, are deſtitute of the white marginated aperture, and the tooth; nor indeed is this laſt mark always to be found in apparently adult ſpecimens. In the more infant ſtate it has a *trochiform* baſe and aperture.

This

† The *Turbo fuſcus* and *rivulus* appear to belong to this diviſion, but as they are unknown to us, it was thought proper to leave them together with the few other of Mr. WALKER's ſhells not identified.

This ſpecies ſeems to be pretty generally diffuſed, but is rather ſcarce in ſome ſituations: it is found under moſs at the roots of trees, or in the crevices of the bark, and on old walls.

Doctor SOLANDER had named it *Turbo dolioliformis*, as Mr. BOYS informs us.

We have followed moſt authors in quoting *T. Muſcorum* of the *Britiſh Zoology* for this ſhell, but cannot help expreſſing ſome doubt, as the figure does not in the leaſt repreſent it, but is more like *Helix lubrica*.

GMELIN has erred in quoting tab. 1. fig. 6. of SCHROETER's *Erdconchylien* for a variety of this, which he ſays, is furniſhed with eight teeth. That ſhell is perfectly diſtinct, and is certainly our *Turbo Juniperi*. The *muſcorum* never has more than one tooth; and, as we before remarked, is as frequently without any.

Fig. 8. tab. 2. LISTER *Anim. Angliæ* which GMELIN has referred to for this ſhell, though with doubt, is certainly the *Helix obſcura*.

In company with this is ſometimes found, what muſt at preſent be conſidered as a variety; it is not above half ſo large, with the ſame number of volutions, and is exactly ſimilar in ſhape, but the aperture is not marginated; and is always deſtitute of the tooth.

59.
SEXDENTATUS.
Tab. 12. f. 8.

Helix minuta. *Muller. Verm.* ii. p. 101. No. 299? *Gmel. Syſt.* p. 3660?—*Turt. Lin* iv. p. 538?

T. with a ſmooth, brown, horn-coloured, oval ſhell, with five ſpires ſomewhat rounded: *apex* obtuſe: aperture ſub-orbicular; outer lip uneven, ſub-angulated; uſually furniſhed with ſix teeth, four on the outer lip, and two on the inner. Length one line; breadth one half its length. Younger ſhells have only four teeth.

We firſt noticed this ſpecies on the *Iris pſeudacorus* or yellow-flag, in a boggy place in *Cornwall*, and afterwards in *Devonſhire*, but rare: and ſince in great abundance among the *rejectamenta* of the river *Avon*, after floods, about *Lackham* in *Wiltſhire*; probably waſhed from the neighbouring meadows.

It is alſo found about *Sandwich* in *Kent*.

This ſhell might readily be confounded, at firſt ſight, for the young of *T. muſcorum;* the diſtorted aperture, and teeth, however, are at once ſpecific marks of diſtinction. To *T. Vertigo* it alſo bears ſome reſemblance, but the ſhape of the aperture, number of teeth and contrary turn of the volutions of that ſhell, is ſufficient to diſcriminate them.

If MULLER had not expreſsly ſaid, "*apertura ovali edentula*" we ſhould not have had a doubt of this being his *H. minuta:* the teeth, however, are not always readily

 diſco-

diſcovered, till the aperture has been well cleaned, and it is poſſible even that penetrating naturaliſt may have overlooked this circumſtance, in a bad ſpecimen of ſo minute a ſpecies.

60.
TRIDENS.
Tab. 11. f. 2.

Turbo tridens. *Gmel. Syſt.* p. 3611.—*Turt. Lin.* iv. p. 499. *Pult. Cat. Dorſet.* p. 46.—*Gualt.* t. 4. F.
Helix tridens. *Muller. Verm.* ii. p. 106. No. 305.

T. with a ſub-cylindric, ſmooth, gloſſy ſhell, of a light-brown colour: volutions ſix or ſeven, ſcarcely raiſed, or diſtinguiſhed, but by the ſeparating line: *apex* obtuſe: aperture ſmall and curved; outer lip furniſhed with one tooth on the margin; pillar lip a little reflexed, with two long and two ſhort teeth alternate. Length a quarter of an inch.

The ſpecies here deſcribed we received from Doctor PULTENEY, who has given it in his Catalogue of *Dorſetſhire* ſhells; and who ſays it is found on water plants, by the river *Stour* in *Dorſetſhire*. Dead ſhells are uſually white. It is poſſible moſt of this ſpecies may have only three teeth, eſpecially ſuch as are not full grown; thoſe we examined were rather larger than uſually deſcribed, and had all five teeth; two however are very ſmall, and might eaſily be overlooked.

On the authority above ſtated, it is here given as *Britiſh*,

Britiſh, though it muſt be acknowledged we have never been fortunate enough to find it.

61. CARYCHIUM.

Carychium minimum. *Muller Verm.* ii. p. 125. No. 321.
Schroet. Fluſſconch. p. 324. No. 122.
Helix Carychium. *Gmel. Syſt.* p. 3665.
Turt. Lin. iv. p. 541.
Turbo *Walk. Min. Shells.* f. 51.

T. with a gloſſy, pellucid, white ſhell, with five volutions finely ſtriated longitudinally, rounded, and well defined by the ſeparating line: *apex* obtuſe: aperture ſub-oval, contracted, marginated; outer lip thickened inwards in the middle by a knob; pillar lip furniſhed with two teeth, and ſometimes the rudiment of a third, above the other two. Length ſcarce one line; breadth one third its length.

This, the ſmalleſt of our land ſpecies, is not unfrequent in woods, and on moſſy banks.

We have found it in ſeveral parts of *Wiltſhire*, particularly in *Lackham* wood, and in drifted ſand of the river *Avon:* alſo in *Devonſhire*, and other parts. Is common in *Kent*. Mr. BOYS ſent it to us from *Sandwich*, for Mr. WALKER's ſhell above quoted; who ſays, it is found on the moſſy banks of a ſtream near *Faverſham*.

The minuteneſs of this ſpecies has probably been the

cauſe of its obſcurity, for it is by no means uncommon under decayed wood, particularly the bark, in damp places. The ſtriæ with which it is furniſhed are regular, but ſo extremely fine, as to render a good lens neceſſary to diſcover them.

MULLER, who has divided his ſhells into *genera*, from the ſtructure of the animal inhabitant, has called this a *Carychium*, genus xxv. where this ſpecies ſtands alone; the characters are "*tentaculis duobus truncatis, oculis ad baſin poſtice.*"

This author is perfectly correct; the animal is of a yellowiſh-white, with only two ſhort, cylindric, obtuſe, or truncated *tentacula;* at the baſe of which between, or nearly behind them, are placed two very conſpicuous, approximating, black eyes.

62.

JUNIPERI.

Tab. 12. f. 12.

Schroeter Erdconch. p. 140. t. 1. f. 6.
Chem. Conch. ix. t. 135. f. 1236. a. b.

T. with a ſub-cylindric, opaque, brown ſhell, with eight or nine ſpires ſtriated longitudinally-oblique: the volutions are not rounded, or much raiſed, but well defined by the ſeparating line; the four firſt are cylindric, the reſt taper to an obtuſe *apex:* aperture ſub-orbicular, marginated, reflexed, white, furniſhed with ſeven teeth, three on the outer lip, and four on the *Columella:** at the

* Theſe projections, uſually called teeth, are not properly denticles or tooth-ſhape protuberances, but are fine white *laminæ*, or ridges, running

the baſe behind the pillar lip is a ſingular and large cavity, formed by the contraction of the throat, or interior part of the mouth, and the greatly expanded lips; the margin of the aperture does not quite meet upon the body whirl. Length rather more than a quarter of an inch; breadth not half its length.

This appears to be a rare ſhell, or at leaſt extremely local in *England*. We firſt found it, very ſparingly on an old moſſy wall at *Eaſton Grey* in *Wiltſhire*, ten or twelve years ago; and never ſince till lately, when we diſcovered conſiderable abundance at the roots of *juniper* buſhes, on the ſides of the hills, near *Devizes*, in the ſame county.

CHEMNITZ has given a tolerably good figure of this ſhell, but too large; and likens it to the *T. muſcorum*, but that it is not pellucid, is ſharper pointed, with nine ſpires; and has the mouth beſet with teeth: and alſo obſerves, that SCHROETER remarks, it is not uncommon in *Thuringia*. Indeed it appears to be from the latter author, that the former obtained his knowledge of the ſhell; but unfortunately has jumbled with it the *Turbo tridens*, by quoting the *Helix tridens* of MULLER.

GMELIN has alſo fallen into this error, by quoting CHEMNITZ's ſhell for his *T. tridens*.

SCHRO-

ſpirally backwards, in a parallel direction to each other: thoſe on the exterior lip may in moſt inſtances be traced through the outſide of the ſhell, and are nearly a line in length.

SCHROETER makes a comparative deſcription between this and the *T. muſcorum*, and expreſsly ſays this has ſeven teeth: his figure is alſo more the natural dimenſions, than that given by CHEMNITZ, who has made it nearly double its real ſize.

63.
ELEGANS.

Turbo elegans. *Gmel. Syſt.* p. 3606. 74.
Liſter Conch. t.27. f.25.—*Id. Angl.* t.2.f.5.
Chem. Conch. ix. t. 123. f. 1060. a. to e.
Pult. Cat. Dorſet. p. 45.—*Gualt.* t. 4. A. B.
Shroet Fluſſconch. p. 366. t. 9. f. 15. a. b.
Nerita elegans. *Muller Verm.* ii. p. 177. No. 363.
Turbo tumidus. *Br. Zool.* t.82. f.110.—*Turt. Lin.* iv. p.480
Turbo ſtriatus. *Da Coſta.* p. 86. t. 5. f. 9.
Don. Br. Shells. ii. t. 59.
Morton Northamp. p. 415.
Turt. Lin. iv. p. 495.
Turbo lincina. *Lin. Syſt* p. 1239?—*Gmel. Syſt.* p.3605.71?
Turbo reflexus. *Lin. Syſt.* p. 1238?—*Gmel. Syſt.* p.3605.70?

T. with five ventricoſe volutions, tapering to rather an obtuſe *apex*, marked with ſtrong ſpiral ſtriæ, croſſed by finer longitudinal ones, giving the ſhell a reticulated appearance: colour generally cinereous, with a tinge of purple, the tip frequently quite purple, and void of ſtriæ; ſometimes prettily faſciated with ſpots, or broken bands of purpliſh-brown, or longitudinally ſtreaked with the ſame. Dead ſhells are often white. The aperture is orbicular, projecting on the pillar lip, a little reflexed; mar-

margin faintly marked by the ſtriæ: behind the pillar lip a cavity, or *ſub umbilicus: operculum* teſtaceous, ſpirally ſtriated. Length five-eighths of an inch; breadth three-eighths.

This elegant ſpecies is the only *Britiſh* land ſhell with a teſtaceous *operculum.* It is rather local, but ſufficiently plentiful in ſome parts; chiefly inhabiting dry gravel, or ſandy ſoil, under moſs. We have found it in great abundance, cloſe to the ſea at the roots of fern, to the weſt of *Tenby* in *Wales;* as well as in the woods at *Lackham* in *Wiltſhire.* It has alſo been found in ſome parts of *Kent, Lincolnſhire, Yorkſhire,* and *Northamptonſhire.*

DA COSTA ſays in *Surry* about *Darking:* and PENNANT in the woods of *Cambridgeſhire.* Doctor PULTENEY obſerves, it is common on the higher downs of *Dorſetſhire,* eſpecially near the ſea, and that he had ſeen it plentiful on *Hod Hill* near *Blandford:* we alſo noticed it on *Portland,* and at *Swanage* in the ſame county.

On the continent it is found in *France* and *Italy;* and according to CHEMNITZ on the *Pyrenean* mountains under buſhes.

SCHROETER ſeems to have been puzzled where to place this ſhell, whether amongſt his land, or freſh-water ſpecies; as he obſerves, ſome make the animal to poſſeſs four *tentacula,* while others give it only two: but appears

pears to have favoured the latter opinion; from whence he concludes, it muſt belong to the water, as the animals of all land ſhells poſſeſs four *tentacula:* and he appears the more confirmed in that opinion, on account of its being furniſhed with a ſtrong teſtaceous *operculum.*

It is indeed the only inſtance we can produce, of a land ſhell being provided with a permanent teſtaceous *operculum;* but the animal of *Turbo Carychium,* as well as this, has but two *tentacula:* and MULLER informs us his *Vertigo puſilla,* our *Turbo Vertigo,* which is alſo a land ſhell, is inhabited by a *limax* of a more ſingular formation; for with only two *tentacula,* the eyes are placed at their tips: ſo that, although we have not hitherto diſcovered any aquatic *limax* with four regular *tentacula,** yet ſuch animal poſſeſſing only two, is not a criterion of its being an inhabitant of the water.

The animal of this ſhell has alſo another uncommon property for a land *limax,* as we are informed by LISTER, who ſays they are of different ſexes. Whether this is the caſe in the few other land ſpecies with two *tentacula* remains to be proved; it is however probable, and that thoſe with four *tentacula* are invariably hermaphrodite, and have their ſuperior ones ocellated.

LISTER has further elucidated the ſubject, by giving a

* The plumoſe appendage on the back of the head of *Turbo fontinalis* and *Helix criſtata,* cannot be conſidered as proper *tentacula.*

a diſſection of both ſexes of the animal in his *Exercitatio* tab. 1. where it is repreſented with two *tentacula* only, and the eyes placed at their baſe. The ſame plate is given in his *Conchology* tab. 4. *Anat.* and unfortunately in theſe plates a figure is given of a compreſſed *Helix* without explanation; but which is evidently the ſhell of the animal figured at No. 4. in order to make a comparative view of the organs of generation. The want of ſome explanation of the figure of that ſhell has led to error and confuſion; though he has expreſsly referred to Tit. 5. of his *Anim. Angliæ* for the proper ſhell of the anatomical figure of the *limax* in queſtion.

GEOFFROY, as well as LISTER, was perfectly right in giving the animal only two *tentacula*, and in making it a land ſpecies.

The animal is of a pale brown colour, with a long ſnout, which is ſtrongly ſtriated tranſverſely: *tentacula* two, ſomewhat compreſſed, wrinkled, and ſub-clavated, with ſmooth, gloſſy, black tips:* eyes placed cloſe to the baſe of the *tentacula* on the outſide, a little elevated.

* It is perhaps to be doubted whether the ſmooth gloſſy tips to the *tentacula* are not really eyes, and as much deſerving the appellation, as thoſe on other ſpecies of land *limax*; if ſo, the animal is more eſſentially different from all others of its *congenera*, in poſſeſſing four ſuch organs. Why LISTER ſhould not have conſidered theſe ſub-globular, highly poliſhed extremities, as much the eyes as thoſe placed at the baſe, is not to be determined: but if he was led to conclude they could not be ſuch, becauſe they were not internally retractile, or capable of being drawn within the *tentacula*; it is certainly not a ſufficient reaſon: for it ſhould rather be conſidered, that as the *tentacula* are

The ſnout is ſtrong and muſcular, and is uſed in crawling to hold by, in order to bring forward the body; it is alſo of conſiderable ſervice in removing obſtacles, eſpecially the earth when it retires to its *hibernaculum*.

The *tentacula* are ſomewhat contractile, but not tubular; of courſe the animal is incapable of withdrawing their tips into the interior part, like the more common *limaces*.

64.
FASCIATUS.

Turbo faſciatus. *Br. Zool.* t. 82. f. 119.
Da Coſta. p. 90.—*Favan.* t. 65. A. 1.
Don. Br. Shells. i. t. 18. f. 1. 1.
Liſter Conch. t. 19. f. 14.
Turt. Lin. iv. p. 481.
Helix bifaſciata. *Pult. Cat. Dorſet.* p. 49.

T. with a thin, ſub-pellucid, taper ſhell, with nine ſpires a little rounded, but not much raiſed: *apex* moderately pointed: volutions not regularly ſtriated, but wrinkled acroſs the whirls: colour white, longitudinally ſtreaked

(for ſome wiſe purpoſe) formed to be conſtantly exerted, ſo it became neceſſary to protect ſo delicate a part by a corneous covering, as in the *Cancer* tribe.

With ſubmiſſion therefore to the anatomical abilities of Doctor LISTER, who certainly did not conſider that part to be ocellated, we think it right to remark that, whoever, well qualified for the nice operation of the diſſection of thoſe parts, may hereafter undertake the inveſtigation, we have little doubt but our conjectures will be aſcertained to be juſt, and that the animal will really be found to poſſeſs four eyes, two on the tips of the *tentacula*, and two at their baſe.

ſtreaked with brown or cheſnut, which at the baſe frequently become confluent, and form one or two regular bands: aperture ſub-oval; outer lip thin; pillar lip a little reflexed, forming a ſmall cavity behind. Length near three-quarters of an inch; breadth a quarter.

This ſpecies was firſt noticed by LISTER in *Wales;* and afterwards by PENNANT as frequent in *Angleſea*, on ſandy ſoil near the coaſt. It is certainly a local ſpecies, though very abundant in ſome places near the ſea, and rarely, we belive, but in arenaceous ſoil, within the influence of ſaline air. On the coaſt of *Caermarthenſhire*, and on the hill above *Whitſand* bay in *Cornwall*, it is in ſuch vaſt profuſion, that a perſon cannot ſtep without cruſhing numbers. At the laſt place is a prevailing opinion, that they contribute much to fatten ſheep,* it is indeed impoſſible that thoſe animals ſhould browze on ſuch ſhort graſs without devouring a prodigious quantity, eſpecially in the night, or after rain, when they aſcend the ſtunted blades.

* In the *Hiſtory of Cornwall*, BORLASE ſays, p. 286. "The ſweeteſt "mutton is reckoned to be that of the ſmalleſt ſheep, which feed on the com- "mons where the ſands are ſcarce covered with the green ſod, and the graſs "exceedingly ſhort; ſuch are the *towens* or ſand-hillocks in *Piran-ſand*, "*Gwythien*, *Philac*, and *Senan-green*, near the land's end, and elſewhere in "like ſituations. From theſe ſands come forth ſnails of the turbinated kind, "but of different ſpecies, and all ſizes from the adult to the ſmalleſt juſt from "the egg; theſe ſpread themſelves over the plains early in the morning, and "whilſt they are in queſt of their own food among the dews, yield a moſt fat- "ning nouriſhment to the ſheep."

Is alſo very plentiful in ſome parts of *South Devon*, cloſe to the ſea, eſpecially at *Bigberry* bay: even the drifted ſand at this place is full of dead ſhells, to the depth of four feet.

In all theſe places it is obſervable, that not one is to be found as ſoon as you quit the ſandy ſoil.

Doctor PULTENEY ſpeaks of it as plentiful on the downs in *Dorſetſhire*, near the ſea. We found it alſo at *Kingsbridge* in *Devonſhire*, not uncommon in one or two fields, probably brought from ſome diſtance in ſand, (commonly uſed in that part for manure) as not a ſingle ſhell is to be met with in any other place within ſome miles.

The *Turbo faſciatus* ſhould ſeem to be peculiar to *England*, as we do not find it deſcribed as inhabiting the continent, by any foreign writer. It does not appear to be in the twelfth edition of the *Syſtema Naturæ*; nor is it, that we can find, in that of GMELIN, except where LISTER's figure of it is erroneouſly quoted for *Helix detrita*. MULLER and SCHROETER appear to be equally unacquainted with it.

65.
FONTINALIS.

Turbo fontinalis. *Pult. Cat. Dorſet.* p. 45.
Don Br. Shells. iii. t. 102.
Walk. Min Shells. f. 56.
Petiv. Gaz. t. 18. f. 2.

Helix

Helix piſcinalis. *Gmel. Syſt.* p 3627 44.
Turt. Lin. iv. p. 512.
Helix puſilla. *Gmel Syſt.* p. 3627 45.
Turt. Lin. 4. p. 513.
Turbo thermalis. *Gmel. Syſt.* p. 3603. 61?
Turt. Lin. iv. p. 493?
Trochus criſtatus. *Schroeter Fluſſconch.* p. 280. t. 6. f. 11.
Nerita piſcinalis. *Muller Verm.* ii. p. 172. No. 358
Schroeter Fluſſconch. p. 247 No. 61.
Nerita puſilla. *Muller Verm.* ii. p. 171. No 357.
Schroeter Fluſſconch. p. 246 No. 59.

T. with a thin, ſub-pellucid, horn-coloured ſhell, with four or five much rounded, very prominent, ſmooth, or finely wrinkled volutions; the laſt ſmall, and rather compreſſed, giving the ſhell an obtuſe *apex:* aperture perfectly orbicular; lips thin; inner lip ſlightly attached to the body whirl: baſe perforated with a ſmall, but deep *umbilicus.* Length and breadth nearly the ſame, rarely exceeding a quarter of an inch.

This ſpecies is not uncommon in ſome of our rivers and ſmall ſtreams; ſometimes in ſtagnant waters, and particularly in drains or water-courſes, in low ſwampy ground.

We have found it in various parts of *Wiltſhire,* eſpecially in the *Avon,* and in the moat round the old caſtle at *Marlborough:* in *Devonſhire* not far from *Exeter;* and in *Dorſetſhire* in *Perbeck* very plentiful. In the river *Kennet* about *Newbury,* it is not uncommon.

It

It is frequently covered with a concreted, ſtony matter, and ſometimes a brown *epidermis:* dead ſhells are white.

Although by no means a ſcarce ſpecies, it has been in conſiderable obſcurity, notwithſtanding PETIVER gave a figure of it near a hundred years ago, and ſays, "I have obſerved this in freſh-water, and if I miſtake not, in the *New River.*"

MULLER has doubtleſs given this ſhell in two places, but in neither does he mention the ſingular ſtructure of the animal inhabitant; a circumſtance that would not have eſcaped the diſcriminating eye of that great naturaliſt, if it had ever come alive under his examination.

SCHROETER has given it in no leſs than three places, as ſo many diſtinct ſpecies; two of which are evidently thoſe of MULLER: the other under the title of *Trochus criſtatus,* deſcribes both the ſhell and the animal perfectly well: he ſays he received it from Profeſſor HERMANN, by the name of *Federbuſchtragers* (plume-bearer), by which appellation it is alſo to be found in MARTINI *Berlin Magaz.* iv. 247. No. 59. GEOFFROY in his *German* edit. calls it *Cochlea depreſſa criſtata:* in his *French* edit. *Le Port Plumet.*

From theſe authors it appears to have been found in water courſes, ſmall ſtreams, and fiſh-ponds, about *Paris,* as well as in *Sweden.*

The

The *operculum* of the ſhell is corneous, permanent, wrought with fine ſpiral ridges, with a ſmall knob in the centre.

The animal is of a pale colour, with two ſetaceous *tentacula* placed as uſual, and another ſimilar one, ſituated on the right ſide, cloſe to the head; and near this, on the middle of the hind head, is an appendage of a moſt elegant plumoſe ſtructure, (like that of the animal inhabiting *Helix criſtata*,) very pellucid, extremely ſenſible, and capable of inſtantaneous retraction: the eyes are ſituated on the head, at the baſe of the two anterior *tentacula*.

***REVERSED.

Animal with the foramen on the left ſide.

We have thought it proper to make a ſeparate diviſion of the reverſed ſhells of this genus, in order that they might be brought together the better for compariſon; and perhaps it may not be improper in this place, to define what is really intended by this term.

Nothing appears more confuſed and incomprehenſible, than the various deſcriptions of different authors, concerning

cerning the ſpiral turns of a *heteroſtrophe* ſhell; ſome call it from right to left, others *vice verſa*, from left to right.

Every conchologiſt knows, that moſt convoluted ſhells turn one way, and that there are a few ſpecies which are *heteroclitical*, or invariably turn contrary to the uſual manner: ſome indeed have doubted, whether this is a permanent character; there requires, however, no argument to prove it is ſo, to thoſe who have taken the trouble to examine the common ſpecies of *heteroſtrophe* ſhells, which daily preſent themſelves to our notice in our rural walks. Indeed, it is rather ſtrange, that not one of theſe ſhells, whoſe nature is to have their ſpires turn in the more unuſual manner, has (to our knowledge) ever been met with to vary from that formation; as ſuch accidental deformities have been found in a few inſtances, amongſt thoſe which are uſually termed dextrals, or have the more uſual ſpiral turns, and have become *luſus heteroſtrophon* ſhells.

In order therefore to explain, which way the turn of the ſpiral convolutions of a reverſed ſhell takes, omitting the vague ſignification of turning to the right or left; we ſhall obſerve, that the more common turn of ſhells is with the apparent motion of the ſun, or as the index or hand of a clock moves.

But in order to be more clearly underſtood; let us compare the ſpiral volutions of a ſhell to a common cork-

cork-ſcrew, and we ſhall find, that whether the mouth, or *apex*, is placed upwards, the ſpires will turn from the upper to the lower end like a common ſcrew, which is in the ſame direction as the index of a time-piece, and what is commonly underſtood by a dextral or right-handed ſcrew. As a further definition, ſuch ſhells have their aperture on the right ſide, when examined with that end downward; and is in the direction of the ſun's apparent motion.

On the contrary, a reverſed ſhell, when placed in a perpendicular poſition, has its ſpiral volutions in an oppoſite direction to the motion of the index of a watch, or a clock, or to a common ſcrew; and in fact reſembles what is uſually termed a ſiniſtral, or left-handed ſcrew. Theſe have their aperture on the left ſide, or oppoſite the left hand of the perſon holding the ſhell with the mouth downward; and the opening is oppoſite the ſun's apparent motion.

In order to determine whether a flat ſhell, whoſe volutions are laterally placed, is a reverſed ſpecies, we have only to examine which way the volutions turn from the *apex* or centre, towards the mouth; and if we find it contrary to the motion of the index of a watch, it is a *heteroſtrophe*, or reverſed ſhell: and *vice verſa*,

In ſome of the more depreſſed ſpecies of *Helix*, or *Nautilus*, attention is requiſite to be paid to the mouth,

in order to determine which is really the upper ſide of the ſhell, for it is on that ſide the ſpiral turns are to be taken from the centre or *apex:* and in moſt inſtances this is to be determined by the oblique direction of the aperture to the under part, where the lip rarely extends ſo far as on the upper part. In fixed ſhells, ſuch as *Serpula*, there is no difficulty, as the ſide which is *ſeſſile* muſt be conſidered as the baſe, or under part. Thus in the *Serpula lucida* the fixed part is ſometimes very ſmall, and the mouth protends ſpirally upwards in a contrary direction to the ſun; and therefore muſt be conſidered a reverſed or *heteroſtrophe* ſhell, the ſame as if the volutions neareſt the mouth had turned laterally upon the the centre or fixed ones.

This ſhell, indeed, is moſt frequently found with regular lateral volutions; and though ſubject to great variety with reſpect to contortions, it invariably turns the aperture one way.

In ſome ſpecies of *Nautilus*, however, there can be no rule to aſcertain whether it is dextral or ſiniſtral; for when the aperture is exactly lateral, the lip collapſes the body equally, and the ſides of the ſhell ſimilar, as in *N. Calcar*, it cannot be defined.

In others of that genus, as in *N. Beccarii* and *Beccarii perverſus*, two ſhells, the principal diſtinction of which, is the contrary turn of their volutions, it is eaſily deter-

determined, by the convexity of the upper ſide; and of courſe, the aperture being placed ſomewhat beneath.

Having thus, we hope, pretty clearly defined what is a reverſed ſhell, or at leaſt explained what is conſidered as ſuch by us, we ſhall proceed to deſcribe the few of that family in the *Turbo* genus.

66.

Turbo perverſus. *Lin. Syſt.* p. 1240. PERVERSUS.
Chem. Conch. ix. t. 112. f. 959. a. Tab. 11. f. 12.
Liſt. Angl. t.2. f.11?—*Favan.* t.65. I.4.
Berkenhout. p. 206. 3.
Hill Swammerd. p. 69. t. 8. f. 1. 2.
Schroet Erdconch. p. 138. t. 1. f. 5.

T. with eight or nine reverſed, ſub-pellucid, regular. tapering ſpires, of a yellowiſh or greeniſh horn-colour, obſoletely ſtriated: volutions a little rounded, and divided by a deep ſeparating line: aperture ſub-orbicular; outer lip a little reflexed; pillar lip not detached, or projecting on the body whirl, the edges white and thin: in old ſhells a round, obſolete, tooth-like knob, is obſervable at the edge of the upper angle, but is moſt commonly without any. Length rarely exceeding a quarter of an inch; breadth one fourth of its length.

This ſpecies is extremely local, and by no means ſo plentiful or common as *T. bidens*, with which it is rarely found. We have taken it in *Wiltſhire*, and in *Cornwall* near *Penryn*, in both places adhering to the trunks of

trees: and in *Devonſhire* near *Kingsbridge*, under the looſe bark of old apple trees, where no other ſhell was to be met with, but *T. Muſcorum.*

No ſhell ſeems to have puzzled conchologiſts more than this; being generally placed in cabinets as the young of *T. bidens.*

The difficulty of obtaining a ſpecimen, with a perfect full grown mouth, has probably led to this error. It differs however in ſhape, ſize, and colour, particularly in the bottom volution, which is even and round; whereas the *bidens* has a prominent ridge, and depreſſion on that part; beſides, the pillar lip of this reflects upon, and adheres to the body whirl, forming a ſmall depreſſion, or *ſub-umbilicus:* in the other the pillar lip is perfectly detached, thick, and prominent.

CHEMNITZ has given a bad figure of this ſhell, and with it a variety, which is doubtleſs no other than a young *bidens.*

DA COSTA probably had never ſeen this ſpecies, and has given the *bidens* for the young, and the *T. labiatus*, for the adult ſhell. LINNÆUS particularly ſpecifies his ſhell to be without teeth, by ſaying, "*Turbo perverſus teſta turrita pellucida, anfractibus contrariis apertura edentula.*" GMELIN has certainly not given this ſpecies for his *perverſus*, as he ſays, "*teſta pellucida: anfractibus contrariis non crenatis, apertura tridentata.* From this ſpecific character, as well as from the ſize, which is ſtated

to

to be about three-quarters of an inch in length, there is little doubt but his ſhell is the *T. laminatus*.

Animal duſky above, light beneath; *tentacula* four, ſhort, cylindric, clavate, furniſhed with eyes at the tips of the longeſt.

67.

Turbo bidens. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3609. 87. BIDENS.
Turt. Lin. iv. p. 498. Tab. 11. f. 7.
Chem. Conch. ix. t 112. f. 559. b. (young)
Liſter Conch. t. 41. f. 39. (right hand.)
Id Angl. t. 2. f. 10.
Pult. Cat. Dorſet. p. 46.
Turbo perverſus. *Br. Zool.* t. 82. f. 116.
Don. Br. Shells. ii. t. 72.
Helix perverſus. *Muller Verm.* ii. p. 118. No. 316.
Strombif. perverſus. *Da Coſta.* p. 108.

T. with twelve taper, reverſed ſpires, ſwelling a little in the middle, and marked with fine longitudinal ſtriæ: the volutions rather flat, but well defined by the ſeparating line: colour opaque chocolate-brown; frequently cinereous, or ſtreaked with it, eſpecially dead ſhells, or ſuch as have been expoſed to the ſun: aperture ſub-orbicular, the upper part compreſſed on the outer angle near to the body; pillar lip furniſhed with two teeth like folds, that run a conſiderable way into the ſhell: the margin of the lip is white, a little reflexed; the inner lip is not loſt on the body whirl, as in *T. perverſus*, but is raiſed, and perfectly

fectly detached from it; and at the back of the lower volution, behind the mouth, is a prominent ridge, and a depreſſion. Length rarely half an inch; breadth one fourth its length.

This ſpecies is the moſt common of all the *Britiſh* land ſhells: it is found in every part of the kingdom in woods, and ſhady places, particularly on trunks of trees, moſſy and ivy-grown walls. In its young ſtate, before the mouth is formed, it has been confounded for *T. perverſus* of LINNÆUS: but even in that ſtate it is readily diſtinguiſhed by the baſe being flattiſh, and appears unformed; which is never obſerved in the other at any age, the laſt volution being always rounded. In the colour too, it is eſſentially different, as in no inſtance is it found to be of that light, pellucid, greeniſh horn-colour.

DA COSTA, as well as others, has fallen into this error. DONOVAN has evidently given a figure of this ſhell, but is miſtaken in quoting the *T. perverſus* of LINNÆUS, as well as making it the *Strombiformis perverſus*, of DA COSTA. The ſhell figured by that author is the *T. labiatus* of this work, though he erroneouſly deſcribes the *T. bidens* as the young of that ſhell.

This ſpecies was called by Doctor SOLANDER *Turbo nigricans*.

Animal duſky: *tentacula* four, ſhort, cylindric, clavate;

vate; the two longeſt furniſhed with eyes at their tips. The *tentacula* not ſo long in proportion, as thoſe of the *perverſus;* colour of the animal darker.

68.
LAMINATUS.
Tab. 11. f. 4.

Turbo perverſus. *Gmel. Syſt.* p. 3609. 88.
Turt. Lin. iv. p. 498.
Br. Zool. t. 81. f. 17.—*Gualt.* t. 4. C.
Pult. Cat. Dorſet. p. 46.
Chem. Conch. ix. t. 112. f. 960. No. 1.
Liſter Conch. t. 41. f. 39. (left hand.)
Schroeter Erdconch. p. 137. t. 1. f. 4. a.
Helix bidens. *Muller Verm.* ii. p. 116. No. 315.

T. with ten ſmooth, gloſſy, pellucid, reverſed ſpires, of a rufous horn-colour: ſhape like the *T. bidens*, largeſt in the middle, and tapering from thence to a ſmall round point: the volutions rather raiſed, but not prominent, yet well defined by the ſeparating line: aperture ſub-orbicular, compreſſed at the upper outer margin, where it joins the body; lip white, ſlightly marginated, and reflexed; pillar lip a little thickened, not elevated, or detached from the body whirl, furniſhed with two white folds, or teeth-like *laminæ*, very conſpicuous; and deep within the mouth are three or four prominent ridges, diſcernable through the ſhell when held up to the light. Length nearly three-quarters of an inch; breadth one fourth of its length.

In live ſhells, the animal gives it a dark appearance; and

and when dried and contracted within, the upper volutions only, are of a duſky-brown colour. Old ſhells are ſometimes worn and decorticated, becoming of a cinereous colour in ſtreaks and blotches; but never regularly ſtriated, though poſſeſſed of faint, longitudinal wrinkles, only obſervable by the aſſiſtance of a lens.

This ſpecies has been confounded with *T. bidens* and *perverſus*. Doctor PULTENEY, in his Catalogue of *Dorſetſhire* ſhells, makes it the laſt mentioned; ſays it it is much more common than the *bidens;* and remarks, that it is much larger than that ſhell, and not rarely furniſhed with three teeth. Poſſibly the Doctor had never obſerved all the *laminæ* on the outer lip, but only the one on that part moſt conſpicuous. It appears to be very local; for we have never found it but in *Lackham* wood, in the north of *Wiltſhire*, and at *Bow Wood*, the ſeat of the Marquis of LANSDOWN, in the ſame county. It is, however, found ſparingly in *Kent*, in the neighbourhood of *Sandwich*.

This ſpecies is like *T. perverſus* on the back of the lower whirl, behind the lip, being quite even and rounded; but its ſuperior ſize, ſhape, and laminated mouth, forbids its being confounded. From *T. bidens* it differs eſſentially, in being ſuperior in ſize; in tranſparency, gloſſineſs, and want of ſtriæ, as well as in the connexion of the pillar lip to the body; and the back of the lip being even.

Animal

Animal light-brown, paler beneath; *tentacula*, and eyes, ſomewhat like the laſt.

69. BIPLICATUS. Tab. 11. f. 5.

Turbo bidens. *Gmel. Syſt.* p. 3609. 87. var.?
Chem. Conch. ix. t. 112. f. 960. No. 2?
Schroeter Erdconch. p. 139. t. 1. f. 4. b.
Helix papillaris. *Muller Verm.* ii. p. 120. No. 317?
Gualt. t. 4. D. E?

T. with twelve or thirteen reverſed, taper ſpires, of an opaque brown colour, marked with numerous, ſtrong, and regular ſtriæ the whole length of the ſhell, interrupted only by the ſeparating line, which is moderately deep and well defined: aperture ſub-orbicular, much compreſſed at the upper part, and ſlightly at the extremity: lips rather thick, white, and reflected; margin connected all round: pillar lip prominent, and detached, furniſhed with two white teeth-like *laminæ*, approximating. Length three-quarters of an inch; breadth one fifth of its length.

This ſpecies has much the habit of *T. bidens*, but is readily diſtinguiſhedby its colour, ſuperior ſize, and particularly the ſhape of the mouth. It is alſo obſervable that this ſhell, though much ſuperior in ſize, has the teeth invariably much nearer together; the margin of the aperture is alſo more reflexed and more produced.

We firſt diſcovered this ſpecies ſparingly at *Eaſton Grey* in *Wiltſhire;* and many years after obſerved it in

the cabinets of Mr. SWAINSON and Mr. SOWERBY, in *London;* by whom we are informed, it was not uncommon in the neighbourhood of the metropolis, especially in *Hyde Park.*

70.
LABIATA.
Tab. 11. f. 6.

Strombif. perverſus. *Da Coſta.* p. 107. t. 5. f. 15.
Chem. Conch. ix. t. 112. f. 957?

T. with nine reverſed, taper ſpires, of an opaque, light-brown colour, wrought with numerous, ſtrong, and regular ſtriæ, the whole length of the ſhell: the volutions are flat, ſeparated only by a fine obſolete line, which does not interrupt the longitudinal ſtriæ: aperture ſub-orbicular, with a *ſinus* at the upper end, and furniſhed with two teeth-like *laminæ* on the inner lip; margin much reflected, very broad, thick, and white, ſurrounding the mouth; pillar lip a little detached from the body whirl. Length five-eighths of an inch; breadth one eighth.

This ſpecies cannot be confounded with any of the preceding *heteroſtrophe* ſhells, for independent of the unſually flat volutions, the broad, thick, marginated aperture, is an unerring mark of diſtinction.

DA COSTA ſeems to have known this rare ſpecies, having given a good deſcription of it, as an old ſhell of his *Strombiformis perverſus;* where he not only makes mention of the volutions, not jutting out beyond each other,

other, but that the border round the mouth is very broad, flat, thick, milk white, and turned greatly outwards. Which characters neither belong to the *T. bidens*, nor *perverſus*.

That it is found in the neighbourhood of *London* is without doubt, as Mr. SWAINSON informed us it was noticed in *Hyde Park*, about twenty years ago, adhering to the trunks of trees, on the north ſide of the ſerpentine river, near its banks.

This gentleman further remarked, that he believed it to be ſcarce, never having found more than three or four, and thoſe in an ozier-ground in *Batterſea* fields, near the wind-mills, as far back as the year 1790.

We believe this was named by Doctor SOLANDER, *Turbo labiatus*, which name we have retained, eſpecially as it ſeems to be known by it, and is ſo marked in Mr. SWAINSON's cabinet.

71.

VERTIGO.

Tab. 12. f. 6.

Vertigo puſilla. *Muller Verm.* ii. p. 124. No. 320.
Schroeter Fluſſconch. p. 349. No. 142.
Helix Vertigo. *Gmel. Syſt.* p. 3664. 155.
Turt. Lin. iv. p. 541.

T. with an opaque, brown, oval ſhell, with five reverſed ſpires faintly ſtriated: *apex* obtuſe: aperture ſub-orbicular, ſub-triangular, ſub-marginated, indented, uſu-

ally furniſhed with three white teeth, two on the *Columella*, and one on the exterior lip oppoſite; and a large plate, or protuberance, at the angle of the outer lip. Length half a line, or ſcarce larger than a poppy ſeed.

It has much the habit of *Turbo ſexdentatus*, but beſides its being reverſed, it is more cylindric, more obtuſe at the *apex*, and differs eſſentially in the ſhape of the aperture, and in the teeth.

We were firſt favoured with ſpecimens of this ſpecies by Mr. Boys of *Sandwich*, who informed us, it was not uncommon at that place, on old walls covered with ivy: and have ſince found it rarely amongſt the *rejectamenta* of the river *Avon* in *Wiltſhire*.

The infant ſtate of this ſhell has much the appearance of a *Trochus*, the aperture is quadrangular, tranſverſely compreſſed; and the baſe flat and umbilicated.

Muller gives this ſhell ſingly, in his twenty-fourth genus, under the title of *Vertigo*: the characters being taken from the animal, run thus, "*Tentaculis duobus* "*linearibus, apice oculatis.*"

This is, we believe, the only inſtance of a *limax* poſſeſſing but two *tentacula*, furniſhed with eyes at their tips, and none at their baſe.

With

With reſpect to the number of teeth, it is ſubject to ſome variety, having in one or two inſtances lately, found it to poſſeſs ſix, and the rudiment of a ſeventh; in which ſtate MULLER has particularly deſcribed it, but does not mention the more uſual appearance of that part, which for ſome time occaſioned us to doubt, whether with propriety, the ſynonyms of MULLER's ſhell, could be affixed to it, though his calling it *ſiniſtrorſa*, which implies a reverſed, or *heteroſtrophe* ſpecies, inclined us to think it the ſame.

This naturaliſt ſays, it is found on rotten wood, but ſpeaks of it as rare.

In the ſpecimen now before us, the teeth are ſet in pairs, two on the *Columella*, two on the right ſide, and the ſame on the left, with the rudiment of a ſeventh between the two pair on the exterior lip: the plate deſcribed above, at the angle of the outer lip is leſs conſpicuous, being elongated into one of the largeſt teeth.

MULLER ſays, "*Apertura ſub-quadrata, margine ſum-*
"*mo albo, arcuato, ad anfractum oppoſitum tranſverſo.*
"*Dentes in ore aperturæ ſex minimi albi cum rudimento*
"*ſeptimi, tres nempe in externo aperturæ, tres in anfrac-*
"*tu vicino.*"

Thoſe who have an opportunity of examining this

ſhell,

ſhell, will find this deſcription to accord with ours, when it is obſerved, MULLER has apparently divided the natural order of the teeth; but it will be ſeen, the pair on the inner angle of the outer lip, ſtand one on each ſide, the upper of which, is conſidered by him as belonging to the *Columella*, or in the vicinity of the volution.

The irregular ſhape of the aperture might alſo be conſidered by ſome as a ſub-ſquare, but to us it appears more properly ſub-trilateral, with rounded angles.

GEN. XXVIII.

HELIX.

Animal a LIMAX.

SHELL, univalve, ſpiral, ſub-diaphanous, fragile.

Aperture contracted, either ſub-rotund, or ſemi-lunar†.

*OVATE, OR TURRITED.

1. STAGNALIS. Tab. 16. f. 8.

Helix ſtagnalis. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3657. 128. *Chem. Conch.* ix. t. 135. f. 1237. 1238. *Muller Verm.* ii. p. 132. No. 327. *Liſt. Conch.* t. 123. f. 21.—*Id. Angl.* t. 2. f. 21. *Schroet. Fluſſconch.* p. 304. t. 7. f. 1. to 4.—t. *Min.* C. f. 1.

Helix

† The very great connexion between the *Turbo* and *Helix* of the *Linnæan genera*, has frequently occaſioned a removal of ſpecies from one to the other. Indeed, if none were to be placed in the former, but what had the aperture ſtrictly orbicular, and entire; nor in the latter, any but thoſe poſſeſſing a ſub-lunar or roundiſh mouth, we ſhould be at a loſs where to place a great many ſpecies of both theſe *genera*. We have, however, followed the Swediſh naturaliſt pretty cloſely, except in a few inſtances; particularly that of placing all the depreſſed ſpecies without any regard to the ſhape of the mouth, in the *Helix* genus.

Helix ſtagnalis. *Br. Zool.* t. 86. f. 136—*Gualt.* t. 5. I. L.
Da. Coſta. p. 93. t. 5. f. 11.
Favan. t. 61. F. 16. & 23.
Pult. Cat. Dorſet. p. 48.
Don Br. Shells. ii. t. 51. f. 2.
Turt. Lin. 4. p. 536.

H. with a thin, brittle, pellucid, horn-coloured ſhell, with ſix or ſeven ſpires, the firſt very large. the others ſmall and tapering to a very fine point; body a little wrinkled longitudinally, with a few faint, irregular, tranſverſe ridges; aperture oval, large, more than half the length of the ſhell; outer lip thin; pillar lip thickened, ſmooth. Length one inch and three quarters; breadth one inch.

This ſpecies which is the largeſt of all our freſh-water univalve ſhells is not uncommon in many of our ſlow rivers, and ſtagnant waters. It is frequently covered with a green *epidermis*, and ſometimes a concreted ſtony matter, that almoſt obliterates the upper volutions. Some authors have made this ſhell into two or three ſpecies, apparently from ſize only.

Mr. PENNANT has figured the *H. paluſtris* as a variety, tab. 86. letter B.

It is ſubject to a gibboſity on the body whirl, which in ſome old ſhells is large and very prominent.

The

The figure of this common ſpecies is given, for the purpoſe of comparing with it, what is conſidered as the *H. fragilis* of LINNÆUS; for which reaſon a medium ſpecimen was choſen for the engraving, in order to adapt the ſize to that of the other.

2.

Helix fragilis. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3658. FRAGILIS.
Schroeter Fluſſconch. p. 309. t. 7. f. 8? Tab. 16. f. 7.

H. with a thin, pellucid, horn-coloured ſhell, much reſembling *H. ſtagnalis*, but is more ſlender, particularly in the ſmaller ſpires, and the volutions are uſually more diaphanous, and always turn more oblique.

There is very little doubt that this is the *H. fragilis* of LINNÆUS, but whether it is really diſtinct is difficult to determine; all we can ſay is, that till very lately no ſhell of ſuch ſlender growth had ever occurred to us, amongſt the *ſtagnalis*, in the various parts of the kingdom we have taken that ſhell: and upon a compariſon of all the varieties of the *ſtagnalis* received from our friends, a conſiderable difference appears, more particularly in the ſmaller ſhells, which are much more ſlender in the ſuperior volutions.

The only place in which this has ever occurred to us, is the canal intended to make a junction of the *Kennet* and *Avon*, between *Chippenham* and *Laycock*, in *Wiltſhire*: many, that were collected from that water, were

all of the ſame ſlender ſhape; and in the younger ſhells, there were, in all we examined, a few opaque white lines, croſſing the ſmaller volutions. The largeſt meaſured an inch and a half in length, and not quite three-quarters of an inch wide, in the largeſt part.

There does not appear to be any material difference between the animals of theſe two ſhells; both are of a yellowiſh colour, with two ſhort, flat, conic *tentacula*, at the baſe of which the eyes are ſituated: the ſexes too are diſtinct, as is uſual in aquatic *limaces*.

Having ſaid thus much, we muſt leave to future obſervations the actual determination, whether it is really diſtinct or not: in giving it a ſeparate place, we have only followed the example of abler naturaliſts, but we muſt confeſs it admits of ſome doubt.

The figure given by SCHROETER for the *Linnæan fragilis*, we have quoted, but not without a note of interrogation, as it is not ſufficiently taper, or ſlender in the ſmaller volutions.

3. PALUSTRIS. Tab. 16. f. 10.

Helix paluſtris. *Gmel. Syſt.* p.3658.—*Turt. Lin.* iv. p.537.
Liſter Conch. t. 124. f. 24.
Id Angl. t. 2. f. 22.
Muller Verm. ii. p. 131. No. 326.
Schroeter Fluſſconch. p. 308. t. 7. f. 7. 9. 10. & 11?—*Hill Swammerd.* p. 73. t. 9. f. 4.

Helix

Helix paluſtris. *Pult. Cat. Dorſet.* p. 48.
Helix fragilis. *Muller Verm.* p. 48.
Helix ſtagnalis. *Br. Zool.* t. 86. f. 136. B. (var.)

H. with a ſub-pellucid, brown, horn-coloured ſhell, with ſix ſpires, tapering to a ſharp point; the volutions are a little rounded, but not much elevated, ſlightly wrinkled longitudinally, and ſometimes marked with irregular tranſverſe ridges, particularly on the body whirl: aperture oval, nearly half the length of the ſhell; outer lip thin; pillar lip replicated, in old ſhells forming a ſlight cavity behind; inſide gloſſy purpliſh-brown, ſometimes dark-purple. Length commonly about three-quarters of an inch; breadth three-eighths; but ſometimes, though rarely, exceeds an inch in length.

This ſpecies is much more ſlender at the baſe than the *ſtagnalis*, and more gradually taper. It is not uncommon in watery ditches, in low ſwampy ſituations, in various parts of the kingdom; it does not, however, appear to be ſo generally known as *H. ſtagnalis*, and poſſibly has ſometimes been confounded for the young of that ſpecies; as was the caſe with Mr. PENNANT. Doctor PULTENEY'S *H. fragilis* is only a variety of this ſhell, with the volutions rather more rounded, and the *apex* more obtuſe. Such are not uncommon, and we are perfectly clear the Doctor's ſhell is no other, as he favoured us with a ſpecimen.

The *paluſtris* is generally covered with a dark *epider-*

mis, ſometimes almoſt black, and not uncommonly worn, or decorticated about the *apex*.

We have found it in *Kent*, *Hampſhire*, *Wiltſhire*, *Dorſetſhire*, *Devonſhire*, *Cornwall*, and other parts.

Animal dark cinereous, ſpeckled with a lighter colour: *tentacula* ſhort, flat, conic: eyes ſituated at their baſe.

4.

FOSSARIA. Tab. 16. f. 9.

Helix glabra. *Gmel Syſt* p 3658?
Schroeter Fluſſconch. p. 320. t. 7. f. 15?
Buccinum glabrum. *Muller Verm.* ii. p. 135. No. 328?

H. with a thin, pellucid, horn-coloured ſhell, with five or ſix ſpires: has much the habit of *Helix paluſtris*, but not half the ſize, and the volutions rounder, more deeply divided, and the aperture not ſo oblong: is alſo more generally ſlender, and rarely has any tranſverſe wrinkles. Length three-eighths of an inch; breadth not one half its length.

This ſpecies is not uncommon in moſt parts of the kingdom, in moiſt places, particularly in muddy ditches, drains, and water-courſes, which are frequently dry, in which caſe the animal periſhes; for though it is more amphibious than any other ſpecies we are acquainted with, yet it cannot exiſt without moiſture; it is, however, more frequently found at the edge of water, than in it,

it, preferring moiſture to actual fluid, and is rarely found immerſed but in ſhallow pools, expoſed to the ſun.

It never creeps up the plants, but always keeps on the mud.

This ſhell has probably been confounded for the young of the *paluſtris*, but is generally of a lighter colour, and is rarely, if ever, found with that ſhell. It is extremely common in ſome parts of *Devonſhire*, and in many other places, where the *paluſtris* is not to be found: in the ſouthern parts of that county, every little ſplaſh, or muddy place by the road ſide is full of them; but have never found the other in thoſe parts. We have even met with it upon the top of one of the higheſt hills in *Cornwall*, at the verge of a ſpring near the *Lizard*, where no other ſpecies of ſhell was to be found.

Animal duſky: *tentacula* two, ſomewhat compreſſed, ſhort: eyes on the head, at the baſe of the *tentacula*.

5.

Helix peregra. *Gmel. Syſt.* p. 3659.—*Turt. Lin.* iv. p. 537. PEREGRA.
Muller. Verm. ii. p. 130. 324. Tab. 16. f. 3.
Favan. t. 61. E. 4.
Helix putris. *Br. Zool.* t. 86. f. 137.
Helix atrata. *Chem. Conch.* ix. t. 135. f. 1244. 1. 2.
Gualt. t. 5. f. C. C.
Schroet. t 6. f. 3. 6.—t. 7. f. 12?—& t. *Min.* C. f. 2.

H. with

H. with a thin, ſub-pellucid, yellowiſh, horn-coloured ſhell, with four ſpires; the firſt very large and tumid, the others very ſmall: *apex* fine, and pointed: volutions wrinkled longitudinally: aperture extremely large, oval, three fourths the length of the ſhell; outer lip thin; pillar lip thickened; inſide white, or yellowiſh: outſide uſually covered with a thick, blackiſh, or duſky brown *epidermis*. Length one inch; breadth five-eighths, uſually much leſs.

This ſpecies, the moſt common of all our freſh-water ſhells, is frequently confounded with *Helix auricularia*, which is a much more local ſhell; whereas this is found in moſt of our ſlow rivers, and ſtagnant waters.

Mr. PENNANT has given a good figure of it, and has quoted the *H. putris* of LINNÆUS. We do not however think it is that ſhell. DA COSTA has quoted PENNANT's figure, for his *trianfractus*, which is probably the *H. putris* of LINNÆUS.

The animal is perfectly an aquatic ſpecies, and is never found to expoſe itſelf on the plants out of water. It is of a yellowiſh colour, with two broad, flat *tentacula*, a little tapering: eyes at the baſe of the *tentacula*, beneath.

SCHROETER has evidently confounded this ſhell with *H. auricularia*, and has made other ſpecies out of varieties.

Helix

6.

Helix auricularia. *Lin. Syſt.* p. 1240.—*Gmel. Syſt.* p. 3662. AURICULARIA.
Chem. Conch. ix. t. 135 f. 1241. 1242. Tab. 16. f. 2.
Gualt. t. 5. F. G.—*Favan.* t. 61. E. 3. E. 11.
Liſter Conch. t. 123. f. 22.
Id. Angl. t. 2. f. 23.
Schroeter Fluſſconch. t. 6. f. 4. 5.
Muller Verm. ii. p. 126. No. 322.
Br. Zool. t. 66. f 138.
Turt. Lin. iv. p. 540.
Pult. Cat. Dorſet. p. 49.
Don. Br. Shells. ii. t 51. f. 1.
Turbo patulus. *Da Coſta.* p. 95. t. 5. f. 17.

H. with a thin, brittle, ſub-pellucid ſhell, of a light yellow colour, with four ſpires, the firſt extremely large, occupying almoſt the whole of the ſhell: *apex* very ſharp pointed: the largeſt volution is longitudinally wrinkled, and frequently marked with one deep depreſſion: aperture ſub-oval, extremely large; outer lip much extended, thin, and ſomewhat reflexed, eſpecially at the baſe; the upper part riſes high, is much rounded at the junction, and frequently projects in a right angle; pillar lip replicated; within ſmooth, yellowiſh. The outſide of the ſhell is ſomewhat gloſſy, but frequently covered with a ferruginous-brown *epidermis*. Length an inch, or more; breadth three-quarters of an inch.

This, and the preceding ſpecies, have been in general, confounded for the ſame; there is, indeed, great ſimilitude between ſome of the varieties, but the great characteriſtic

racteriſtic diſtinction is, that the ſecond volution of this, is much ſmaller, and as it were more ſunk in the body whirl; the aperture much larger, more expanded, and riſing to a ſhoulder as high as the oppoſite ſide of the volution; the body too, is vaſtly more tumid in general.

This is not near ſo common a ſhell, though it is not unplentiful in ſome parts, in large ſtagnant pools, and ſlow rivers. We have found it of a ſuperior ſize in the the river *Avon*, in the north of *Wiltſhire:* and is not uncommon in the *Kennet* in *Berkſhire.*

Doctor PULTENEY ſpeaks of it as a *Dorſetſhire* ſhell; but we never could find it either in that county, *Devonſhire*, or *Cornwall;* where the *H. peregra* is very common.

Animal dull greeniſh-yellow: head broad: *tentacula* broad, flat, conic, ſpeckled with brighter yellow: eyes placed on the head, at the baſe of the *tentacula.* Is capable of receding within its ſhell as much as the *peregra*, and does not cover any part of it when in motion, like the *glutinoſa.*

7.

PUTRIS. Tab. 16. f. 4.

Helix putris. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3659.
Chem. Conch. ix. t 135. f. 1248.
Schroeter Erdconch. p. 128. t. 1. f. 2.
Id. Fluſſconch. p. 265. No. 98.
Hill Swammerd. p. 69. t. 8. f. 4.

Helix

Helix putris. *Lift. Conch.* t.123. f.23.—*Id. Angl.* t.2.f.24? *Turt. Lin.* iv. p. 538.—*Gualt.* t. 5. H.
Helix limoſa. *Pult. Cat. Dorſet.* p. 48.
Helix ſuccinea. *Muller Verm.* ii. p. 97. No. 296.
Turbo trianfractus. *Da Coſta* p. 92. t. 5. f. 13.

H. with an extremely thin, pellucid ſhell, of a reddiſh-yellow colour, inclining to orange, with three ſpires; the firſt very large, making at leaſt four-fifths of the ſhell; the others of courſe very ſmall, but the middle one is vaſtly ſuperior in ſize to that which forms the *apex:* it is a little wrinkled longitudinally, but gloſſy: aperture oval, extending two-thirds the length of the ſhell; outer lip extremely thin, frequently quite membranaceous, and elaſtic; pillar lip very ſlightly thickened. Length three-quarters of an inch; breadth not half an inch; but uſually not near ſo large.

It is a very common ſpecies in wet places, amongſt willows, and ſub-aquatic plants: in its firſt ſtate is greeniſh-yellow, almoſt membranaceous, and afterwards becomes more orange. Dead ſhells are frequently bleached white.

The animal is not an aquatic, though it reſides always near water, or in moiſt places, upon the ſtalks and leaves of plants; it is, indeed, ſometimes found in water, but we conſider it more by accident than choice, and ſoon regains its former ſtation on ſome neighbouring plant.

This ſpecies has been greatly confounded with its congeners, *H. peregra*, and the young of *H. auricularia*, but is at once diſtinguiſhed by its tranſparency, and by the form of the body volution, which is very little ſwelled, and tapers to the ſecond ſpire without any prominency at the junction; and the diviſion, or ſeparating line, runs much more oblique: it is never covered with an *epidermis*, and is more ſlender in proportion to its length.

CHEMNITZ has given a tolerable good figure of this ſhell, and quotes the *H. putris* of LINNÆUS; and GMELIN quotes CHEMNITZ's figure for his *putris*.

DA COSTA's deſcription ſeems to anſwer tolerably well for this ſhell, but his figure is more like *H. peregra*, and he has quoted Mr. PENNANT's *H. putris*, which is certainly that ſhell, not only in figure, but is deſcribed to inhabit ponds.

The animal of this has four *tentacula*, ſituated like the generality of land *limaces*, two long and two ſhort; and the eyes are placed on the top of the longeſt;* theſe *tentacula*

* It is more fully ſtated in another place that the aquatic ſpecies of *limax*, or ſuch as can exiſt under water, are invariably poſſeſſed of two *tentacula* only; and thoſe deſtitute of eyes at their tips. LINNÆUS, as well as GMELIN, particularly remarks, that the animal of *H. putris* has four *tentacula*; a character ſufficient to determine all controverſy, for none of the animal inhabitants of the other ſhells hitherto confounded with this, have more than two *tentacula*, and thoſe differing in ſhape.

tentacula however, are rather ſhort in proportion, and a little clavated at the point; about half way down is a ſort of annulation, from which part it ſuddenly increaſes in ſize, and then continues cylindric to the baſe; theſe are duſky behind, continuing in a line on each ſide the head, backwards. The colour of the animal in general, is pale yellowiſh, ſpotted with cinereous: it is larger in proportion to its ſhell, than any other ſpecies we are acquainted with, the *H. glutinoſa* excepted, not being capable of withdrawing its body within the margin of the aperture.

8.
GLUTINOSA.
Tab. 16. f. 5.

Helix glutinoſa. *Gmel. Syſt.* p. 3659.
Turt. Lin. iv. p. 537.
Buccinum glutinoſum. *Muller Verm.* ii. p. 129. 323.
Schroeter Fluſſconch. p. 271. No.79.

H. with an extremely thin, diaphanous, ſub-orbicular ſhell, of a gloſſy yellowiſh horn-colour, nearly ſmooth, or obſoletely wrinkled: volutions three, the firſt, or body, occupying almoſt the whole of the ſhell; the others extremely ſmall, and ſo little produced, as ſcarce to be ſeen when the ſhell is lying with its mouth upwards: aperture oval, vaſtly large, extending nearly to the *apex;* no actual duplicature on the inner lip, nor the leaſt inclination to a cavity, or *umbilicus;* but the under part of the body is more opaque and wrinkled, and leſs gloſſy for a conſiderable ſpace from the aperture, than any other part of the ſhell. Length rather more than half an inch; breadth three-eighths.

This ſpecies was firſt noticed as an *Engliſh* ſhell by Mr. Boys, who with his uſual liberality, favoured us with ſeveral ſpecimens, together with remarks upon its natural hiſtory. It is an aquatic ſpecies, and not uncommon in the marſhes at *Deal*.

The animal is poſſeſſed of only two flat, triangular, *tentacula*, with the eyes at the baſe: and when undiſturbed, covers its ſhell with a fine tranſparent membrane.

Is found on the leaves of the yellow water lilly, *Nymphæa lutea*.

We are inclined to believe this is a very local ſhell in *England*, though poſſibly may have been overlooked as the young of the *auricularia*; from which, however, it is eaſily diſcriminated by its almoſt membranaceous texture, obtuſe, and depreſſed *apex*; as well as being deſtitute of the *ſub-umbilicus* formed by the *repand* lip of that ſhell: the animal too, is eſſentially different.

9.
LUTEA.
Tab. 16. f. 6.

H. with a ſub-oval, ſub-pellucid, moderately ſtrong, ſmooth ſhell, of a dull orange-yellow colour: volutions ſcarcely three, the firſt extremely large, the others very ſmall: *apex* obtuſe, not prominent: aperture patulous, oval; outer lip not attenuated; inner lip pretty ſtrong, and a little ſpreading on the *Columella*. Length nearly half an inch; breadth rather more than a quarter.

This

This ſhell has ſomewhat the habit of *H. limoſa*, but not quite ſo tumid, and though of inferior ſize, is always much thicker and ſtronger. If, indeed, it had ever occurred in freſh-water, we might have been inclined to conſider it a variety of that ſpecies, but hitherto it has only been found on the ſea ſhore, and that rarely.

We have taken it upon the open part of the coaſt of *South Devon*, and believe it has been dredged up in *Salcomb* bay, but generally mutilated at the *apex*, and never alive; from which circumſtance doubts may be entertained, of its really belonging to that claſs of ſhells. All we can ſay further on the ſubject at preſent is, that the ſubſtance of the ſhell is ſuperior to any of its affinities, and the number of volutions inferior to thoſe, to which it bears the greateſt reſemblance. If the delicate texture of our freſh-water ſhells was capable of bearing the violent agitation of the ſea, and the conſequent friction, many would undoubtedly be found on our ſhores: but this very rarely happens, even in our bays and inlets, and no one inſtance has ever occurred to us, on the open or more expoſed ſhores, except with the *Helix vivipara*.

10.

Helix limoſa. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3661. LIMOSA.
Chem. Conch. ix. t. 135. f. 1246. 1247. Tab. 16. f. 1.
Schroeter Erdconch. p. 131. t. 1. f. 3.
Turt. Lin. iv. p. 539.

H. with

H. with a thin, gloſſy, pellucid, horn-coloured ſhell, with four ſpires, the firſt extremely large and tumid, the others very ſmall, and the *apex* very fine.

This ſpecies has ſo much the habit of *Helix auricularia*, that it is not an eaſy matter to ſeparate it from the young of that ſhell. We have, however, followed the very reſpectable authors above quoted, in giving it a diſtinct place, though not without ſome doubts. It rarely exceeds five-eighths of an inch in length, and three-eighths broad.

The only diſtinction ſeems to conſiſt in the body, or firſt volution of this ſhell, being leſs ventricoſe at the junction of the ſecond ſpire than in the *auricularia;* in being thinner and more tranſparent, and the mouth not ſo patulous.

We firſt received this ſhell from Mr. BOYS of *Sandwich*, where it is not uncommon; and have ſince found it ſparingly in the river *Avon*, in *Wiltſhire*.

The ſhell here deſcribed, anſwers very well to the deſcription and figure given by CHEMNITZ, which GMELIN quotes for the *Linnæan limoſa*.

II.
LÆVIGATA.

Helix lævigata. *Lin. Syſt.* p. 1250.—*Gmel. Syſt.* p. 3663. *Pult. Cat. Dorſet.* p. 49.—*Turt. Lin.* iv. p. 540. *Don. Br. Shells.* iii. t. 105.

Helix

Helix lævigata. *Walk. Min. Shells.* f. 17.
Br. Zool. t. 86. f. 139.
Helix neritoidea. *Chem. Conch.* x. t. 165. f. 1598. 1599?

H. with a thin, fragile, ſub-pellucid, fleſh-coloured ſhell, with three volutions; the firſt extremely large, the others very ſmall, very little produced, and placed laterally: *apex* compreſſed. It is wrinkled tranſverſely, and ſlightly ſtriated longitudinally or ſpirally, but always, when alive, covered with a thick, rough, brown *epidermis*, which generally riſes into regular, equi-diſtant, membranaceous, ſpiral ridges: aperture ſub-orbicular, vaſtly large, margin thin; inſide ſmooth, light purpliſh-brown; ſometimes nearly white: no *umbilicus*.

This appears to be rather a ſcarce ſhell, but is found ſparingly upon ſome of our ſhores. We have taken it by dredging at *Southampton;* and at *Torcroſs* and *Salcomb* in *Devonſhire:* have alſo found very ſmall ſpecimens on the ſhore at *Teignmouth;* and at *Falmouth* in *Cornwall.* The largeſt in our cabinet is three-quarters of an inch in length, or rather more, and five-eighths in breadth; but it is rarely found half an inch long. Mr. PENNANT was miſtaken in ſuppoſing it to inhabit freſh-water: it is rather a pelagic ſhell, and ſeldom taken alive but in deep dredging. Doctor PULTENEY gives it as a *Dorſetſhire* ſhell, and ſays it was found on the beach at *Studland.* We have alſo taken it at that place, and have received it, very ſmall, from Mr. BOYS at *Sandwich,* for the ſpecies figured by WALKER.

The

The figure given by CHEMNITZ, we have referred to, with doubt, as it appears to be more regularly, and ſtrongly ſtriated longitudinally, and ſeems to poſſeſs a ſulcus or groove in the pillar lip, as well as expoſing more of the *Columella:* that author, however, quotes WALKER's ſhell.

If it ſhould be *H. neritoidea* in a depauperated ſtate, it may alſo be the *Bulla velutina* of MULLER *Zool. Dan.*

Animal whitiſh, with two ſhort, ſetaceous *tentacula;* and two eyes placed at their baſe behind: *ſuſtentaculum* broad, oval.

12.
DETRITA.
Tab. 11. f. 1.

Helix detrita. *Pult. Cat. Dorſet.* p. 49.
Chem. Conch. ix. t. 134. f. 1225. a. d.
Gmel. Syſt. p. 3660.—*Gualt.* t. 5. N.
Muller Verm. ii. p. 101. No. 300.
Turt. Lin. iv. p. 538.
Schroet Erdconch. p. 27. t. 1. f. 1.
Id. Fluſſconch. p. 324.—t. *Min.* A. f. 4.
Helix acuta. *Gmel. Syſt.* p. 3660. 136.
Turt. Lin. iv. p. 538.—*Gualt.* t. 4. f. N.
Muller Verm. ii. p. 100. No. 297.
Chem. Conch. ix. t. 134. f. 1224. No. 1. 2.
Favan. t. 65. A. 5.

H. with a ſub-pellucid, conic ſhell, tapering to a moderately fine point: volutions ſix, not much elevated, but a little rounded, and well defined by the ſeparating line:

line: colour white, ſomewhat gloſſy, a little wrinkled longitudinally, and commonly marked with one ferruginous band, or *faſcia*, round the middle of the body, continuing ſpirally up the ſhell, at the baſe of the other volutions, but fainter, and loſt in the fourth ſpire: aperture oval; outer lip thin; inner lip a little reflected on the *Columella*, forming a ſmall cavity, or *ſub-umbilicus*. Length three-quarters of an inch; breadth three-eighths.

This ſpecies appears to be ſubject to conſiderable variety with reſpect to the bands; ſome have three *faſciæ* on the body, the middle one of which is very narrow, the others broad: the ſecond volution has one, and ſometimes two; the other ſpires are covered by the band, except at their junction. Others have the *faſciæ* broken into longitudinal ſtreaks; which, as well as the banded ſpecimens, are frequently faint and obſolete on the under part, in the line of the mouth.

Doctor PULTENEY ſtates this ſhell to have been found near *Weymouth*, by Mr. BRYER. We have been favoured with ſpecimens from that gentleman, who at the ſame time informed us, he found them in a pool near *Weymouth*, and in a ſtream near *Dorcheſter;* but rare in both places; and that all the *Engliſh* ſpecimens, he had ſeen, were deſtitute of bands.

Theſe are not ſo white and opaque as foreign ſhells, but rather inclining to light horn-colour; are thinner;

and more diaphanous: and when the animal is ſuffered to remain within the ſhell, it contracts, and gives a darker colour to the ſuperior volutions.

It is certainly a very rare ſpecies, or ſo large a ſhell could not have ſo long eſcaped notice.

The *H. acuta* figured by CHEMNITZ, which he ſtates to be found in *Italy*, appears to be only a variety of the *detrita*.

GMELIN has conſidered them as diſtinct; but has fallen into an error in quoting *Liſter Conch.* t. 19. f. 14. the *Turbo faſciatus* of this work, which is perfectly diſtinct, and does not ſeem to have been known to LINNÆUS. MULLER has made the ſame miſtake. Doctor PULTENEY had certainly conſidered the *H. detrita* and *acuta* as only varieties, as he quotes both thoſe ſhells figured by CHEMNITZ.

13.
VIVIPARA.

Helix vivipara. *Lin. Syſt.* p.1247.—*Gmel. Syſt.* p.3646.105
Chem. Conch. ix t 132. f. 1182. to 1185.
Petiv. Gaz. t. 99. f. 16.—*Gualt.* t. 5. A.
Liſter Conch. t. 126. f. 26.—*Id.* tab. *Anat.* f. 6.—*Id. Angl.* t. 2. f. 18.
Schroeter Fluſſconch. t.8 f. 1. 2.—& t. *Min.* C. f. 6.—*Favan.* t. 61. D. 9.
Br. Zool. t. 84. f. 132. & t. 85 upper fig. (young.)—*Don. Br. Shells.* iii. t. 87.

Helix

Helix vivipara. *Turt. Lin.* iv. p. 528.
Hill Swammerd. p. 75. t. 9. f. 13.
Pult. Cat. Dorſet. p. 48.
Helix compactilis. *Id.* p. 48. (young.)
Cochlea vivipara. *Da Coſta.* p. 81. t. 6. f. 2. 2.
Nerita vivipara. *Muller Verm.* ii. p. 182. No. 370.

H. with ſix ventricoſe ſpires, ſeparated by a deep, depreſſed line: ſhape ſub-conic, ſuddenly terminating in a ſmall point: colour olive-green, with three brown *faſciæ* on the body, and two on the ſuperior volutions, growing fainter, and becoming obliterated before they reach the fourth ſpire: it is ſlightly wrinkled tranſverſely, with two or three ſtronger, and coarſer than the reſt, that ſeem to mark the annual growth of the ſhell: aperture ſub-orbicular, contracted a little at the upper part; pillar lip reflected, behind which, in ſome, is a *ſub-umbilicus;* inſide ſmooth, white, banded like the outſide. Length rarely an inch and a half; breadth one inch.

Da Costa is certainly miſtaken, in ſaying this ſhell is found in great abundance in all our rivers and ſtagnant waters; for except in the *Thames*, and other waters communicating with that river, we have never found it. In the neighbourhood of *Reading*, near the junction of the *Kennet* with the *Thames*, and in ſtreams, and watercourſes about that place, it is in vaſt abundance; but becomes ſcarce farther up the former river, and is wholly loſt before it reaches *Newbury*.

The ſame author has alſo erred in calling the *operculum* of this ſhell teſtaceous, for it is of a flexible, corneous ſubſtance, wrinkled concentrically, and of a pellucid, reddiſh-brown colour.

The animal is viviparous, and very prolific; we have taken a great number of young ones from the larger ſhells, each with their teſtaceous covering and *operculum*.

Shells, not half grown, have the ſpires leſs produced, and their volutions not ſo tumid; in which ſtate it has been taken for a diſtinct ſpecies; and we conſider the *H. compactilis* of Doctor PULTENEY, and the ſhell figured by Mr. PENNANT, without number, in plate 85, to be no other.

The *vivipara* is the ſtrongeſt freſh-water ſhell in *England*, capable of bearing, for a time, the rude actions of the ſea; ſo that it is ſometimes found on our more expoſed ſhores; we have dredged it up from the deep at *Torcroſs*, inhabited by *Cancer Bernardus*. The moſt contiguous river is the *Dart*, at the diſtance of ſix miles, apparently too rapid for ſuch ſhells: poſſibly they inhabited a lake of freſh-water contiguous, which a few years ſince broke its bounds, and made a temporary junction with the ſea: it has not, however, occurred in any of the rivers in *Devonſhire*.

Helix

14.

Helix tentaculata. *Lin. Syſt.* p. 1249.—*Gmel. Syſt.* p. 3662. TENTACULATA.
Chem. Conch. ix. t. 135. f. 1245.
Liſter Conch. t. 132. f. 32.—*Id. Angl.* t. 2. f. 19.
Petiv. Gaz. t. 18. f. 8.—*Gualt.* t. 5. B.
Schroeter Fluſſconch. t. 7. f. 19. to 22.
Br. Zool. t. 86. f. 140.
Turt Lin. iv. p. 539.
Hill Swammerd. p. 82. t. 10. f. 1 ?
Pult. Cat. Dorſet. p. 49.
Don Br. Shells. iii. t. 93.
Walk. Min. Shells. f. 33. (pullus)
Helix ſphærica. *Gmel. Syſt.* p. 3627.
Turbo Nucleus. *Da Coſta.* p. 91. t. 5. f. 12.
Nerita Jaculator. *Muller Verm.* ii. p. 185. No. 372
Nerita ſphærica. *Muller Verm.* ii. p. 170. No. 356. (pullus)
Schroeter Fluſſconch. p. 341. No. 82.

H. with a ſmooth, conic, pellucid, horn-coloured ſhell, with five, and ſometimes ſix, rounded ſpires, divided by a deep ſeparating line: *apex* pointed: aperture ſub-orbicular, contracted at the upper part; outer lip moderately ſtrong; pillar lip reflexed. *Operculum* teſtaceous, concentrically wrinkled. Length half an inch; breadth a quarter.

This is a very common ſpecies, found in moſt ſlow rivers, and ſtagnant waters. Is frequently covered with a dark-brown, or duſky *epidermis:* ſometimes with a calcareous concretion. Dead ſhells become white. It is, we believe, the only ſpecies of *Britiſh* freſh-water ſhells

ſhells that poſſeſſes a teſtaceous *operculum*, except the *Nerita fluviatilis*.

The *ſphærica* of MULLER is certainly no other than a young, and more ventricoſe variety of this ſhell; ſuch are not uncommon, perfectly white. WALKER has fallen into the ſame miſtake, his figure 33, being no other than the young of the *H. tentaculata*; of which we are confident, having received his ſhell from Mr. BOYS.

Animal pale, with two very long, ſlender, ſetaceous *tentacula*, which are continually in motion; at the baſe of theſe, are ſituated the eyes, which are protuberant.

15.
LUBRICA.

Helix lubrica.	*Gmel Syſt* p. 3661. 142.
	Turt. Lin. iv. p. 539.
	Liſt. Angl. t. 2. f. 7.
	Petiv Gaz. t. 30. f. 7.
	Chem. Conch. ix. t. 135. f. 1235.
	Morton Northamp p. 415 ?
	Muller Verm. ii. p. 104. No. 303.
	Schroeter Erdconch. p. 141. t. 1. f. 9.
Helix Stagnorum.	*Pult. Cat. Dorſet.* p. 49.
Turbo glaber.	*Da Coſta.* p. 87. t. 5. f. 18.

H. with a ſmooth, gloſſy, pellucid, horn-coloured ſhell, with ſix ſpires very little rounded, and not much raiſed, but well defined by the ſeparating line: *apex* rather obtuſe: aperture oval; outer lip rather thick, but not

not marginated or reflexed, and generally of a reddiſh-brown colour; inner lip replicated; no teeth, nor *umbilicus*. Length a quarter of an inch; breadth one third its length.

This ſpecies is not uncommon in moiſt woods, ditch banks, and ſhady places; eſpecially under decayed wood, or timber that has lain ſome time on the ground; it ſeldom aſcends the trunks of ſtanding trees, or even the ſtalks of graſs or other vegetables, but reſides chiefly on the ground. Is at once diſtinguiſhed, when alive, by its extreme gloſſineſs; but dead ſhells frequently become white and opaque.

It was known to Doctor SOLANDER, and was probably firſt named by him *H. lubrica*, as he ſent it to Mr. BOYS under that denomination.

Animal duſky: *tentacula* four, clavate; eyes placed at the ends of the two longeſt.

16. OBSCURA.

Helix obſcura. *Gmel. Syſt.* p. 3661. 141.
Turt. Lin. iv. p. 539.
Muller Verm. ii. p. 103. No. 302.
Favan. t. 65. F.—*Walk. Min. Shells.* f. 41.
Turbo Rupium. *Da Coſta* p. 90.—*Liſt. Angl.* t. 2. f. 8.

H. with a ſub-cylindric, ſub-conic, opaque, brown, horn-coloured ſhell, with from five to ſeven ſpires, ſomewhat

what rounded, and well defined by a deep ſeparating line: volutions ſub-ſtriated, or rather wrinkled longitudinally: *apex* rather obtuſe: aperture oval, marginated, white, reflexed; behind the pillar lip a groove or *ſub-umbilicus*. Length three-eighths of an inch; breadth more than one third its length.

This ſpecies inhabits the ſame places as the preceding, eſpecially moiſt woods; and frequently aſcends the trunks of trees. It differs from that ſhell in being larger, not ſo taper, by its dull, opaque, brown colour, and wrinkles; and particularly by its white, marginated, and reflexed aperture.

We originally received this from Mr. Boys, for Walker's ſhell referred to, who ſays it is found at *Faverſham;* the figure, however, given in the *Minute Shells*, is vaſtly too large, unleſs it is intended for a magnified engraving.

We have found it in a moiſt wood at *Lackham* in *Wiltſhire*, on the trunks of ſmooth-barked trees, ſuch as aſh and hornbeam, not uncommon; and rarely in *Devonſhire* in dry banks. It alſo affects high ſituations, for we obſerved them in conſiderable abundance, and of ſuperior ſize, upon the top of the higheſt part of *Portland* iſland, under ſtones.

That it is not a common ſhell is certain, but muſt be conſidered as more local than rare, though it is by no means generally known.

If

If this ſhould be LISTER's ſhell, of which there is very little doubt, we are informed it is found in the rocky parts, over the torrents about *Cravan* in *Yorkſhire*. DA COSTA quotes the *Philoſophical Tranſactions*, No. 105. fig. 8.---WALLACE *Ork.* p. 39.---and MORTON *Northamp.* p. 415. for his *Turbo Rupium;* and it is probable they belong either to this, or to the *Helix lubrica*, but we are in doubt to which the ſynonyms ſhould be placed.

The *obſcura* in its young ſtate, or before the mouth is formed, has much the appearance of a pyramidal *Trochus*. In this ſtate we ſuſpect SCHROETER in his *Erdconchylien*, has deſcribed it, p. 141. tab. 1. fig. 8. and which MULLER afterwards deſcribed under the title of *Helix ventricoſa*, p. 102. No. 301. and GMELIN p. 3661.

Animal pale-brown; beneath lighter: *tentacula* four; eyes placed at the tips of the two longeſt.

17.

SUBCYLINDRICA

Helix ſubcylindrica. *Pult. Cat. Dorſet.* p. 49.
Lin. Syſt. p. 1248?
Gmel. Syſt. p. 3652. 118?

H. with a cylindric, imperforated, ſub-pellucid, light cheſnut-coloured ſhell, with four ſpires, terminating in an obtuſe, ſmooth, button-like whirl, as if truncated; the volutions a little rounded, and well defined by the ſeparating line, furniſhed with cloſe-ſet, rib-like, longitudinal ſtriæ, in ſome the whole length; others princi-

pally apparent in the ſutures: aperture oval; outer lip thick, but not marginated; pillar lip replicated. Length a quarter of an inch; breadth one third its length.

On the authority of Doctor PULTENEY we have given this ſhell as *Engliſh*, who ſays it is found on water plants in rivers and ponds.

We cannot, however, help expreſſing ſome doubts that the Doctor has been deceived; as the ſpecimens he favoured us with, appear to be a foreign variety of our *Turbo truncatus*, which is a marine ſhell; and from which it differs in nothing but being rather larger, of a deeper colour, and uſually more ſtrongly ſtriated.

It is not uncommon amongſt the ſmaller ſhells from the *Weſt Indies;* but whether it is the *ſub-cylindrica* of LINNÆUS, which is quoted by the Doctor, we are not quite clear.

18.

LACKHAMENSIS. Tab. 11. f. 3. H. with a ſub-pellucid ſhell, of a dull, ruſty-brown colour, wrinkled longitudinally: volutions ſeven, almoſt flat, but well defined by the ſeparating line; the firſt three or four larger ſpires are ſub-cylindrical, the reſt more ſuddenly taper to an obtuſe point: aperture ſub-oval, marginated, reflexed, whitiſh, with frequently a purple tinge; inner lip ſcarcely thickened on the body, the

the lower part reflecting much, forming a conſiderable linear cavity, or *ſub-umbilicus:* no teeth. Length five-eighths of an inch, or rather more; breadth a quarter.

This ſhell ſometimes varies to horn-colour, and cinereous, but moſt commonly of a ruſty, or rufous-brown. It appears to be rare, or at leaſt a very local, nondeſcript ſpecies.

We firſt found it in a moiſt wood at *Lackham* in *Wiltſhire*, in one ſmall ſpot only, adhering to the trunks of aſh and hornbeam trees; and afterwards tolerably plentiful in the woods belonging to the Marquis of LANSDOWN, at *Bow Wood*, in the ſame county, not very diſtant from the former place; and in no other part.

It ſeems to be a long time arriving at maturity, for ſcarce one out of ten has the mouth perfectly formed. In its infant ſtate, when it has only four or five ſpires, it has much the appearance of a conic *Trochus;* and the aperture is ſomewhat quadrangular.

It has much the habit of *H. obſcura*, but is more than double the ſize of that ſhell, and the exterior lip turns rather more outwards.

Animal pale, lighteſt beneath: *tentacula* four, clavate: eyes placed at the tips of the longeſt.

19.
OCTANFRACTA. Tab. 11. f. 8.

Helix octona. *Br. Zool.* t. 86. f. 135 ?

H. with a pellucid, horn-coloured ſhell, with ſeven or eight ſmooth, or very finely wrinkled, ſlender ſpires, gradually tapering to a fine point: the volutions are rather flat, but well defined by a conſiderable depreſſed line: aperture oval; outer lip very thin; pillar lip reflexed. Length above five-eighths of an inch; breadth two-tenths of an inch.

This is uſually covered with a duſky-black *epidermis*, which wholly obſcures the ſhell, and is very difficult to remove. It is a rare, or at leaſt a very local ſpecies; and is probably the ſhell mentioned by Mr. PENNANT: but is not the *H. octona* of LINNÆUS.

It is properly an aquatic ſpecies, but is probably ſomewhat amphibious, like *Helix foſſaria*, preferring moiſture at particular ſeaſons, to actual fluid.

We have hitherto found it only in one part of *England*, a ſplaſhy place by the road ſide, half way between *Fowey* and *Looe* in *Cornwall*, where they were plentiful in all ſtages of growth: the young are leſs ſlender, and have only five or ſix volutions. Some of theſe we put into a glaſs of water, where they lived for ſome weeks, but generally crawled up the ſide, and ſeemed reſtleſs till they got out of that element, though continued to live when confined at the bottom: ſome put into wet moſs

moſs lived a great while, others put in a dry place very ſoon died.

This is not the ſhell deſcribed by Doctor PULTENEY for the *H. octona* of PENNANT; his is the true *Linnæan octona*.

The Doctor favoured us with a ſpecimen of his ſhell; and we think he muſt have been deceived with regard to its being *Engliſh*. It is a much more ſlender ſhell than this, terminates in an obtuſe point, and the volutions are more rounded, and gloſſy white, or very light horn-colour. In the aperture too it is eſſentially different, being ſub-orbicular; the pillar lip turns inwards at the baſe, and forms a contraction, nearly allied to the *Buccinum genus*; the length is five-eighths of an inch; and not more than one eighth broad at the baſe. CHEMNITZ ſeems to have figured this ſhell, vol. ix. tab 136. fig. 1264. and his deſcription anſwers very well, but he does not quote the *H. octona* of LINNÆUS, but calls it, *Helix octona Indiæ occidentalis*.

We have alſo received it from the *Weſt Indies*.

GMELIN quotes CHEMNITZ's figure for the *Linnæan octona*, which is not the leaſt like our ſhell: and alſo a minute ſhell given by SCHROETER in his *Fluſſconchylien* tab. 8. fig. 6. which is undoubtedly the *Buccinum terreſtre* of this work, and not at all like either.

Animal

Animal duſky, with two ſhort flat *tentacula*, at the baſe of which the eyes are placed.

20.
POLITA.

Helix polita.	*Pult. Cat. Dorſet.* p. 49.
Turbo politus.	*Gmel. Syſt.* p. 3612.
	Turt. Lin. iv. p. 501.
Turbo lævis.	*Br. Zool.* No. 115. t. 79. (upper fig.)
	Turt. Lin. iv. p. 497.
Strombiformis glaber.	*Da Coſta* p. 117.
Smooth white whelk.	*Borlaſe Cornwall* p. 277. ?

H. with a ſtrong, white, and extremely gloſſy ſhell, perfectly ſmooth, without wrinkles or ſtriæ: volutions from nine to thirteen, depending on age and ſize; quite flat, and ſcarcely defined by any ſeparating line; ſlender, and gradually tapering to a ſharp point: aperture oval, forming an acute angle, or contraction, at the upper end; outer lip rather thick, but not marginated, or reflexed; inner lip replicated. Length five-eighths of an inch, uſually leſs; breadth two-tenths of an inch.

This ſpecies is found rarely on the weſtern ſhores; DA COSTA ſays *Exmouth* in *Devonſhire;* and Doctor PULTENEY ſpeaks of it in *Dorſetſhire*, but not common.

We have found it ſparingly in *Cornwall* and *Devonſhire*, the largeſt of which was taken from the ſtomach of an *Actinea pedunculata:* minute ſpecimens are ſometimes found on *Oyſters* and *Scallops*. In this infant ſtate they

they are of exquiſite poliſh, and when the animal is alive, frequently appear mottled with pink and pale-green: are alſo ſomewhat arcuated, and very ſeldom found perfectly ſtraight.

21. DECUSSATA. Tab. 15. f. 7.

H. with a ſlender, white ſhell, with eight or nine ſpires tapering to a fine point; volutions very little raiſed, and the ſeparating line extremely fine; theſe are ſtrongly, and regularly ſtriated in a longitudinal direction, croſſed by very minute ſtriæ, that gives it a ſlight decuſſated appearance, when examined by a lens: aperture narrow, ſuboval, contracted at both ends; outer lip ſomewhat expanded, and a little thickened at the back; inner lip a trifle replicated. Length three-tenths of an inch; breadth one tenth.

In ſhape this ſhell is ſimilar to *Helix polita*, except in the aperture, which ſtands rather more oblique, the outer lip more expanded in the middle, and contracted at the lower angle.

We have been favoured with this new and elegant ſpecies more than once, by Mr. BRYER of *Weymouth*, accompanied with an aſſurance, that he found them at different times, on the ſhore, between that place and *Portland* iſland.

Turbo

22.

LABIOSA. Tab. 13. f. 7.

Turbo coſtatus. *Pult. Cat. Dorſet.* p. 45.

Turbo albus. *Br. Zool.* No. 114. t. 79 ?
Turt. Lin. iv. p. 497 ?

Turbo membranaceus. *Lin. Trans.* v. p. 2. t. 1. f. 14. 15. (*Adams*)—*Turt. Lin.* iv. p. 500.

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

H. with a ſub-conic, ſub-pellucid, light horn-coloured ſhell, with ſeven, and rarely eight, flattiſh ſpires, terminating in a fine point, and furniſhed with from fifteen to eighteen faint ribs, on the three largeſt whirls; the ſuperior volutions ſmooth: *apex* frequently purpliſh: aperture oval, lips thickened within, white; the margin of the outer lip thin, a little reflexed, and uſually of a purpliſh-brown; the back of the outer lip a little gibboſe, and generally whiter than the reſt of the ſhell; pillar lip ſpreads conſiderably on the body whirl; *Columella* within undulated, forming a ſmall elevation, like an obſolete tooth.

The aperture is a ſtrong character; it is nearly half the ſhell, and conſequently makes the body volution proportionally large; it ſtands a little oblique, conſiderably expanded at the margin, which is reflexed, and is contracted in the throat by the thickening of the ſhell.

A variety is much more thin and pellucid, ſome quite deſtitute of ribs; others only partially ribbed on the upper part of one or two of the largeſt volutions; theſe are frequently ſtreaked longitudinally with brown, ſometimes

times in an undulated manner: ſuch are uſually larger, and not ſo thick in the lips, but the margin of the aperture is equally repand.

It is obſervable in all theſe ſhells, the back of the body volution is invariably deſtitute of ribs, and the inſide of the mouth in freſh ſhells, extremely gloſſy: the ſpires too, are very little raiſed, and the line of ſeparation very fine, which in worn ſhells, ſcarce mark them: ſuch are frequently found quite white. Live ſpecimens are covered with a yellowiſh-brown *epidermis*.

Length rather more than a quarter of an inch; breadth nearly one half its length.

This ſpecies is not uncommon in *Cornwall*, particularly about *Falmouth;* and is equally plentiful on the ſouth coaſt of *Devonſhire*, and *Dorſetſhire;* and the ſmooth variety at *Southampton*. Have alſo found it more ſparingly, about *Biddeford* in the north of *Devon*, and on the ſouth coaſt of *Wales*.

In our communications with our late worthy friend Doctor PULTENEY, we ſent him this ſhell, which he acknowledged to be his *Turbo coſtatus*, and conſequently clearly proved that he had fallen into an error, in quoting the *Turbo parvus* of DA COSTA: poſſibly, however, he has been right in quoting *Strombiformis albus* of the ſame author, for we find he was not ſingular in

that opinion, as this ſhell is not uncommonly conſidered as ſuch, by collectors.

It was figured in *Triton Britannicus*,* where we obſerved that name affixed to it, and which the Doctor alſo refers to.

In quoting DA COSTA we confeſs, it is more from popular opinion than from our own, if his deſcription is to be attended to: the ſmooth variety of this ſhell is, indeed, when worn and bleached, milk white, gloſſy, and the ſpires are nearly level, or not prominent beyond one another, only ſeparated by a ſlight furrow. To this part, therefore, of DA COSTA's deſcription it would in that ſtate ſomewhat accord; but we cannot conceive, how it could be placed in the genus *Strombiformis*, or *Needle Snails*, of that author, the characters of which are "very long, ſlender, and taper in ſhape." In his ſpecific deſcription, however, he ſays, "of a taper ſhape, "not ſlender, but very ſwelled, or bodied."

The *Turbo membranaceus* of Mr. ADAMS, we have very little doubt, is the lineated variety of this ſhell, which is not unfrequently met with, exactly correſponding with the deſcription given by that gentleman, except in the number of ſpires, which is known to vary with age:

* An intended work on Conchology with this title, never appeared before the public: Doctor PULTENEY quotes it as a M. S. and informs us, it is a new impreſſion of DA COSTA's plates, with ſeven additional tables.

age: his figure is much too ſlender, an error his draftſman has not unuſually fallen into, in thoſe repreſenting the natural ſize.

23.

H. with a ſtrong, conic, opaque, dark, purpliſh-brown ſhell, with five ſpires; the firſt large, occupying nearly two-thirds of the length; the ſuperior ones ſmall: *apex* ſharp, pointed: the volutions are very little raiſed, but ſufficiently defined by the ſeparating line, which, in the future of the body whirl, riſes upon the baſe of the ſuperior volution, with a ſlight, abrupt, ragged edge, and does not turn inwards and become loſt, as is uſual with moſt ſhells, at the junction of the ſpires: it has no regular ſtriæ, but is wrought with faint, irregular wrinkles, acroſs the volutions, which, in the under part of the body, above the mouth, is worn quite plain: aperture lunated; outer lip conſiderably projecting, margin attenuated; pillar lip ſmooth, flat, and partly ſpread upon the body whirl, in a diagonal line, the whole length of the aperture; this, as well as the inſide, and the *operculum*, (which is of a corneous ſubſtance,) is of a deep, gloſſy purple: the inner lip is ſtraight, and brought to an edge, as in many of the *Nerites*, but the mouth does not ſtand ſufficiently tranſverſe to claim a place in that genus; and, indeed, the *apex* is more produced than is uſual in that tribe. Length rather more than a quarter of an inch, but never ſo much as three-eighths, of which PETRÆA.

the aperture extends full one half; breadth two-tenths of an inch.

A variety is irregularly ſtreaked, or blotched with rufous, or white, on the upper part of the larger volution, but the ſmooth part of the pillar lip, and inſide, are invariably of the ſame dark-purple colour.

This ſpecies, which at preſent appears to be a nondeſcript, may poſſibly have been confounded for the fry of ſome of the larger littoral ſhells; though, on cloſe examination, will be found to be eſſentially different from any *Britiſh* ſpecies, hitherto noticed; the mouth, alone, being a ſtrong ſpecific mark of diſtinction; and if attentively examined, will always prove an unerring guide.

We have, as yet, only met with it on the ſouth coaſt of *Devon*, near the mouth of the river *Aun*, not far from the village of *Bantum*, adhering to the rocks, a little beneath high water-mark; and there in no inconſiderable abundance; and leſs plentiful in a ſimilar ſituation at *Swanage* in *Dorſetſhire*.

Upon a curſory view, it may be miſtaken for *Turbo tenebroſus*, being nearly the ſame ſize, and colour; the ſhape, however, is not only very different, but the ſmalleſt attention to the aperture, and a compariſon of the deſcription of each, will prevent their being confounded.

**SUB-GLOBOSE, OR DEPRESSED; APEX PRODUCED.

24. POMATIA.

Helix Pomatia. *Lin. Syſt.* p. 1244.—*Gmel. Syſt.* p. 3627.
Chem. Conch. ix. t. 128. f. 1138.
Id. ix. t. 108. f. 908. to 912. var. reverſed.
Liſter Conch. t. 48. f. 46.—*Id. Angl.* t. 2. f. 1.
Br. Zool. t. 84. f. 128.—*Gualt.* t. 1. A. B. C.
Schroeter Erdconch. p. 145. t. 1. f. 10.
Da Coſta. p. 67. t. 4. f. 14.
Favan. t. 63. D. 1?—E. var. reverſed.
Hill Swammerd. p. 65. t. 4. f. 2. 3.
Pult. Cat. Dorſet. p. 47.
Turt. Lin. iv. p. 513.
Don. Br. Shells. iii. t. 84.
Muller Verm. ii. p. 43. No. 243.
Helix Pomaria. *Muller Verm.* ii. p. 45. No. 244. var. reverſed

H. with a ſub-globoſe, moderately ſtrong, ſub-pellucid ſhell, with five rounded volutions, ſtrongly wrinkled longitudinally: colour yellowiſh-brown, commonly with three faint *faſciæ* on the body, one of which continues round the ſecond ſpire: aperture ſemi-lunated, margin rather thickened, and turns a little outwards; pillar lip much reflected over the *umbilicus*. Diameter about two inches.

This is the largeſt ſpecies of land ſhells, found in *England;* is ſubject, like the common garden ſnail, to much variety in colour; ſome are nearly white, with ſcarce

ſcarce any appearance of bands. It is not an aboriginal ſpecies of this kingdom, but was firſt introduced about the middle of the ſixteenth century, either as an article of food, or for medicinal purpoſes. Is ſuppoſed they were firſt imported from *Italy*, and turned out in *Surry*, by a Mr. HOWARD at *Albury*; where they encreaſed prodigiouſly, and are by far the moſt common ſpecies about *Aſhted*, *Boxhill*, *Leatherhead*, *Darking*, and the neighbouring parts.

It is alſo ſaid that Sir KENELM DIGBY diſperſed them about *Gothurſt*, near *Newport Pagnal*, in *Buckinghamſhire*, where they did not thrive much. Mr. MORTON informs us, ſome were turned out by Lord HATTON at *Kerby* in *Northamptonſhire*, but that they did not encreaſe.

They are commonly uſed as food in many parts of *Europe*, eſpecially during Lent; and are preſerved and fattened for that purpoſe; but we do not find they grow to that ſize ſpoken of by VARRO, who ſays the ſhells would hold ten quarts. They were a favourite diſh with the *Romans*, who had their *Cochlearia*, or nurſery, and fattened them (as we are told) with bran and ſodden wine.

It has been found according to DA COSTA, in *Oxfordſhire*, about *Woodſtock* and *Blanden*: in *Glouceſterſhire* about the pariſh of *Chedworth*; and in *Dorſetſhire*.

Doctor

Doctor PULTENEY, however, obſerves he never found it in this laſt county. Doctor LISTER ſays in *Hertfordſhire*, about *Ware* and *Puckeridge*.

We have received it from *Kent;* and once found a ſingle ſpecimen near *Devizes*, in *Wiltſhire;* which, with thoſe mentioned in *Glouceſterſhire*, ſeems to be their furtheſt northern limits at preſent.

By ſome, it is ſaid to poſſeſs a teſtaceous *operculum;* if ſo, it is only prepared for ſecurity in the torpid ſeaſon, and is caſt off as ſoon as the animal is reſtored to locomotion: for no ſuch appendage is to be diſcovered during the ſummer months.

Moſt authors, however, ſpeak of the *operculum* as like chalk or plaſter; and that it is compoſed of two or three *laminæ* of different degrees of hardneſs; but not teſtaceous. That it is not of a ſhelly nature, there can be no doubt, for in all ſuch ſhells, furniſhed with a teſtaceous *operculum*, it is as much fixed to the animal as any other part, and is never deciduous; whereas, the animal of the *Helix Pomatia*, throws off the covering of the aperture of its ſhell, as ſoon as it iſſues from its *hybernaculum*.

25. ASPERSA.

Helix aſperſa. *Gmel. Syſt.* p. 3631. 58.
Muller Verm. ii. p. 59. No. 253.

Helix

Helix aſperſa. *Chem. Conch.* ix. t. 130. f. 1156. 1158.
Liſter Conch. t. 49. f. 47.—*Id. Angl.* t. 2. f 2.
Petiv. Gaz. t. 65. f. 4—*Turt. Lin.* iv. p. 515.
Favan. t. 63. D. 2. 3. 4.
Don. Br. Shells. iv. t. 131.
Helix hortenſis. *Br. Zool.* t. 84. f. 129.
Turt. Lin. iv. p. 529.
Nat. Miſcel. t. 30.
Helix Lucorum. *Pult. Cat. Dorſet.* p. 48.
Cochlea vulgaris. *Da Coſta.* p. 72. t. 4. f. 1.

H. with a ſub-globoſe ſhell, with four volutions, the ſuperior ones placed ſomewhat laterally: aperture ſemilunar, rather elongated, margin reflected, white: no *umbilicus*. Diameter ſcarce an inch and a half.

It varies much in colour and markings, but is uſually white, with *faſciæ* of dark brown, which are frequently broken, and appear mottled all over, with purpliſh-brown and white; ſome are entirely of a dull yellow-brown, without *faſciæ* or ſtreaks.

An accidental variety, with the volutions turning the contrary way, was found by Doctor LATHAM at *Dartford*: and we obſerved in the cabinet of Mr. SWAINSON, another variety, with the volutions vaſtly extended and detached, in a ſingular ſpiral form, like a ſcrew.

At the approach of winter, the animal forms a covering to the aperture, or an *operculum* of a coriaceous ſubſtance, compoſed of many coats or folds; which it retains

retains during its torpid ſtate; but is thrown off on the return of ſummer, as ſoon as its locomotive faculty is reſtored.

It may be expected in the hiſtory of this animal, ſo long celebrated for acting the part of Cupid in its amours, that ſomething ſhould be ſaid upon a ſubject ſo ſingular and extraordinary.

So much, however, has been already written by different authors on the loves of *Snails*, which requires more than common faith to credit; that we muſt beg to refer our curious readers to the more recent accounts of the actions of *Snails* in love, given in the firſt volume of the *Naturaliſt's Miſcellany;* where the author very properly prepares the reader for the belief of ſuch wonders, by ſaying, "I muſt requeſt my readers to ſummon all their philoſophical faith to receive the ſurpriſing particulars."

That the hermaphroditical animal of the *Helix aſperſa*, as well as *H. nemoralis*, (or at leaſt ſome of them,) poſſeſs ſmall teſtaceous *ſpiculi* at certain ſeaſons, muſt be admitted; but that they are miſſile darts, we have much reaſon to doubt, though it is natural to ſuppoſe the animals are furniſhed with them, for the purpoſe of ſtimulating each other to love, becauſe it is only at that ſeaſon they are found to poſſeſs them. If ſuch are ever diſcharged at each other, we have been extremely unfortunate in our obſervations, for in no one inſtance, could

we ever find the dart penetrated; though at the time the animals are close, the point may irritate: but it is neither sufficiently strong, nor sharp-pointed, to penetrate the tough skin with which these animals are furnished; and, indeed, the extremely viscid secretion, with which they are so copiously provided, adheres so strongly to these *spiculi*, when wholly projected from the body, that they are for a time held by it. Perhaps we may be told hereafter, that this tough excretory fluid is used as a cord to regain these darts after they have been discharged: but such we should hold equally fabulous, with much of the accounts related by various authors.

These celebrated love-darts are sub-pellucid-white, and very brittle, about a quarter of an inch, or three-eighths in length, and somewhat triangular, like the blade of a small sword.

Some authors seem to have considered this as the *Helix Lucorum* of LINNÆUS, but it certainly admits of much doubt. GMELIN did not think so, for he has given all the synonyms of this shell to his *H. aspersa;* and has made his *H. Lucorum* a very different shell; a figure of which is given in LISTER's *Conchology*, tab. 1058. fig. 1.

Doctor TURTON has confounded the synonyms of the *aspersa* with those of the *hortensis*, not considering the former as an *English* shell, and therefore has quoted this shell

ſhell of LISTER, PENNANT, and DA COSTA, for the *hortenſis*.

26.

Helix nemoralis. *Lin. Syſt.* p. 1247.—*Gmel. Syſt.* p. 3647. NEMORALIS.
Chem. Conch. ix. t. 133. f. 1196. 1198.
Id. t. 109. f. 924. var. reverſed.
Liſter Conch. t. 57. f. 54.
Id. Angl. p. 117. var. 2. to 9. t. 2. f. 3.
Br. Zool. No. 131.—*Favan.* t. 63. H.
Don. Br. Shells. i. t. 13.
Born. p. 384. 385. t. 16. f. 3. 8.
Muller Verm. ii. No. 246. p. 46.
Hill Swammerd. p. 70. t. 8. f. 5.
Pult. Cat. Dorſet. p. 48.
Turt. Lin. iv. p. 529.
Petiv. Gaz. t. 91. f. 9. to 12.—*Id.* t. 92. f. 9. 10.—*Gualt.* t. 1. P.&Q. left hand.
Schroeter Erdconch. t. 1. f. 13. to 17.—t. 2. f. 28. 29. 30.
Cochlea faſciata. *Da Coſta.* p. 76. t. 5. f. 1. 2. 3. 4. 8. 14. 19.

H. with a ſub-globoſe, ſub-pellucid ſhell, with five volutions of various colours; moſt frequently yellow, or reddiſh, faſciated with dark chocolate-brown, from one to five in number on the body, but rarely two; thoſe with five bands have the two uppermoſt much ſmaller than the reſt. In ſome the *faſciæ* are very broad; others have a ſingle narrow zone throughout the volutions, on a bright yellow ground; ſometimes plain yellow, red, or dull purpliſh-brown; but in all varieties the

inner margin of the lip, the edge, and pillar lip are invariably of a dark colour.

The aperture is lunated; baſe imperforated. Greateſt diameter not quite an inch.

This is one of the moſt common ſpecies in our woods, hedges, and ſhady places.

We have obſerved ſimilar *ſpiculi*, or amorous darts, to thoſe of *Helix aſperſa*, iſſuing from this ſpecies, in the month of May.

27.
HORTENSIS.

Helix hortenſis. *Gmel. Syſt.* p. 3649. 109.
Cham. Conch. ix. t. 133. f. 1199. 1201.
Mul. Verm. p. 52. No. 247.
Liſter Angl p. 117. No. 1.
Born. p. 385. t. 16. f. 18. 19.
Gualt. t. 1. Q. right hand.
Schroeter Erdconch. t. 2. f. 27.

H. with the ſhell in every reſpect like the preceding ſpecies, but conſiderably leſs, and invariably with a white margin to the aperture. It is ſubject to nearly all the varieties of the *H. nemoralis*, except that of red, or fleſh-colour. Greateſt diameter three-quarters of an inch.

Various have been the opinions concerning this ſhell; MULLER and BORN have conſidered it as quite diſtinct from

from the *H. nemoralis*, and have given the white lip as an invariable character.

GMELIN and CHEMNITZ have expreſſed a doubt.

To this ſubject we have paid conſiderable attention, by collecting theſe ſhells from different parts of the kingdom; and have invariably found the ſmaller ſhells with the white lip, and the larger with a brown margin to that part; and have never yet found the red or fleſh-coloured variety with the former. It has been conjectured, that this ſhell is only the young of the other, but the perfect formed mouth precludes all ſuch idea: it is alſo much leſs common, which would not be the caſe if it was the young of the *nemoralis*, and the red variety would equally occur. From theſe circumſtances we are inclined to believe, they are perfectly diſtinct.

That they are full grown ſhells is evident from the ſtructure of the lip; for the *nemoralis* is larger before the lip is formed: and we cannot think it an accidental variety in a depauperated ſtate, becauſe neither of their mouths ever vary.

28.

Helix Arbuſtorum. *Lin. Syſt.* p.1245—*Gmel. Syſt.* p.3630.53. ARBUSTORUM.
Chem. Conch. ix. t. 133. f. 1202.
Muller Verm. ii. p. 55. No. 248.
Liſter Conch. t. 56. f. 53.
Id. Angl. t. 2. f. 4.

Helix

Helix Arbuſtorum. *Br. Zool.* t. 85. f. 130.
Don. Br. Shells. iv. t. 136.
Pult. Cat. Dorſet. p. 47.
Turt. Lin. iv. p. 514.
Cochlea unifaſciata. *Da Coſta.* p. 75. t. 17. f. 6.

H. with a ſub-globoſe, ſub-pellucid ſhell, with five volutions a little rounded, well defined by the ſeparating line, and wrinkled longitudinally: colour uſually mottled cinereous, and brown in ſtreaks, and lines; ſome pale, inclining to yellow; others dark, approaching to cheſnut, with moſt commonly a ſingle band of brown about the middle of the body, continuing ſpirally at the baſe of the ſuperior volutions, and is gradually loſt before it reaches the *apex*. This ſingle belt or *faſcia* has been conſidered as the ſtrong character of the ſhell; however, it is frequently deſtitute of that mark, and is oftentimes ſo faint as ſcarcely to be traced; the mottled appearance, therefore, is the moſt conſtant and unerring character: aperture lunated, margin reflexed, the inſide bordered with white; in young ſhells a *ſub-umbilicus* is obſervable, which is concealed by the reflected lip in old ones, when the aperture is completely formed. Greateſt diameter about three-quarters of an inch.

This ſpecies may be conſidered as very local, but ſufficiently plentiful in ſome parts. It delights in wet, and ſhady places, particularly amongſt willows and alders, where the ſoil is black and boggy. In ſuch places in the neighbourhood of *Lackham* in *Wiltſhire*, contiguous to the

the river *Avon*, it is the moſt common ſhell, but we have rarely found it elſewhere.

Da Costa obſerves it is not a common ſpecies, but ſays he has ſeen them from *Surry*, *Hampſhire*, and *Wiltſhire*.

Doctor Pulteney remarks it is not common in *Dorſetſhire*.

We once received a ſingle ſpecimen from the north of *Devonſhire*.

Animal duſky, *tentacula* four, ſuperior ones moderately long, with the eyes at their tips.

29. Virgata.

Helix virgata.	*Pult. Cat. Dorſet.* p. 47.
	Petiv. Gaz. t. 17. f. 6.
	Gualt. t. 2. L. M. P.
	Liſter Conch. t. 59. f. 56.
Cochlea virgata.	*Da Coſta* p. 79. t. 4. f. 7.
Helix zonaria.	*Don Br. Shells* ii. t. 65.
	Br. Zool. t. 85. f. 133. A. (var.)
Helix Piſana.	*Muller Verm.* ii. p. 60. No. 255.
	Gmel. Syſt. p. 3631.
	Schroet. Erdconch. p. 188. t. 2. f. 22. & 22. a.

H. with a ſub-globoſe, ſub-pellucid ſhell, with ſix conſiderably produced, and rounded volutions: colour white, tinged with bluſh, with one dark purpliſh-brown band

band on the middle of the body, continuing ſpirally at the baſe of the ſuperior volutions quite to the *apex*, which is prominent; at the baſe there are uſually three or four fine circular lines of the ſame colour; theſe are ſometimes confluent, and the white part appears between in ſpots; others have two or three broader, circular bands at the baſe; none of theſe, however, run cloſe to the *umbilicus*, which is deep but not large: aperture lunated, lip thin, and not reflexed, except at the part cloſe to the *umbilicus;* within pale purpliſh-brown, with a white, thread-like elevation round the margin.

A variety is not uncommon, of a plain rufous-brown colour, with ſometimes a daſh of cinereous, obſoletely banded at the baſe, or with a ſingle white *faſcia* on the body; others wholly of a fleſh-coloured white, with a white belt on the lower volution. Length generally half an inch; breadth the ſame; but we have received it from *Kent*, full five-eighths of an inch diameter.

This and the following ſpecies have been confounded together; DA COSTA and others have conſidered it as the *Helix zonaria* of LINNÆUS, to which we cannot aſſent, though GMELIN has quoted DA COSTA's ſhell for his *zonaria*.

Nor is it the *zonaria* of PENNANT; that author was not acquainted with this ſhell, except the plain variety quoted.

Mr. DON-

Mr. DONOVAN informs us, that DA COSTA was not poſſeſſed of PENNANT's ſhell till after his work was publiſhed, and that this miſtake ſtands corrected in ſome of his M. S. notes.

This author, however, conſiders the *H. virgata* to be the *H. zonaria* of LINNÆUS, as he ſays, GMELIN admits DA COSTA's ſhell to be the *Linnæan zonaria*. However this may be, that author has quoted other ſhells perfectly diſtinct, and not the leaſt allied to this.

Doctor PULTENEY, who gives this as a *Dorſetſhire* ſhell, expreſsly ſays, "not *zonaria* of LINNÆUS;" and we are much inclined to coincide with the Doctor.

The *virgata* may be conſidered as a local ſpecies, but is found in prodigious abundance in ſome ſandy, or barren ſtony ſituations. Moſt plentiful near the coaſt, eſpecially about *Whitſand* bay in *Cornwall*, and in the ſouth of *Devonſhire;* where it is a prevailing opinion, they contribute not a little to fatten ſheep; the ground in ſome places being covered with them. It is alſo found in the more interior counties; is not uncommon in *Wiltſhire;* but no where in ſuch abundance as within the influence of ſaline air. Is the moſt common ſpecies about *Kingsbridge* in *Devonſhire*, and on the coaſt to the eaſt and weſt of that place, in company with *Turbo faſciatus*. PETIVER noticed it on *Newmarket* heath, near *Cambridge*.

Animal of a pale colour, not much unlike that of the following ſpecies.

30.
CINGENDA.

Helix zonaria. *Br. Zool.* t. 85. f. 133.
Gualt. t. 2. H.—t. 3. C ?

H. with a ſub-pellucid ſhell, with ſomewhat the habit of the preceding: it has five volutions, the larger ones rounded, but are a little angulated, or flattened at the top; the three ſuperior ſpires are very little elevated above the reſt: *apex* obtuſe and depreſſed: colour yellowiſh-white, with ſeveral ſmall bands of cheſnut, or purpliſh-brown, running ſpirally up the ſhell, which are frequently broken, and form ſhort longitudinal ſtreaks, eſpecially on the flat, or angulated part, on the top of each ſpire; the baſe is ſlightly umbilicated, and has generally one broad circular band, at ſome diſtance from the *umbilicus*, and a broad white belt between that and the finer girdles, which are ſometimes as many as ſeven or eight, perfectly diſtinct, but frequently run into each other: ſome have two circular bands at the baſe, cloſe together. The ſpiral belt uſually becomes faint, and frequently quite loſt in the upper volutions; but the *apex* is commonly defined by a black ſpiral line.

A variety is ſometimes found quite plain, or with only a few faint girdles on the body. Aperture lunated, margin attenuated, not reflexed, except cloſe to the *umbilicus*, where it turns conſiderably outward, and partly overlaps

overlaps the perforation. Breadth at the baſe three-quarters of an inch; height half an inch.

This ſpecies differs eſſentially from *Helix virgata* both in ſhape and markings; it is larger, broader in proportion to its height, and depreſſed on the top; whereas that ſhell has always a produced *apex*, and never more than one belt on the ſuperior volutions.

Mr. PENNANT has given a very good figure of this ſhell, which he deſcribes to be faſciated ſpirally with narrow ſtripes of white, duſky, and yellow. Such are not uncommon, and is by far, the moſt elegant variety.

This muſt be conſidered as one of our moſt rare ſpecies, or at leaſt extremely local: the only place we ever found it in, was on the rocks that verge the town of *Tenby* on the ſouth, cloſe to the ſea; and on the ſands to the weſt of that place, contiguous to the ſhore: in theſe places we obſerved it twelve years ago, and lately procured ſpecimens from the ſame ſpots: it ſeems confined to a ſmall diſtrict, as we could not find it elſewhere in the neighbouring country.

Mr. RACKETT informed us, he found it near *St. Ives* in *Cornwall*, on the ſlope of the hill deſcending to the town. Mr. PENNANT has quoted the *H. zonaria* of LINNÆUS for his ſhell; but we do not think the deſcription ſufficiciently correſponds, to conſider it as ſuch:

GMELIN makes the *virgata* of DA COSTA, his *zonaria;* but we think he has miſtaken the ſpecies, for neither of the ſhells here deſcribed, have a reflexed margin to the aperture, which ſeems to be the character of the *Linnæan* ſpecies.

It has alſo been thought by ſome, that this is the *H. maculoſa* of LINNÆUS, but the ſame objection holds againſt its being that ſhell.

Animal pale-yellow: *tentacula* four, the longeſt darker than the body, with a duſky ſtreak at the baſe of each, running backward, and furniſhed with eyes at their tips: *ſuſtentaculum* longer than the ſhell.

31. RUFESCENS.

Helix rufeſcens.	*Br. Zool.* t. 85. f. 127.
	Liſter Conch. t. 71.—*Id. Angl.* t. 2. f. 12.
	Pult. Cat. Dorſet. p. 47.
Cochlea rufeſcens.	*Da Coſta.* p. 80. t. 4. f.6.
Helix ſericea.	*Muller Verm.* ii. p. 62. No. 258?
	Gmel. Syſt. p. 3617?
Helix Turturum.	*Turt. Lin.* iv. p. 521?
	Gmel. Syſt. p. 3639?
Helix hiſpida.	*Turt. Lin.* iv. p. 512.
Helix obvoluta *b*	*Muller Verm.* ii. p. 27. No. 229?
	Schroeter Erdconch. p. 194. t. 2. f. 24?

H. with a ſub-pellucid, rufous-brown ſhell, with ſix volutions not much raiſed, but well defined by the ſeparating

rating line, and ſtriated, or rather wrinkled longitudinally: ſhape in general, conſiderably compreſſed, and the *apex* very little elevated, ſo that its height is not above half the breadth. Sometimes it is two thirds as high as it is broad, and the *apex* more produced: on the middle of the lower volution is a ſlight, ſub-carinated edge, which is more ſtrongly marked by being of a lighter colour like a band: aperture ſemi-lunated, outer lip thin, a little reflected at the lower angle: *umbilicus* large and deep. Diameter at the baſe, half an inch.

This ſhell ſometimes appears a little mottled when the animal is alive, eſpecially in the lighter coloured varieties: ſome are quite pale, others of a deep orange-brown.

The young of this ſpecies are frequently hirſute, or covered with ſhort hairs; in which ſtate it has been confounded and deſcribed for *Helix hiſpida;* and we ſuſpect is the *H. tomentoſus* of Mr. ADAMS, *Linnæan Tranſactions*, vol. iii. p. 254. and of TURTON'S LINNÆUS, iv. p. 525.

It is, however, readily diſtinguiſhed in that ſtate from the *hiſpida*, by its more compreſſed ſhape, in being more opaque, and by the *umbilicus*, which is much larger: the hairs too, are ſhorter, and ſeldom ſpread all over the ſhell. This hiſpid appearance wears off before they are half grown. The animal of this is duſky, that of the other light coloured; both have four *tentacula*, and eyes placed at the tips of the longeſt.

It

It is a common ſpecies in moſt parts of *England*, in moiſt woods, and ſhady places.

32.
CANTIANA.

H. with a ſub-pellucid ſhell, with much the habit of the preceding; it has the ſame number of volutions, is equally compreſſed, but of a much ſuperior ſize, and has not the ſub-carinated edge, though a faint white band is frequently to be traced on that part: the colour too is lighter, with a blueiſh, or lead-coloured tinge, on the ſuperior volutions, produced by the dark colour of the animal; the baſe and round the mouth rufous. The aperture is like that ſhell, but the *umbilicus* is leſs in proportion. Diameter at the baſe above three-quarters of an inch; height half an inch.

This is probably the ſhell Doctor LISTER mentions as a variety of the *H. rufeſcens*, which he ſpeaks of as being found in *Kent*, and ſays it is larger, lighter coloured, and with a ſmaller *umbilicus*. There is no doubt, however, of its being a diſtinct ſpecies, and very local, having never obtained it from any part but *Kent*, where it is found chiefly upon the chalky ſoil.

We have received it from our much eſteemed friend Mr. BOYS of *Sandwich*, by the name *rufeſcens cantiana*, by which, we have been informed, it was known in the *Portland* cabinet.

Helix

33.

Helix hiſpida. *Lin. Syſt.* p. 1244.—*Gmel. Syſt.* p. 3625. 42. HISPIDA.
Chem. Conch. ix. t. 122. f. 1057. 1058.
Muller Verm. ii. p. 73. No. 268.
Petiv. Gaz. t. 93. f. 13. 14.
Morton Northamp. p. 416 ?
Da Coſta. p. 58. t. 5. f. 10.
Pult. Cat. Dorſet. p. 47.
Schroeter Erdconch. p. 186. t. 2. f. 21.

H. with a ſub-globoſe, thin, fragile, diaphanous ſhell, with five rounded volutions of a very light horn-colour, covered with fine, thick-ſet, ſhort, downy, whitiſh hairs; aperture lunated; lip thin, not reflected, except at the angle cloſe to the *umbilicus*, where it turns back, and partly ſurrounds the perforation: baſe rounded: *umbilicus* very ſmall, and round.

This ſpecies ſeldom much exceeds a quarter of an inch in breadth, and ſomething leſs in height; is ſo remarkably light, and ſo covered with hairs, that when let fall upon a hard body is ſcarce heard.

It appears to be a very local ſhell, having found it only about *Tremough* houſe, near *Penryn* in *Cornwall*, where it is tolerably plentiful: and ſparingly in *Devonſhire* and *Wiltſhire*. DA COSTA ſpeaks of it from the laſt mentioned county, as well as from *Hampſhire* and *Lincolnſhire*.

Doctor PULTENEY ſays, it is common in *Dorſetſhire* in woods, among moſs, and in wet and ſhady places.

We

We are inclined to believe the Doctor, as well as others, have confounded this with the young of the *H. rufescens*, which is frequently hirsute, and not uncommonly placed in cabinets for this species; but we before remarked in the description of that shell, that the shape and *umbilicus* are very different. This, too, is never of that rufous colour, which DA COSTA has unfortunately given to his shell; his description, however, in every other respect is very good.

34.
FUSCA.
Tab. 13. f. 1.

H. with a thin, pellucid, rufous horn-coloured shell, with five or six volutions, almost smooth, or very faintly wrinkled longitudinally: aperture lunated, lip thin, not reflected, except a little at the lower angle; at which part is a small depression, but no *umbilicus*.

This has much the habit of *H. rufescens*, but is more pellucid, not so much wrinkled, and is at once distinguished by not having any *umbilicus*.

We were favoured with this species from Mr. BOYS of *Sandwich*, who informed us, it was known about *London* by the name prefixed. It seems, however, to be a rare species, very little known, and not described by any one.

It rarely exceeds three-eighths of an inch in diameter at the base, and is not a quarter of an inch in height.

We

We once found it in a wood in *Devonſhire;* this was ſo uncommonly thin (though not of an inferior ſize) that as the animal dried, the ſhell contracted with it into depreſſions.

35.

Helix lucida. *Pult. Cat. Dorſet.* p. 47.—*Gualt.* t. 2. G. LUCIDA.
Helix nitens. *Gmel. Syſt.* p. 3633. 66.
Turt. Lin. iv. p. 516.
Chem. Conch. t. 127. f. 1130. 1131.
Helix pellucida. *Br. Zool.* No. 134?
Helix nitida. *Muller Verm.* p. 32. No. 234.
Petiv Gaz. t. 93. f. 14.
Schroeter Fluſſconch. t. 5. f. 32. 33.

H. with a ſmooth, gloſſy, thin, pellucid, horn-coloured ſhell, with five, and ſometimes ſix volutions, the lower one rounded, the reſt almoſt flat and depreſſed, or very little raiſed above the body whirl: the baſe is of a lighter colour, more opaque, and has frequently a faint tinge of green: *umbilicus* large and deep: aperture lunated, margin thin, and not the leaſt reflected. Diameter at the baſe uſually three-eighths of an inch, ſometimes half an inch; height not above two-tenths.

This is not an uncommon ſpecies, is found in many parts of *England,* in moiſt woods, as well as in dry banks.

We have found a ſhell inhabiting wet places, and once alive under water, ſo much like this, that we dare not

give it a diſtinct place, though we are much inclined to believe it a different ſpecies. It is more pellucid, the *apex* more produced, and never has that opaque greeniſh colour at the baſe: that found under water (which we take to be SCHROETER's fig. 32) was of a light, tranſparent horn-colour. Others, taken in wet drains and ditches about *Newbury* in *Berkſhire*, are of a rufous horn-colour, (which is probably SCHROETER's fig. 33): the animal is black, and when alive, gives the ſhell a deep chocolate-brown colour. This laſt we have alſo found on a ſwamp, in a wood belonging to Lord CLIFFORD in *Devonſhire*, rather lighter in colour.

We are aware that the colour of ſhells is ſomewhat affected by the ſoil, at leaſt ſuch as live in moiſt or watery places: thoſe found at *Newbury* are doubtleſs of a darker colour, from partaking of the ſoil, which is peat.

This laſt never exceeds a quarter of an inch in breadth. That found under water, was crawling upon brooklime, and was conſiderably larger: it was in a water-courſe, or drain to a ſwamp, near *Penzance* in *Cornwall*. Theſe, however, appear from their ſhape to be the ſame, but whether they are really diſtinct from the *lucida*, or only varieties, the obſervations of future conchologiſts muſt determine. We do not recollect, whether the animal of that we found under water, was of the true aquatic kind, or whether it poſſeſſed four retractile

tractile *tentacula*, and had by accident fallen into that element; but we never before or ſince, found one ſo large, ſo extremely thin and pellucid, or of ſo light a colour. The animal of this is duſky above; *tentacula* four, of the ſame colour, cylindric, a little clavate at the end, the longeſt furniſhed with eyes at their tips.

36. TROCHIFORMIS. Tab. 11. f. 9.

Trochus terreſtris, Liſteri. *Da Coſta* p. 35.
Liſter Angl. p. 123.
Phil. Trans. No. 105. f. 9?
Helix Trochulus. *Muller Verm.* p. 79. No. 276.

H. with a thin, pellucid, horn-coloured ſhell, ſometimes inclining to rufous; with ſix rounded volutions, nearly ſmooth, and gloſſy, ſtrongly divided by the ſeparating line: *apex* conſiderably produced: baſe a little rounded: aperture ſub-lunated, tranſverſely compreſſed; lip attenuated, in old ſhells a little reflected at the lower angle, forming a *ſub-umbilicus*, ſcarce diſtinguiſhable in young ſpecimens, though moſt times a little concave in the centre of the baſe. Length about one-eighth of an inch; breadth nearly the ſame.

This ſpecies has much the habit of a *Trochus*, but the lunated mouth forbids its being placed in that genus. It is a rare ſhell; we firſt obſerved dead ſpecimens amongſt the drifted ſand in the river *Avon* in *Wiltſhire*; and afterwards found it ſparingly, alive, in *Lackham* wood, in the ſame county; and alſo in a wood cloſe to Lord CLIFFORD's houſe in *Devonſhire*.

It ſeems partial to moiſt ſituations, and is generally found on decayed wood, or timber that has lain ſome time on the ground.

Mr. SWAINSON has this ſhell in his cabinet; and, we believe, ſaid he found it in *Kent*.

Animal light coloured, paler beneath; *tentacula* four, the ſuperior ones not very long, furniſhed with eyes at their tips.

37.
LACUNA.
Tab. 13. f. 6.

H. with a thin, pellucid, ſub-globoſe ſhell, of a light horn-colour, with four tumid, ſmooth ſpires, the firſt large, the two uppermoſt very ſmall, and placed ſomewhat lateral: aperture large, ſub-oval; outer lip extremely thin, membranaceous; pillar lip thick, white, grooved with a long canal or gutter, which terminates in a ſmall, but deep *umbilicus*. Length a quarter of an inch; breadth nearly the ſame.

The form of the pillar lip, and the lateral ſituation of the ſmaller volutions, give this ſhell much the habit of a *Nerita*; but the ſhape of the mouth makes it a *Helix*. It muſt not therefore be confounded with the *Nerita pallidula*, whoſe pillar lip is ſome what of the ſame form, but much broader; the ſmaller volutions more lateral, and more compreſſed: the body, and mouth too, are vaſtly larger.

We

We never found this ſpecies any where but on the coaſt of *Devonſhire* ſparingly, and on the ſhore near *Southampton*, where it is plentiful about high water-mark, but moſt frequently dead ſhells; ſome of which have the *epidermis* worn off, and in that ſtate are white.

Have received ſmall ſpecimens from *Folkſtone* in *Kent*.

A variety is rarely found with two rufous-brown bands.

38.

Helix ſpinuloſa. *Phil. Trans.* LXXVI. t. 2. f. 1. to 5. SPINULOSA.
(Lightfoot.) Tab. 11. f. 10.
Helix aculeata. *Gmel. Syſt.* p. 3638.
Muller Verm. ii. p. 81. No. 279.
Chem. Conch. ix. t. 133. f. 1209.
Morton Northamp. p. 415?
Helix nucleata. *Turt. Lin.* iv. p. 520.

H. with a ſub-pellucid, thin, brown, horn-coloured ſhell, with five rounded volutions, well defined by the ſeparating line, furniſhed with regular, membranaceous ſtriæ, that riſe into fine hair-like ſpines, particularly round the middle of each volution: *apex* conſiderably produced; aperture ſemi-lunated: baſe perforated. Length one tenth of an inch; breadth nearly the ſame.

The ſtriæ of this ſpecies ſeem to be formed by the *epidermis*, which riſes in ſome parts into thin, flat, briſtly proceſſes,

proceſſes, that give it a ſpinous appearance: neither theſe, nor the ſtriæ, are teſtaceous, but flexible, and eaſily rubbed off. It does not appear to be a plentiful ſpecies: we have found it in the woods at *Lackham* in *Wiltſhire*, and about *Kingsbridge* in *Devonſhire;* and have received it from *Sandwich* in *Kent*. This is probably the ſhell deſcribed by Mr. MORTON, to be found in *Morſley* wood, in *Northamptonſhire*, but is extremely rare; he ſays, it had five wreaths, and that the live ſhell is a little briſtly.

LIGHTFOOT, who has given a good figure of this ſhell, in the *Philoſophical Tranſactions* for 1786, ſays, it was found near *Bullſtrode*, at the foot of pales, upon old bricks and ſtones, after rainy weather, in June and July.

It was called by Doctor SOLANDER *Helix delectabilis*.

Animal light coloured, paler beneath: *tentacula* four, the ſuperior ones long in proportion to the animal, ſubclavate, furniſhed with eyes at their tips.

39. CAPERATA. Tab. 11. f. 11.

Helix nævia. *Gmel. Syſt.* p. 3623. 245?
Turt. Lin. iv. p. 510?—*Gualt.* t. 2. N?
Chem. Conch. ix. t. 133. f. 1207?
Schroeter Fluſſconch. t. 5. f. 35.

H. with a ſub-pellucid, and ſomewhat compreſſed ſhell, faſciated with purpliſh-brown and white: volutions ſix,

ſix, furniſhed with ſtrong, regular, cloſe-ſet, longitudinal ſtriæ: on the upper part of the body whirl is uſually a brown belt, which continues up the lower part of the ſuperior volutions: at the baſe of the ſhell are generally ſeveral ſmall circular bands; theſe are frequently interrupted or broken, and appear ſpotted. Sometimes the brown *faſciæ* run into each other, and are elegantly ſpotted with white: aperture lunated; lip thin, not reflected: *umbilicus* moderately large and deep. Diameter at the baſe commonly three-eighths of an inch, rarely half an inch; height about a quarter.

This ſpecies is ſubject to great variety in markings; ſome are dark-brown with a ſingle white belt on the body, and minutely ſpotted with white: others are cinereous-brown, or grey; but in moſt, ſome faint appearance of *faſciæ* are to be traced, and moſt commonly the white band round the middle of the body volution: the *apex* is of a dark colour. In ſhape it is a medium between the *Helix virgata* and *radiata;* is not ſo produced as the former, nor ſo flat as the latter; in the bands, or *faſciæ* at the baſe, it ſomewhat reſembles the firſt, and in being ſtrongly ſtriated, is like the laſt.

The *umbilicus* is much leſs than in the *radiata*, although the ſhell is much ſuperior in ſize.

It is a local ſpecies, and ſeems to affect dry ſituations.

We

We have found it ſparingly in *Wiltſhire*, and not uncommonly upon ſome of the hills in the ſouth of *Devonſhire*, eſpecially about *Stanborough* and *Woolcomb*, amongſt the ſhort ſtunted herbage of the barren paſture land. It is alſo rarely met with in *Cornwall;* but the fineſt and largeſt are found in the barrack yard of *George's-Square*, at *Plymouth Dock*, againſt the wall facing the ſouth; ſo hot a ſituation in ſummer, that ſcarce any other ſpecies is ever found.

We have alſo received it from *Kent*, of a light cinereous colour, with ſo little appearance of bands or *faſciæ*, that it might readily have been miſtaken for a diſtinct ſpecies, was it not for the ſtrong, regular ſtriæ, which, amongſt the *Britiſh Helices*, ſeems to be confined to this and the *radiata*. Mr. BOYS favoured us with this ſhell, by the name of *Apex-niger*, by which it was known to Doctor SOLANDER, and placed as ſuch in the *Portland* cabinet.

40.
RADIATA.

Helix radiata. *Da Coſta.* p. 57. t. 4. f. 15. 16.
Pult. Cat. Dorſet. p. 47.
Liſter Conch. t. 1058. f. 11.
Gualt. t. 3. Q.—*Petiv. Gaz.* t. 31. f. 5.
Morton Northamp. p. 416.
Helix rotundata. *Mull. Verm.* ii. p. 29. No. 231.
Schroeter Erdconch. p. 199. t. 2. f. 25.
Gmel. Syſt. p. 3633.

H. with

H. with a compreſſed, ſub-carinated ſhell, of a light-brown colour, prettily rayed with cheſnut: volutions ſix, not much raiſed, but well defined by the ſeparating line, and ſtrongly marked with cloſe-ſet, regular, longitudinal ſtriæ, from the *apex* acroſs the volutions: aperture lunated: *umbilicus* extremely large for the ſize of the ſhell, the turn of the ſpires viſible to the end. Diameter a quarter of an inch.

This ſpecies is not uncommon in many parts of *England*, on old walls, and dry banks; and not unfrequent in woods, or under ſtones, or timber that has lain for ſome time.

We have found it in many parts of moſt the ſouthern counties. It is ſubject to ſome variety; ſome are of a pale horn colour, with ſcarce any viſible rays; dead ſhells become whitiſh and opaque, with faint brown rays; but in all ſtates, it is eaſily diſtinguiſhed by its compreſſed ſhape, deep and large *umbilicus*, and regular, deep-cut ſtriæ.

Not *radiata* of GMELIN, nor *ſtriatula*, which Doctor PULTENEY has quoted with doubt; but we ſuſpect the *rotundata*.

Animal light-cinereous; *tentacula* four, ſuperior ones filiform, ſub-clavate, furniſhed with eyes at their tips.

41.
UMBILICATA. Tab. 13. f. 2.

H. with a ſub-pellucid, dark, horn-coloured ſhell, inclining to chocolate: volutions five, much rounded, divided by a deep ſeparating line, and finely ſtriated acroſs the whirls: *apex* moderately produced: aperture lunated; lip attenuated, not reflected; *umbilicus* extremely large and deep for the ſize of the ſhell, the ſpires viſible to the end. Diameter at the baſe one tenth of an inch; height not quite ſo much.

This ſpecies has much the habit of the preceding, and might readily be confounded for the young of it, was it not always of a uniform dark colour: upon nice inſpection too, it will be found to be not ſo flat, the volutions much more raiſed, and ſtrongly divided, and the ſtriæ leſs conſpicuous.

We firſt diſcovered this ſhell on looſe built walls, that encloſe the fields about *Tenby* in *Caermarthenſhire*, in vaſt profuſion, lurking under the upper ſtones; and at firſt ſight took them to be the young of the *H. radiata*, but by the aſſiſtance of a lens was ſoon convinced to the contrary; beſides, not a ſingle *radiata* was to be found in that neighbourhood. They ſeem to be confined to the north ſide of that town, and were not to be met with elſe-where: nor were we able to diſcover it in any other part of *England*, till about ten years after; when we found it in conſiderable abundance under looſe ſtones, on the ſummit of the hill, in *Portland* iſland, and on the top

top of *Corff Caſtle*, in *Dorſetſhire:* and under the tiles of *Laycock Abby*, and *Lackham Houſe*, in *Wiltſhire*.

It is proper to remark, that the young *radiata* is quite flat when of the ſize of this ſhell, has only three or four volutions, but is ſtrongly ſtriated, and ſub-carinated. In this the ſtriæ are at all times ſcarcely diſcerned by the help of a glaſs, and the *apex* is conſiderably produced, even in their moſt minute ſtate, when not ſo large as a ſmall pin's head; and the lower volution rounded, without the leaſt appearance of a carinated edge.

It is remarkable, that this ſhell always affects ſuch lofty places as on the tops of houſes, without one being found near the baſe; and in that ſituation its inhabitant braves equally the ſcorching beams of the ſun in ſummer, and the frigid winds of winter, without attempting to deſcend.

Animal duſky-black, with four *tentacula* of the ſame colour; ſuperior ones not very long, furniſhed with eyes at their tips: *ſuſtentaculum* ſhorter than the ſhell.

42.

Helix lapicida. *Lin. Syſt.* p. 1241.—*Gmel. Syſt.* p. 3613. 2. LAPICIDA.
Chem. Conch. ix. t. 126. f. 1107.
Muller Verm. ii. p. 40. No. 240.
Liſter Conch. t. 69. f. 68—*Id. Angl.* t. 2. f. 14.
Br. Zool. t. 83. f. 121.—*Gualt.* t. 3. N?
Pult. Cat. Dorſet. p. 46
Don. Br. Shells. ii. t. 39. f. 2.

Helix lapicida. *Turt. Lin.* iv. p. 502.
Schroeter Erdconch. p. 191. t. 2. f. 23.
Petiv. Gaz. t. 92. f. 11.
Helix acuta. *Da Coſta.* p. 55. t. 4. f. 9.

H. with a ſub-pellucid, compreſſed, brown ſhell, variegated with darker ſhades: volutions five, almoſt flat, or very little raiſed; and the ſhell is nearly equally convex above, and below; the lower volution ſtrongly carinated, or brought to a ſharp edge, which continues ſpirally throughout the ſuperior volutions, and marks their ſeparation by a fine thread-like ridge: it is ſtriated, or rather wrinkled, acroſs the whirls, and the whole ſhell is minutely and elegantly ſhagreened: baſe furniſhed with a wide, and deep *umbilicus:* aperture ſub oval, ſub-lunated, margin ſharp, white; outer lip reflexed; inner lip ſpreading on the body. Breadth three-quarters of an inch; height about three-eighths.

This ſpecies is found in many parts of the kingdom in ſhady woods, as well as in rocky expoſed ſituations, ſuch as the top of the hill in *Portland* iſland; where it is not uncommon. Sometimes in hedges, and ditch-banks, or on old walls, but is not a very plentiful ſhell any where; though it has been found in moſt of the ſouthern counties.

We believe does not extend into *Cornwall,* or *Devonſhire;* at leaſt we never could find it in thoſe parts.

Animal

Animal rufous-brown along the back, the ſides duſky; a ſtreak of the ſame at the baſe of each of the longeſt *tentacula;* theſe are furniſhed with eyes at their tips.

43.

Helix Ericetorum.	*Gmel. Syſt.* p. 3632.—*Gualt.* t. 3. P.	Ericetorum.
	Chem. Conch. ix. t. 132. f. 1193. a. b.	
	Liſter Conch. t. 78. f. 78.	
	Id Angl. t. 2. f. 13.	
	Pult. Cat. Dorſet. p. 47.	
	Turt. Lin. iv. p. 516.	
	Muller Verm. ii. p. 33. No. 236.	
Helix Erica.	*Da Coſta.* p. 53. t. 4. f. 8.	
Helix albella.	*Br. Zool.* t. 35. f. 122.	
	Turt. Lin. iv. p. 503.	
Helix Itala.	*Lin. Syſt.* p. 1245.?	
	Gmel. Syſt. p. 3636?	

H. with a ſub-pellucid, compreſſed ſhell; volutions ſix; the firſt remarkably rounded, the ſuperior ones ſcarce elevated above the body whirl, wrinkled acroſs the ſpires: colour white, ſometimes with a yellowiſh tinge; on the upper part of the larger whirl is a brown band, which continues ſpirally at the bottom of each of the ſmaller volutions, and marks their diviſion; at the baſe of the ſhell are frequently other ſmall circular bands, from one to five in number: *umbilicus* remarkably large and deep, expoſing nearly half the breadth of the ſmaller volutions: aperture ſub-orbicular, ſub-lunated; margin thin, a trifle reflected. Breadth three quarters of an inch;

inch; height little more than a quarter. Some variety is obſerved in this ſpecies, with reſpect to the ground colour, as well as that of the *faſciæ;* the former is from a pure white to a pale yellowiſh-brown, eſpecially on the under part; and the bands vary from a pale to a deep purpliſh-brown: but it is not unuſually found without any bands, and when dead and bleached is pure white.

This is not an uncommon ſhell upon dry, ſandy heaths, and barren land, in many parts of *England;* but we never met with it ſo plentiful as upon the ſandy declivity of the hill above *Whitſand* bay, at the extremity of the peninſula of *Cornwall;* where, together with *Helix virgata*, and *Turbo faſciatus*, the ground is perfectly covered.

It has ſomewhat the habit of the former of theſe laſt-mentioned ſhells; but is at once diſtingniſhed, by its compreſſed ſhape, and capacious *umbilicus*, in which it exceeds every other of the larger *Britiſh* ſpecies.

44.
SUBCARINATA.
Tab. 7. f. 9.

Helix. *Walk. Min. Shells.* f. 22 ?

H. with a ſub-pellucid, white ſhell: volutions three; the lower one large, the others ſmall, a little produced, and placed ſomewhat lateral: round the baſe of the body wreath are two fine ridges; and on the upper part another, which continues round the middle of the ſecond volution,

volution, and is loſt in the future, or diviſion, towards the *apex;* between the ridges, the ſhell is finely ſtriated acroſs the ſpires; from the lower ridge, at the baſe, commences a depreſſion, or ſemi-circular channel, which ſinks into a deep and large *umbilicus:* aperture oval; outer lip projecting conſiderably; inner lip reflected, and ſpreading into a ſharp angle, elevated on the body whirl. The mouth, as well as the whole ſhell, is thick and ſtrong for its ſize. Diameter at the baſe one tenth of an inch; height rather more than half as much.

This ſingular, and curious ſpecies, has much the habit of a *Nerita,* but the form of the aperture gives it a a place amongſt the *Helices.*

We have found it ſparingly amongſt fine ſand from *Salcomb* bay, *Bigberry* bay, and *Milton* ſands, on the ſouth coaſt of *Devon:* and have received it from *Dover* in *Kent,* of a very inferior ſize, found on that coaſt by Mr. Lyons.

45.

H. with a depreſſed, ſub-pellucid ſhell, of a light- Depressa.
brown colour: volutions three or four; the ſuperior Tab. 13. f. 5.
ones ſcarce elevated above the body, but well defined by the ſeparating line, and ſlightly wrinkled: *apex* very conſpicuous, but very little raiſed, or produced; lower volution perfectly round or cylindric, ſo as to form a large *umbilicus,* in which the others are diſtinctly ſeen:

aperture

aperture round, nearly even, lateral, and not claſping the body, but ſpreading a little on that part.

We found this ſpecies ſparingly in ſand from *Whitſand* bay, and *Falmouth* in *Cornwall;* and at *Burrow* iſland in *Devonſhire.* Diameter ſcarce one line.

This is by far the moſt compreſſed of any *Britiſh* marine ſhells, and bears ſome reſemblance to *Helix criſtata,* but is much ſmaller, ſtronger, more opaque, and the *apex* rather more prominent.

46.
PALUDOSA.

Helix paludoſa. *Da Coſta* p. 59.
Walk. Min. Shells f. 23.
Morton Northamp. p. 417.

H. with a ſmooth, ſub-pellucid, white ſhell, with four rounded volutions, well defined by the ſeparating line; the ſuperior ones very little produced from the body whirl, ſo that when viewed ſideways the *apex* appears but little elevated: baſe largely umbilicated, ſhewing the turns of the ſmaller volutions: aperture round, margin thick, opaque white, reflected, not quite meeting on the body. Diameter one tenth of an inch.

DA COSTA has given this ſpecies from Mr. MORTON, who found it plentiful in boggy places in *Northamptonſhire.*

It

It is not an uncommon ſhell in many parts of *England*, but from its ſmallneſs has eſcaped general notice. Mr. WALKER ſpeaks of its inhabiting marſhy ground, and not unfrequent about *Faverſham*. We have received it from Mr. BOYS of *Sandwich*. It is moſt commonly found in rivers and ſtreams of water, after floods, amongſt the ſand, and other refuſe, brought down by the current; having been ſwept from the neighbouring wet and ſwampy ſituations. Is very plentifully found after a flood, on the banks of the river *Avon*, in *North Wiltſhire*, about *Lackham;* and not uncommon amongſt the drifted ſand of the *Kennet*, at *Newbury* in *Berkſhire*.

Sometimes met with in dry ſituations, on ditch-banks and old walls.

47.

Turbo helicinus. *Phil. Trans.* LXXVI. t. 3. f. 1. to 4. *(Lightfoot.)* CRENELLA. Tab. 13. f. 3.

H. in every reſpect like the laſt, except that it is ſtriated acroſs the volutions in a ſtrong and regular manner, and is frequently covered with a light-brown *epidermis*.

We received this ſhell from our eſtimable friend Mr. BOYS, by the name prefixed; he conſidered it as diſtinct from the *H. paludoſa*, and ſaid it inhabited moſſy walls, and banks, where that ſhell was not to be found. We cannot, however, help expreſſing ſome doubts with reſpect to its being really diſtinct, with every ſubmiſſion

to ſuch authority: but as we have frequently found it with the *paludoſa*, and often times ſo little ſtriated as ſcarce to be ſeparated, think it but right to prepare others for ſo nice a diſcrimination.

Mr. LIGHTFOOT has given a very good figure of this ſhell in the *Philoſophical Tranſactions* for 1786, conſidering it a nondeſcript ſpecies. Whether he was acquainted with the *H. paludoſa* of DA COSTA, which is figured in WALKER's *minuta rariora* is uncertain; but probably not, or he would have mentioned the great ſimilitude between theſe. He particularly ſays, the volutions are tranſverſely ſurrounded with numerous ſharp-edged membranaceous rings, which are very fragile and deciduous.

If it is really diſtinct from the *H. paludoſa*, we fear no permanent, ſpecific character of diſtinction, will ever be fixed; for every gradation is to be ſeen, from the ſtrongeſt ſtriated, to thoſe deſtitute of any ſuch mark: both are equally pellucid white, when diveſted of their brown *epidermis*, in a living or recent ſtate; and opaque in old dead ſhells.

In ſome the ridges or ſtriæ are much elevated, and moſtly membranaceous, but in ſuch ſtrong marked ſpecimens the baſe of theſe ſtriæ are permanent or teſtaceous, not to be deſtroyed by rubbing off the *epidermis*; whereas, in others that appear ſtriated when freſh, are wholly

wholly diveſted of ſuch appearance, by depriving them of the *epidermis*.

According to Mr. LIGHTFOOT, it has been found near *Bullſtrode*, upon bare ſtones in moiſt weather.

This ſhell was named *Turbo Crenellus* by Doctor SOLANDER, as we have been informed by Mr. BOYS, who favoured us with a liſt of names given by that gentleman to many of the minute, and other ſhells, which he had ſent to the *Ducheſs Dowager of Portland* at *Bullſtrode*, for inſpection, previous to the publication of the *Teſtacea minuta rariora*. From this circumſtance it is evident, Mr. WALKER was acquainted with this ſhell, before it was given to the public by Mr. LIGHTFOOT, but for what reaſon it was omitted in the *Minute Shells* does not appear, unleſs it was then conſidered as an accidental variety of the *paludoſa*.

48.

Helix utrinque umbilicata apertura rotunda unici anfractus. UNISPIRALIS. *Walk. Min. Shells.* fig. 27.

The ſingle ſpired, umbilicated, round mouth'd ſnail.

The colour white, opaque, and gloſſy.

From *Sandwich;* not common.

49.
RESUPINATA. Helix apertura ampla ovali anfractibus apicis reſupinatis. *Walk. Min. Shells.* f. 24.

The ſnail with a large, oval mouth, and the ſpires of the tip turned backwards.

The colour of horn, ſemi-pellucid and gloſſy.

From *Sandwich:* very rare.

50.
GLOBOSA. Helix globoſa duobus anfractibus lævis apertura ſubrotunda. *Walk. Min. Shells.* f. 25.

The ſmooth, round ſnail, with two ſpires and a roundiſh mouth.

The colour white, opaque, and gloſſy.

From *Sandwich:* not common.

51.
RETICULATA. Helix reticulata. *Turt. Lin.* iv. p. 525.—*Ad. Micr.* t. 14. f. 12. Helix unici anfractus ſub-umbilicata apertura rotunda marginata eleganter reticulata. *Walk. Min. Shells.* fig. 26.

The round mouth'd, reticulated, ſingle ſpired, ſlightly ſub-umbilicated ſnail.

The colour white and pellucid.

From *Reculver:* extremely rare.

Helix

52.

Helix ſtriata. *Turt. Lin.* iv. p.532.—*Adams Micr.* t. 14 f.13. STRIATA.
Helix ſtriata apertura ſub-ovali anfractibus ſupradorſalibus.
Walk. Min. Shells. fig. 29.

The oval mouth'd, ſtriated ſnail, with three ſpires reflected on the back.

The colour greeniſh-white, pellucid.

From *Sandwich:* very rare.

53.

Helix anfractibus duobus apertura ſub-rotunda ad umbilicum coarctata. *Walk. Min. Shells.* f. 30. COARCTATA.

The ſnail with two ſpires, and a roundiſh aperture contracted near the *umbilicus*.

The colour white and pellucid.

From *Sandwich:* not common.

Mr. BOYS favoured us with this ſhell, with a reference to WALKER's figure: from the appearance we have little doubt, but it is the fry of ſome ſpecies of land *Helix*.

The preceding ſix ſhells, which we have been obliged to copy from the *Teſtacea minuta rariora*, (never having come under our examination, the laſt excepted) are repreſented to be very minute.

Helix

54.
TUBULATA. Helix tribus anfractibus longitudinaliter ſtriatis. *Lin. Trans.* iii. p. 67. *(Adams.)*

Obs. Singularis hac in ſpecie eſt conſtructio, nam teſta, umbilici loco, tubo marginato qui extra teſtæ ſuperficiem extenditur, inſtructa eſt. Fig. 35. 36.

Shell with three longitudinally ſtriate whorls, and a margined tube at the baſe, in the place of an *umbilicus*, extending beyond the ſurface of the ſhell. *Turt. Lin.* iv. p. 525.

55.
VARIEGATA. Helix teſta lævi quatuor anfractibus, primo ventricoſiore, lineis rubris notatis. *Lin Trans.* iii. p. 67. *(Adams.)*

Obs. Baſi imperforata. Teſta ſub-pellucida, aperturæ margine patentiſſima.

Shell imperforate, ſub-pellucid, ſmooth, with red lines: whorls four, the firſt more ventricoſe: margin of the aperture very much ſpread. *Turt. Lin.* iv. p. 531.

56.
FASCIATA. Helix teſta lævi tribus anfractibus, primo ventricoſiore, ſub-umbilicatâ, aperturâ ampliatâ. *Lin. Trans.* v. t. 1. f. 20. 21. *(Adams.)*

Obs. This delicate ſpecies is pellucid white; firſt ſpire marked with three tranſverſe belts of a rich marone colour, the middle one broad, the lateral ones narrow.

Shell

Shell ſub-umbilicated, ſmooth, with three whorls; the firſt more ventricoſe: aperture dilated. *Turt. Lin.* iv. p. 525.

57.

Helix teſtâ duobus anfractibus, ſubtiliſſimè tranſversè ſtriatâ. *Lin. Trans.* v. t. 1. f. 22. 23. 24. (*Adams.*) NITIDISSIMA.

Obs. Corneous, pellucid, umbilicated; eaſily diſtinguiſhed by the uncommon brilliancy of its gloſſineſs.

Shell umbilicate, with two whorls very finely ſtriate tranſverſely. *Turt. Lin.* iv. p. 525.

58.

Helix teſtâ lævi duobus anfractibus, vix umbilicatâ. *Lin. Trans.* v. t. 1. f. 25. 26. 27. BICOLOR.

Obs. This ſpecies differs from the preceding, to which it is nearly allied in other reſpects, in being perfectly ſmooth, devoid entirely of any gloſſineſs, and in having the inſide of the ſhell white.

Shell ſlightly umbilicate, ſmooth, with two whorls. *Turt. Lin.* iv. p. 525.

The preceding five ſpecies we have been obliged to copy from the deſcriptions of minute ſhells given in the *Linnæan Tranſactions* by Mr. ADAMS; found on the coaſt of *Pembrokeſhire*.

We

We ſhall however take this opportunity to remark, that great attention is requiſite in the inveſtigation of theſe microſcopic ſpecies, which we fear have already been unneceſſarily multiplied, ariſing from the difficulty of deſcribing and delineating ſuch ſmall objects under a microſcope. Thoſe who have been in the habits of ſtudying the diminutive works of nature in this way, are aware of the difficulty. Much caution is alſo requiſite in admitting thoſe minute ſpecies of ſhells, with only two or three volutions as diſtinct, unleſs they poſſeſs ſome character which ſtrongly marks them as ſuch, as many are probably the fry or young of others. Upon this principle we have rejected many which have come under our inſpection, rather than puzzle ſcience with uncertainty.

***DEPRESSED, APEX COMPRESSED.

59.
CORNEA.

Helix cornea. *Lin. Syſt.* p. 1243.—*Gmel. Syſt.* p. 3623. 35.
Liſter Conch. t. 137. f. 41.—*Id. Angl.* t. 2. f. 26.
Chem. Conch. ix. t. 127. f. 1113. 1115.
Schroet Fluſſconch. t. 5. f. 19. 20. 21.—& t. *Min.* C. f. 7.—*Gualt.* t. 4. D. D.
Muller Verm. ii. p. 154. No. 343.
Petiv. Gaz. t. 92. f. 5.—*Br. Zool.* t. 83. f. 126.
Favan. Zoomorph. t. 75. D. 1. 2. 3.
Pult. Cat. Dorſet. p. 47.
Hill. Swammerd. p. 83. t. 10. f. 3.

Helix

Helix cornea.	*Don. Br. Shells.* ii. t. 39. f. 1.
	Turt. Lin. iv. p. 510.
Helix nana.	*Br. Zool.* t. 83. f. 125. (young.)
Helix Cornu Arietis.	*Da Coſta.* p. 60. t. 4. f. 13.
Helix ſimilis.	*Gmel. Syſt.* p. 3625 ?
Planorbis ſimilis.	*Muller Verm.* ii. p. 166. No. 352 ?
	Schroeter Fluſſconch. p. 245. No. 58.

H. with a depreſſed, ſub-pellucid ſhell, of a brown, or cinereous, ſometimes rufous horn-colour, lighteſt on the under part: volutions four, rounded, and ſeparated by a deep ſpiral line: *apex* much depreſſed, forming a conſiderable cavity: the under part nearly flat, or a little concave: it is conſiderably wrinkled acroſs the volutions, and has ſometimes one or two larger, antiquated ridges: aperture almoſt equi-lateral, ſub-lunated; margin thin, a little oblique downwards; inner lip a little ſpread on the body whirl, whitiſh at the angles, and round the inner margin. Diameter uſually about an inch, rarely an inch and a quarter.

This, the largeſt ſpecies of our depreſſed *Helices*, is not uncommon in ſome of our ſlow rivers, and ſtagnant waters, eſpecially in old water courſes and drains in low ſwampy ſituations; but is certainly more local than Da Coſta deſcribes it to be; who ſays, it is common in all ponds, rivers, and lakes throughout *England*. This certainly is far from being the caſe; however, it is ſufficiently plentiful in ſome parts, though we have never found

it further weſtward than in *Dorſetſhire;* where, about *Wareham,* it is abundant.

This is one of the ſhells that yield a beautiful ſcarlet dye, but all attempts hitherto to fix it either by acids or aſtringents have proved ineffectual.

60.

COMPLANATA.

Helix complanata. *Lin. Syſt.* p.1242.—*Gmel. Syſt.* p.3617. *Turt. Lin.* iv. p. 506.

Helix Planorbis. *Br. Zool.* t. 83. f. 123. *Petiv. Gaz.* t. 10. f. 11. *Pult. Cat. Dorſet.* p. 46. *Chem. Conch.* ix. t. 127. f.1121. 1122. *Liſter Conch.* t. 138. f. 42. *Id Angl.* t. 2. f. 27. *Favan.* t. 61. B. 5.—*Gualt.* t. 4. E.E. *Hill. Swammerd.* p. 84. t. 10. f. 5.

Planorbis umbilicatus. *Muller Verm.* ii. p. 160. No. 346. *Schroeter Fluſſconch.* p. 239. t. 5. f. 22. to 25.—& t. *Min.* C. f. 4.

Helix limbata. *Da Coſta.* p. 63. t. 8. f. 8.—t. 4. f. 10.

H. with a depreſſed, ſub-pellucid ſhell, of a light horn-colour; ſometimes rufous, or light cheſnut-brown, and not unfrequently covered with a dark-brown *epidermis:* volutions five, laterally placed upon each other, gradually decreaſing to the centre, making the ſhell concave at top; theſe are rounded and well defined by a ſtrong ſeparating line: the under part is alſo a little concave,

concave, and the whole ſhell finely ſtriated or wrinkled acroſs the whirls: round the margin of the baſe is a fine carinated ridge: aperture oval, ſomewhat angulated, not even, but ſlanting towards the baſe. Diameter about five-eighths of an inch.

This ſpecies, which has been generally miſtaken for the *H. Planorbis* of LINNÆUS, is common in moſt flat countries abounding with wet ditches and water-courſes: is frequent alſo in rivers, and ponds.

Animal duſky, with two long, ſlender, ſetaceous *tentacula*, of the ſame colour, opaque, and very dark in the middle, but ſomewhat tranſparent along the ſides: eyes placed on the head, at the baſe of the *tentacula* beneath.

61.

Helix Planorbis. *Lin. Syſt.* p.1242.—*Gmel. Syſt.* p.3617. CARINATA.
Turt. Lin. iv. p. 505.
Planorbis carinatus. *Muller Verm.* ii. p. 157. No. 344.
Chem. Conch. ix. t. 126. f. 1102. a. b.
Schroeter Fluſſconch. p.226. t. 5. f. 13. 14. 15.

H. with a depreſſed, flat, ſub-pellucid ſhell, of a light horn-colour, ſomewhat gloſſy; volutions four, laterally placed upon each other; the outer one broad, not much rounded, but ſloping gradually to a ſharp carinated ridge, that ſurrounds the ſhell: the interior volutions are ſmall, and ſuddenly decreaſe to the centre, where it ſinks into a ſmall *umbilicus:* the baſe is nearly flat, the inner volution not being ſunk, but is on a level with the

others: the whole ſhell is ſlightly wrinkled acroſs the whirls: aperture narrow, oval, angulated. Diameter rather more than half an inch.

This and the preceding ſpecies have been generally confounded together in cabinets under the title of *Planorbis:* but they are perfectly diſtinct, though it is difficult to affix to them their proper ſynonyms. There is little doubt, however, that this is the *H. Planorbis* of GMELIN, and of MULLER, as in the characteriſtic deſcription of the laſt author, he ſays "*carina marginali media,*" and calls the ſhell *Planorbis carinatus:* and in his *Planorbis umbilicata* (which we conſider as the *complanata* of LINNÆUS) he ſays, "*carina marginali infera;*" which well defines the *complanata,* or what has been termed by *Britiſh* conchologiſts *Helix Planorbis,* from a ſuppoſition it was that ſhell of LINNÆUS.

In order, therefore, to prevent confuſion, we have not given the *Linnæan* title to this ſpecies, as the name of *Planorbis* is ſo well known to *Engliſh* collectors for a very different ſhell; but have adopted the name given by MULLER.

The great diſtinction of theſe two ſhells is, that this is not ſo thick as the *complanata,* the body whirl is not ſo rounded, but ſlopes gradually to the carinated ridge, which is not placed ſo low, and is equally conſpicuous above and beneath; a circumſtance not obſervable in the other. The baſe, or under ſide, in this is more flat, and ſome-

ſometimes even inclined to convexity: but a moſt eſſential character is, that the volutions taper more ſuddenly to the centre, terminating in a ſmaller, but deeper *umbilicus*. The aperture is alſo more compreſſed, and the continuation of the *carina* within the mouth more conſpicuous. This ſhell is not near ſo common as the *complanata*, but is ſometimes found in the ſame waters.

We firſt diſcovered it in the river *Avon* about *Lackham* in *Wiltſhire*, but all dead and bleached white; which ſeems to be the character of this ſhell in that ſtate. We do not, however, believe they inhabit that river, but are brought into it in the time of floods; though we could never find it elſewhere, amongſt the other ſpecies, which is common in that neighbourhood. We afterwards found it near *Wareham* in *Dorſetſhire*, where it is not uncommon in the meadows cloſe to that town, in the iſle of *Purbeck*, in ditches and water-courſes; in company with the *complanata*. Theſe were covered with a duſky-green *epidermis* when alive. It is, doubtleſs, found in other places, as we have ſeen it in ſeveral cabinets of *Engliſh* ſhells, mixed, and confounded with the *complanata*, under the title of *Helix Planorbis*.

Animal pale, of a yellowiſh tinge, with two long, ſlender, ſetaceous *tentacula;* with the eyes placed at their baſe, beneath. Differs from the animal of *H. complanata* in the *tentacula* being ſomewhat longer, and particularly in their being pellucid yellow, and not darker in the middle.

Helix

62.
VORTEX.

Helix Vortex. *Lin. Syſt.* p. 1243.—*Gmel. Syſt.* p. 3620.
Chem. Conch. ix. t. 127. f. 1127.
Schroeter Fluſſconch. p. 218. t. 5. f. 16. 17.
Liſter Conch. t. 138. f. 43.
Id. Angl. t. 2. f. 28.
Petiv. Gaz. t. 92. f. 6.
Gualt. t. 4. G. G.
Br. Zool. t. 83. f. 124.
Pult. Cat. Dorſet. p. 47.
Turt. Lin iv. p. 508.
Don. Br. Shells. iii. t. 75.
Helix Planorbis. *Da Coſta.* p. 65. t. 4. f. 12.
Planorbis Vortex. *Muller Verm.* ii. p. 158. No. 345.

H. with a ſub-pellucid, very depreſſed, horn-coloured ſhell: volutions ſix or ſeven, placed lateral; the upper ſide concave; baſe or under ſide flat, and even, the whirls being only marked by a very fine line; the exterior volution is ſub-carinated, or brought to an edge at the lower part: aperture compreſſed, ſub-oval, angulated. Diameter three-eighths of an inch, rarely half an inch.

This is a very common ſpecies in rivers, ponds, and watery ditches, adhering to aquatic plants under water.

It is readily diſtinguiſhed from any other *Britiſh* ſhell by the number of volutions, which exceeds any of the depreſſed *Helices*, and is much more flat in proportion, to its ſize, the *H. Spirorbis* excepted, with which it has been confounded. Its uſual colour is light-horn, but is ſometimes rufous-brown; and often covered with a duſky,

duſky, or greeniſh *epidermis* when alive: dead ſhells become white.

Animal duſky, with two long, ſlender, filiform, *tentacula;* and two black eyes placed at their baſe.

63.
SPIRORBIS.

Helix Spirorbis. *Gmel. Syſt.* p. 3624. 36.
Planorbis Spirorbis. *Muller Verm.* ii. p. 161. No. 347.
Schroeter Fluſſconch. p. 236. No. 47.
Id. p. 229. t. 5. f. 18.

H. with a depreſſed, ſub-pellucid, horn-coloured ſhell, with ſix volutions, placed exactly lateral upon each other, ſo that both the upper and under ſides are equally flat; the volutions, however, are as much convex beneath as they are above, and the exterior whirl is nearly round, and deſtitute of any *carina:* aperture oval, in ſome nearly orbicular. Diameter of the largeſt three-tenths of an inch.

This ſpecies is not uncommon in the ſame place as the *H. Vortex*, with which it has generally been confounded in *Engliſh* cabinets.

MULLER has very well defined the diſtinction by ſaying, "*Planorbis teſta flaveſcente, utrinque concava, æquali; anfractibus teretibus.*" This, when compared with his leading characters of the *Vortex*, will be found to be ſtrong

ſtrong ſpecific diſtinctions. "*Planorbis teſta flavofuſca, ſub-carinata, ſupra concava, ſubtus plana.*"

It is ſomewhat extraordinary that SCHROETER ſhould have given a figure of this ſhell, and a very exact deſcription, with the title of, "*Cornu ammonis 6 gyris rotundis circumſcriptum,*" making a comparative diſtinction between it and the *Vortex*, and yet had not diſcovered it to be the *Spirorbis*, as is evident by his deſcribing that ſhell in another place.

This ſpecies never grows ſo large as the *Vortex*, but both are alike finely ſtriated, or wrinkled, acroſs the volutions in an oblique direction; and the number of whirls are equal in ſhells of the ſame ſize.

The *Spirorbis* is never carinated like the *Vortex*, conſequently the aperture is not angulated at the exterior margin, as in that ſhell: this too has the volutions raiſed, and rounded equally on both ſides, and a deep ſeparating line; the other has the volutions on the under ſide quite flat, and the line of ſeparation not ſo deep; beſides which, this is not quite ſo thin or depreſſed as the *Vortex*, when compared with that ſhell of the ſame ſize.

Theſe diſtinguiſhing characters are invariable, and by which both ſpecies may be readily known from each other.

This has generally been deſcribed as the more rare, but we believe it is equally plentiful in *England*, at leaſt

it

it has as frequently occurred to us; ſometimes in the ſame pools with the *Vortex*, and at other times in ſeparate places.

64.
CONTORTA.

Helix contorta.	*Lin. Syſt.* p. 1244.
	Gmel. Syſt. p. 3624. 37.
	Chem. Conch. ix. t. 127. f. 1126.
	Petiv. Gaz. t. 92. f. 8.
	Turt. Lin. iv. p. 511.
	Schroeter Fluſſconch. p. 243. t. 5. f. 29.
	Don Br. Shells. iii. t. 99.
Planorbis contortus.	*Muller Verm.* ii. p. 162. No. 348.
Helix craſſa.	*Da Coſta* p 66. t. 4. f. 11.
Helix umbilicatus.	*Pult. Cat. Dorſet.* p. 47.

H. with a depreſſed, ſub-pellucid, brown, horn-coloured ſhell; ſometimes rufous, or cheſnut, and not unfrequently covered with a duſky *epidermis* when alive: dead ſhells become white. It has five or ſix volutions placed lateral; the outer one rounded, not carinated; theſe all riſe on the upper part almoſt to an edge, being very cloſe together, with only a very ſmall, but deep depreſſed line between; in the centre a *ſub-umbilicus:* the baſe, or under part, is largely and deeply umbilicated, ſhewing every volution, ſpirally deſcending to the bottom in a very elegant manner: aperture arcuated, by claſping the body whirl. Diameter two-tenths of an inch, and not quite one tenth thick.

DA COSTA, as well as Doctor PULTENEY, has fallen into an error in quoting the *H. complanata* of LINNÆUS for this ſhell: and the laſt author is equally miſtaken, in conſidering the cheſnut-coloured variety of this ſpecies to be the *H. paludoſa* of DA COSTA. It is at once diſtinguiſhed from any of the *Helices* with a depreſſed *apex*, by its thickneſs in proportion to its ſize; and particularly by the ſingularly large, and ſpirally formed *umbilicus*.

There can be no doubt this is the *H. contorta* of LINNÆUS; CHEMNITZ has given a very good figure of it for that ſhell, which GMELIN quotes: MULLER and SCHROETER have alſo conſidered it as ſuch.

It is rather a local ſpecies; but we have found it not uncommon in the river *Avon*, about *Lackham* in *Wiltſhire* after floods; having been ſwept from the ditches in the neighbouring meadows, where it is found alive in abundance.

Is common alſo in the ditches in the iſle of *Purbeck* near *Wareham*, and at *Charmouth* in *Dorſetſhire*.

We have alſo received it from *Kent*.

Animal duſky, with two long and very ſlender, filiform *tentacula*, with the eyes placed at their baſe.

65.

Helix umbilicata quatuor anfractibus apertura ſubrotunda. ALBA.
Walk. Min. Shells. f. 19.

Helix alba. *Gmel. Syſt.* p.3625.—*Turt. Lin.* iv. p.511.
Petiv. Gaz. t. 92. f. 7.

Planorbis albus. *Muller Verm.* iii. p. 164. No. 350.
Schroeter Fluſſconch. p. 225. t. 5. f. 12.

H. with a ſub-pellucid, light horn-coloured ſhell, covered when alive, with a brown *epidermis*, that renders it opaque: volutions four, placed lateral, compreſſed: the outer one rather inclining to an edge, but is not carinated: on the upper part, the *apex* is depreſſed into a *ſub-umbilicus:* the baſe more ſtrongly umbilicated: the whole ſhell, when examined by a common magnifying glaſs, is obſerved to poſſeſs very fine ſtriæ, both tranſverſe and longitudinal, in a ſlightly decuſſated manner: aperture ſub-orbicular, ſub-lunated, claſping the body whirl; margin thin, oblique.

This ſpecies, which is deſcribed and figured by WALKER, we originally received from Mr. BOYS of *Sandwich* for ſuch: and have ſince found it of a much ſuperior ſize, rather exceeding a quarter of an inch in diameter; which is more than double that which Mr. WALKER took his figure from.

It is one of the moſt common of the compreſſed ſpecies of *Helix;* is plentiful in tbe river *Avon* about *Lackham* in *Wiltſhire*, as well as in the fiſh-ponds; and in many other places in the ſame county, eſpecially at *Wedhampton*, in ditches and ponds, of a ſuperior ſize.

We have alſo found it both in the north and ſouth of *Devonſhire;* in *Dorſetſhire* about *Wareham*; and have received it from *South Wales.*

Young ſhells have only three volutions, but are readily diſtinguiſhed in all ſtates, by their extremely fine ſtriæ, which give them a ſort of roughneſs.

Animal of a light colour, with two long, ſlender, filiform *tentacula;* and two black eyes, placed at their baſe, on the top of the head.

66.
CRISTATA.
VIG. I.
Fig. 7. 8.

Helix cornea quatuor anfractibus apertura rotunda. *Walk. Min. Shells.* f. 18.
Valvata criſtata. *Muller Verm.* ii. p. 198. No. 384.
Schroeter Fluſſconch. p. 240. t. 5. f. 26. a. b.

H. with a ſub-pellucid, light horn-coloured ſhell, with three, and ſometimes four, depreſſed volutions; the *apex* very little ſunk; baſe, or under part umbilicated, expoſing nearly the whole of the interior whirls: the volutions are remarkably rounded, or cylindric, and are ſtriated, or ſlightly wrinkled tranſverſely: aperture perfectly orbicular, attached to, but not interrupted by, the body whirl; margin not thinner than the reſt of the ſhell, and very little oblique. Diameter one tenth of an inch.

This ſpecies we alſo received originally from Mr. BOYS, for the ſhell given by WALKER, as referred to, but

but have ſince found it not uncommon in drifted ſand, in the river *Avon* with the laſt, and ſometimes on aquatic plants; but more plentiful in a ditch near *Wedhampton* in *Wiltſhire:* it may, however, be conſidered as rather a ſcarce, or at leaſt, a very local ſpecies.

When alive, it is covered with a very thin *epidermis*, which removed, the ſhell is a little gloſſy: dead ones become white and ſomewhat opaque. It is at once diſtinguiſhed from all others by the cylindric volutions, and perfectly round mouth; and in a living ſtate, by poſſeſſing a corneous *operculum*, ſtriated ſpirally to the centre, but ſo cloſe as to appear, at firſt ſight, like concentric circles.

The animal too, is different from any we are acquainted with, except that of *Turbo fontinalis*, to which it bears great reſemblance. It is duſky above, light beneath, with four *tentacula*, or feelers, two of which are placed as uſual in other aquatic *limaces;* theſe are light-coloured, ſetaceous; on the right ſide of the head behind, is a third ſlender feeler, not quite ſo long as the others, and cloſe to it, more in the middle of the hind head, is a creſt, or plumoſe appendage, very pellucid, and exquiſitely ſenſible, retracting inſtantaneouſly at the leaſt motion: eyes two, placed at the baſe of the two anterior *tentacula:* fore part of the body bilobated, making the head to appear as if iſſuing from a ſheath, when viewed underneath.

MULLER

MULLER, as well as SCHROETER, has deſcribed the ſingular ſtructure of this animal; the former has made a diſtinct genus of it, under the title of *Valvata*.

Theſe ſhells are frequently taken up by the *larvæ* of *Phryganeæ* to cover their caſes: ſuch is mentioned by MULLER; we have ſeen thoſe caſes wholly covered with this, as well as moſt other of the ſmall *Helices*, laid in regular order with their apertures all placed one way: and not unfrequently three or four ſpecies on one caſe.

67.
FONTANA.
Tab. 6. f. 6

Helix fontana. *Phil. Trans.* LXXVI. t. 2. f. 1. to 4. *(Lightfoot)*

H. with a pellucid, horn-coloured ſhell, extremely flat, but nearly equally convex on both ſides, yet depreſſed in the centre; the baſe furniſhed with a ſmall, perfect umbilicus: volutions four; the outer one is brought to an edge, but not properly carinated, as it is formed only by the gradual ſlope of the ſhell on each ſide: it is ſmooth, gloſſy, and almoſt deſtitute of wrinkles: aperture contracted, and nearly brought to an angle externally; the internal angles claſp the body whirl nearly equal on both ſides, taking in half the diameter of the firſt volution: margin very thin, and much oblique. Breadth not quite two tenths of an inch.

This ſpecies has been confounded with the *Nautilus lacuſtris*, to which it bears much reſemblance externally,

ly, but is flatter, and not ſo convex on the upper part, and is at once diſtinguiſhed from that ſhell in not poſſeſſing thoſe lines which mark the concamerations.

It was firſt noticed by Mr. AGNEW, gardiner to the *Dutcheſs Dowager* of *Portland;* and was given in the *Philoſophical Tranſactions* of 1786 by Mr. LIGHTFOOT, who ſtates it to be met with in clear waters in the neighbourhood of *Bullſtrode* in *Buckinghamſhire.*

We have found it ſparingly in the ditches about *Wareham* in *Dorſetſhire:* and near the village of *Wedhampton* in *Wiltſhire;* but have obſerved it in greater abundance in a fiſh-pond at *Lackham* in the ſame county, and in the river contiguous, adhering to aquatic plants; frequently deep in the water.

It appears to be a local ſpecies, and not very plentiful any where; though we are informed it is not uncommon about *Sandwich* in *Kent*; from whence we were favoured with it by Mr. BOYS.

Animal light cheſnut: *tentacula* two, long, ſlender, filiform, lighter coloured than the body; eyes placed on the upper part of the head at their baſe: head long; *ſuſtentaculum* ſhorter than the *tentacula.*

From the extreme pellucidity of the ſhell, a ſtrong and regular pulſation is obſervable (by the aſſiſtance of a com-

a common pocket lens) in that part of the animal within the ſecond volution; and which is of a reddiſh cheſnut. When the animal is in motion (which is very ſlow) the exterior whirl appears almoſt empty.

68.
NAUTILEUS.

Turbo nautileus.	*Lin. Syſt.* p. 1241.
	Gmel Syſt. p. 3612. 98.
	Turt. Lin. iv. p. 501.
	Chem. Conch. ix. t. 123. f. 1077. A. a.
Planorbis imbricatus.	*Mull. Verm.* ii. p. 165. No. 351.
	Schroet. Fluſſconch. p. 238. No. 50.
Helix	*Walk. Min. Shells.* f. 20. & 21.
Helix carinata.	*Turt. Lin.* iv. p. 510.
	Adams Microſc. t. 14. f. 10
Helix ſpinoſa.	*Turt Lin.* iv. p. 525.
	Adams Microſc. t. 14. f. 11.—*Id.* t. 22. f. 39.

H. with a pellucid, light horn-coloured ſhell, much depreſſed, with three or four volutions; upper ſide flat, but the whirls well defined by the ſeparating line; *apex* not ſunk below the reſt of the ſhell: under ſide largely umbilicated.

It is furniſhed with diſtant, elevated annulations, or ribs, which ſeem to be partly teſtaceous, and partly membranaceous, for they are ſtronger, and more perfect, when the ſhell is covered with a dark brown *epidermis;* in which ſtate a dorſal ridge or ſub-carinated edge, of a mem-

a membranaceous nature, is obſerved, which frequently ſhoots into ſpines of the ſame texture.

This circumſtance is not ſo common, and ſeems to depend either on age, or on the water it inhabits: in ſome places it is found only of a light, pellucid horn-colour; in others always dark-brown. It is ſubject alſo to ſome variation in the aperture; this, however, is generally round, not interrupted by the volution; ſometimes, indeed, it projects, and does not adhere; othe s claſp the body whirl a little, and are ſomewhat compreſſed into a ſub-oval. Theſe laſt muſt be conſidered as mere varieties. It is diſtinguiſhed at once by the diſtant annulations, though not always conſpicuous without being conſiderably magnified. Theſe varieties had induced Mr. WALKER to make them into two diſtinct ſpecies.

LINNÆUS, in the tenth edition of his *Syſtema Naturæ*, had made it a *Nautilus* under the title of *Criſta*, and afterwards removed it into the *Turbo* genus. In this reſpect we have deviated from that great naturaliſt, by making all the depreſſed ſhells *Helices*, without regard to the mouth; a character in itſelf extremely vague, though perhaps it will be very difficult to find a better, for the diviſion of the two *genera* ſo nearly connected.

We originally received ſeveral of theſe ſhells from our friend Mr. BOYS, for thoſe of the *minuta rariora*, who

obſerved, they were not uncommon in the ditches about *Sandwich*. We have alſo found it, of a larger ſize than uſual, in a pond at *Wedhampton* in *Wiltſhire*, with the *Helix alba*. Diameter one eighth of an inch.

In a pond at *Knowle*, near *Kingsbridge* in *Devonſhire*, it is in profuſion; theſe are of a light colour, with a greeniſh tinge, and rarely ſpined; but the ribs are frequently very conſpicuous, eſpecially on the under part: and in a ditch of running water, which occaſionally flows from the pond, they are equally abundant, of a dark colour, and ſtrongly ſpined along the dorſal *carina;* an evident proof that this variety is occaſioned by adventitious circumſtances, ſuch as the nature of their food, and quality of the water they inhabit. It is found on the under ſide of the leaves of many ſub-aquatic plants, but ſeems partial to the creeping *Water-parſnep*, *Sium nodiflorum*, and *Water-creſſes*, *Siſymbrium Naſturtium*.

Animal of a pale colour; *tentacula* two, ſetaceous; eyes on the head, ſituated at the baſe of the *tentacula*.

GEN.

GEN. XXIX.

NERITA.

Animal a LIMAX.

SHELL univalve, ſpiral, gibbous, flattiſh beneath.

Aperture ſemi-orbicular; lip of the *Columella* tranſverſe, flattiſh and truncated.

1.

Nerita littoralis. *Lin. Syſt.* p. 1253.—*Gmel. Syſt.* p. 3677. LITTORALIS.
Br. Zool. t. 87. f. 143.—*Turt. Lin.* iv. p. 550.
Liſter Conch. t. 607. f. 39. to 42. & f. 44.
Id. Angl. t. 3. f. 11. 12. 13.
Da Coſta. p. 50. t. 3. f. 7.—t. 4. f. 2. 3.
Don. Br. Shells. i. t. 20. f. 2.

Turbo neritoides. *Lin. Syſt.* p. 1232.—*Gmel. Syſt.* p. 3588. 2.
Chem. Conch. v. t. 185. f. 1854. No. 1. to 11.
Turt. Lin. iv. p. 479.
Pult. Cat. Dorſet. p. 44.

N. with a thick, ſtrong ſhell; colour various, commonly plain light, or orange-yellow, red, or brown; ſometimes prettily mottled, or chequered brown, or yellow and white, and rarely faſciated; volutions four or five, the firſt very large, the others ſmall and placed la-

teral, ſometimes quite flat; others are ſomewhat produced, but the ſeparating line is very ſmall, and ſcarce diſcernable at the *apex*: aperture ſub-orbicular, ſub-lunated, ſometimes inclining to oval; margin thickened within, the edge ſharp. It is not ſo flat at the pillar lip as uſual in ſhells of this genus, but ſpreads a little at that part. Length three-quarters of an inch; breadth not quite ſo much.

This ſpecies is extremely common on all our ſhores: is ſubject to great variety, both as to colour and ſhape, which ſeems to have occaſioned ſome confuſion, as there is little doubt but the *Nerita littoralis* and *Turbo neritoides* of LINNÆUS are only varieties of the ſame ſhell.

2. PALLIDULA.

Nerita pallidulus. *Da Coſta.* p. 51. t. 4. f. 4. 5.
Don. Br. Shells. i. t. 16. f. 1. 1.
Nerita pallidula. *Turt. Lin* iv. p. 548.

N. with a ſub-pellucid, light-brown ſhell, with three volutions, the firſt extremely large, the others very ſmall, and placed lateral, ſcarcely produced, but well defined; is when alive covered with a rough brown *epidermis*, beneath which the ſhell is nearly ſmooth, or faintly wrinkled: aperture ſemi-lunated; outer lip thin, fringed by the *epidermis*; pillar lip thick, white, concave, and umbilicated; inſide gloſſy. Length near half an inch; breadth three-eighths.

DA COSTA was the firſt writer who deſcribed this ſpecies,

ſpecies, and ſays, he received it from *Kent*, and *Dorſetſhire*, but conſidered it as a rare ſhell. We have found it at *Falmouth* in *Cornwall*, and at *Teignmouth*, and *Milton* ſands on the ſouth coaſt of *Devonſhire*.

It is certainly a rare ſpecies, at leaſt thoſe of any ſize; though not unfrequent at the laſt mentioned place, about the bigneſs of a hempſeed. Dead ſhells become yellowiſh-white, and ſomewhat opaque; and in old ſpecimens it is obſervable, the pillar lip is leſs concave, and the *umbilicus* ſmaller.

This ſhell was firſt ſent to the *Dutcheſs of Portland* by Mr. BOYS, and was numbered 125 in her grace's cabinet of minute ſhells. We have alſo been favoured with it from the ſame quarter, and are aſſured, it is found alive on the rocks of *Dover* and *Margate*.

3.

Nerita glaucina. *Lin. Syſt.* p 1251 —*Gmel. Syſt.* p. 3671. 3. GLAUCINA.
Chem. Conch. v. t. 186. f. 1856. 1859.
Liſter Conch. t.568. f.19—*Id. Angl.* t.3. f.10.
Br. Zool. t.87. f.141.— *Turt. Lin.* iv. p.545.
Pult. Cat. Dorſet. p. 50
Don. Br. Shells. i. t. 20. f. 1.
Cochlea Catena. *Da Coſta.* p. 83. t. 5. f. 7.

N. with a ſtrong, ſmooth, gloſſy ſhell, faintly wrinkled, of a livid or purpliſh fleſh-colour, ſometimes ferruginous, or cheſnut, about the *apex*: ſome are plain, but moſt times marked with ſpots or ſtreaks in girdles; theſe

theſe are rarely ſeen in full grown ſhells on the body whirl, but in young ſpecimens, which are uſually white, theſe markings are extremely elegant, but vary in ſhape and colour: volutions ſix, the firſt very large and ventricoſe, the others ſmall in proportion, rounded, produced, and placed ſomewhat lateral: *apex* very ſharp pointed: aperture ſub-oval, ſub-lunated; outer lip rather thin, even; pillar lip thick, reflexed, forming a large and deep *umbilicus*; mouth cloſed by a corneous *operculum*. Length an inch and a half; breadth ſomewhat leſs.

This ſpecies ſeems principally to inhabit the deep, as it is thrown up in vaſt abundance on many parts of our open ſhores; is common on moſt of our ſandy coaſts, but no where more plentiful than on thoſe of *South Wales*, and *Devonſhire*.

4.
FLUVIATILIS.

Nerita fluviatilis. *Lin. Syſt.* p. 1253.—*Gmel. Syſt.* p. 3676.
Chem. Conch. ix. t. 124. f. 1088.
Br. Zool. t. 87. f. 142.—*Gualt.* t. 4. L. L.
Liſter Conch. t. 607. f. 43. & t. 141. f. 38.
Id. Angl. t. 2. f 20.—*Turt. Lin.* iv. p. 549.
Schroet. Fluſſconch. t. 5. f. 5. to 10.—& t. *Min.* C. f. 8.—*Mull Verm.* ii. p. 194. No. 381.
Da Coſta. p. 48. t. 3. f. 8.
Favan. t. 61. D. 3. 4. 17. 20.
Pult. Cat. Dorſet. p. 50.
Hill. Swammerd. p. 83. t. 10. f. 2.
Don. Br. Shell. i. t. 16. f. 2.

Nerita

Nerita lacuſtris. *Gmel. Syſt.* p. 3677?—*Gualt.* t. 4. M. M. *Turt. Lin.* iv. p. 550.

N. with a ſub-pellucid, ſub-oval ſhell, elegantly ſpotted, ſtreaked, or mottled with white and purpliſh-brown, pink, or pale-brown; with all the intermediate ſhades, for ſcarce two are found alike, either in colour or markings; ſome have one or two ſpiral bands: volutions three, the firſt extremely large, the others very ſmall, but well defined, and placed lateral; *apex* minutely ſmall, a little produced: is frequently covered with a brown or greeniſh *epidermis* when alive, which removed, the ſhell is gloſſy and ſmooth, except examined by a lens, when it is found to be finely wrinkled: aperture lunated; outer lip thin; pillar lip broad, flat, and white; mouth cloſed by a teſtaceous *operculum*, of an orange-yellow. Length three eighths of an inch; breadth two-eighths.

This ſpecies is found plentiful in many of our ſlow rivers, adhering to ſtones, but rarely in rapid waters; and of courſe, ſeldom or ever ſeen in the mountainous parts, where the rivers are torrents. In ſuch are only to be found the *Mya margaritifera*, for rarely any other ſhell is to be met with where that inhabits, except *Patella fluviatilis*.

There ſeems very little doubt that the *Nerita lacuſtris* is a mere variety of this ſhell; the only figure referred to by Gmelin is that given by Gualteri, neither which, nor its deſcription, give any reaſon to ſuppoſe it diſtinct.

When

When alive it is frequently corneous, or blackiſh, ſpotted with white, as deſcribed by GMELIN: ſuch are now before us, but can only be conſidered as one of the numerous varieties the *fluviatilis* is ſubject to.

5. PELLUCIDA.

N. teſta lævi pellucida, anfractibus tribus. *Lin. Trans.* iii. p. 67 *(Adams)*

Shell ſmooth pellucid, with three whorls, *Pembrokeſhire* coaſt. *Turt. Lin.* iv. p. 550.

6. ALBA.

N. teſta lævi ſub-pellucida, duobus anfractibus. *Lin. Trans.* iii. p. 67. *(Adams.)*

Shell ſmooth ſub pellucid, with two whorls. *Pembrokeſhire* coaſt. *Turt. Lin.* iv. p. 550.

Theſe two minute ſpecies we have given on the authority of Mr. ADAMS; at the ſame time think it proper to remark, that there does not appear any diſtinguiſhing character; for if ſhells are to be ſeparated by being a little more or leſs pellucid, or by one ſpire more or leſs, ſpecies would be multiplied without end. At the ſame time we are inclined to give Mr. ADAMS credit, yet in many inſtances we conſider he has miſtaken the fry of ſome, for diſtinct ſpecies; and ſuſpect in theſe two inſtances the young of *Nerita glaucina* may be referred to: ſuch are not uncommon amongſt ſand on many of our ſhores.

GEN.

GEN. XXX.

HALIOTIS.

Animal a LIMAX.

SHELL univalve, auriform, dilated.

Spire flat upon the ſhell, lateral.

Diſk longitudinally perforated with ſeveral holes.

1.

TUBERCULATA.

Haliotis tuberculata. *Lin. Syſt.* p. 1256.
Gmel. Syſt. p. 3687. 2.
Martini Conch. i. t. 16. f. 148. 149.
Liſter Conch. t. 611. f. 2.
Id. Angl. t. 3. f. 16.
Br. Zool. t. 88. f. 144.
Pult. Cat. Dorſet. p. 50.
Don Br. Shells. i. t. 5.
Turt. Lin. iv. p. 558.
Haliotis vulgaris. *Da Coſta* p. 15. t. 2. f. 1. 2.

H. with a ſtrong, thick, opaque, rough, ſhell, of a reddiſh-brown colour, and ſometimes mottled, when cleared of

extraneous matter with which it is covered, particularly *Balani*, and *Serpulæ*; eſpecially *S. granulata*, and *Siniſtrorſa*: the ſhape is oval, flat, ſtriated longitudinally, and wrinkled tranſverſely: near the inner margin is a ridge the whole length of the ſhell, which terminates in one ſpiral turn at the end, a little produced; this ridge is beſet with tubercles, which increaſe in ſize as they recede from the *apex*, and become flat or concave; the laſt ſix, and ſometimes as many as nine, are pervious: below the ridge is a depreſſion or furrow; behind which the margin is rounded, and turns inward; the front margin is thin. The inſide is entirely open, concave, and of a beautiful mother of pearl: the inflected edge forms a flat rim on the interior ſide, quite up to the ſpire, and is nacred like the inſide. Length from three to four inches; breadth from two and a quarter to three inches.

This ſpecies probably inhabits the deep, as we have not been able to learn that it has ever been taken alive on our coaſts; though it is ſometimes thrown upon our ſhores after violent ſtorms, in *Suſſex*, *Dorſetſhire*, and *Devonſhire*. In *Guernſey* it is found in great plenty, adhering to the rocks at the loweſt ebb; the animal uſed for culinary purpoſes, and the ſhells adorn the houſes of ſome of the common people, being ſtudded in the plaſter on the outſide.

GEN. XXXI.

PATELLA.

Animal a LIMAX.†

SHELL univalve, ſub-conic, uſually deſtitute of any ſpire.

1.

Patella vulgata. *Lin. Syſt.* p. 1258.—*Gmel. Syſt.* p. 3697. VULGATA.
Martini Conch. i. t. 5. f. 38.
Br. Zool. t. 89. f. 145.
Pult. Cat. Dorſet. p. 51.
Liſter Conch. t. 535. f. 14.
Id. Angl. t. 5. f. 40.
Don. Br. Shells. t. 14.
Turt. Lin. iv. p. 565.
Borlaſe Cornw. t. 28. f. 3.
Patella depreſſa *Br. Zool.* t. 89. f. 146.—*Turt Lin.* iv. p. 566.
Patella vulgaris. *Da Coſta.* p. 3. t. 1. f. 1. 2. 8.

† The animals of this claſs do not appear materially different; thoſe examined were like the *Limaces* inhabiting convoluted aquatic ſhells, poſſeſſed of only two *tentacula*, and the eyes ſituated at their baſe.

P. with a ſub-conic ſhell, ſubject to much variety in its degree of elevation, in the prominence and number of ridges, and in the indentations at the margin; ſo much ſo as to have occaſioned it to be multiplied into two or three different ſpecies. The full grown ſhells are uſually of a conic ſhape, and ſomewhat oval; the vertex approximating rather to the ſmaller end, but frequently nearly central, marked with numerous fine ſtriæ from the *apex* to the margin; which laſt is ſometimes indented a little, ſometimes quite plain: colour brown, or corneous. Inſide ſmooth, gloſſy, and of a yellowiſh horn-colour, whitiſh at the bottom.

Others are more depreſſed; vertex placed more to one end, and the whole ſhell furniſhed with ſtrong elevated ribs, with intermediate ſtriæ; the margin ſtrongly indented, and angulated by the ribs: outſide, when cleaned, frequently ſtreaked or rayed with brown: inſide of old ſhells white, but in young ones of a deep chocolate-brown, with white ſtreaks at the margin. Theſe are the moſt eſſential varieties, and would certainly appear very diſtinct, were it not for the intermediate gradations, that ſeem to run into each other, and which has obliged later writers to conſider them the ſame. It is proper, however, to remark, that theſe varieties (if they are really ſuch) have nothing to do with ſize or age, for we have found the depreſſed ones nearly as large as thoſe of a conic ſhape; and which are always more or leſs ribbed; whereas the latter are more properly ſtriated;

ed; and are rarely indented, or angulated at the edges, or only faintly ſo. Theſe too are always, when alive, of a horn-colour within, and not white or brown like the others: but whether they are really diſtinct is not eaſy to determine. Both inhabit all our rocky ſhores in vaſt abundance; the largeſt we ever ſaw were on the rocks at *Marazion* in *Cornwall* of the conic kind: ſome of which were near two inches and a half long, two broad; and an inch and a half in height.

We have alſo found the depreſſed ones two inches in length, by one and three-quarters broad; and not above three-quarters of an inch in height; with the ribs exceedingly ſtrong, and angulated at the margin.

2.
PELLUCIDA.

Patella pellucida. *Lin. Syſt.* p. 1260.
Gmel. Syſt. p. 3717. 133.
Chem. Conch. x. t. 168. f. 1620. 21.
Don. Br. Shells. i. t. 3. f. 1.
Liſter Conch. t. 542. 543. f. 26. 27.
Id. Angl. App. p. 38. t. 2. f. 10.
Br. Zool. t. 90. f. 150.
Pult. Cat. Dorſet. p. 51.
Borlaſe Cornwall t. 28. f. 1. 2.
Turt. Lin. iv. p. 582.—*Petiv.* t. 75. f. 3.
Patella coeruleata. *Da Coſta.* p. 7. t. 1. f. 5. 6.
Patella lævis. *Br. Zool* t. 90. bottom fig. without number
Patella intorta. *Id.* t. 90. f. 148.
Patella caerulea. *Gmel. Syſt.* p. 3697. 24.

P. with

P. with a pellucid, thin, yellowiſh, horn-coloured ſhell, of an oval ſhape, rounded at the top, with an obſcure *apex* at one end; and beautifully rayed with dotted lines of azure: theſe lines vary in number, uſually from three to ſeven, that are moſt conſpicuous, running from behind the beak to the margin; but the ſides in ſome are radiated in an obſcure manner.

This is the deſcription of the young ſhells, and ſuch as have generally been conſidered as the *P. pellucida.*

Old ſhells are ſub-pellucid, and moſt frequently duſky-brown; ſome are conic, others quite flat with the vertex nearly central, or a little to one end, radiated with blue in the ſame manner as the young, but the colour is leſs brilliant, and frequently very obſcure: theſe blue rays, in ſome, riſe into fine elevated ſtriæ all round the ſhell, terminating at the *apex;* beſides which it has ſome circular wrinkles: aperture oval, margin plain, rather inclining upwards at each end. Inſide gloſſy, of a changeable opalacious colour, frequently of a blueiſh caſt. Length near an inch; breadth not quite three-quarters.

Nothing can be more different in appearance, as to ſhape, than this ſpecies is in its infant and adult ſtates; and were it not for the regular gradations, would probably have continued to be formed into two or three ſpecies; as Mr. PENNANT has done with reſpect to his *P. lævis* and *intorta.* He is however not ſingular in this,

for

for other authors have conſidered ſome varieties of this ſhell as diſtinct ſpecies: the *P. caerulea* of GMELIN is certainly nothing elſe than a full grown ſhell.

It is remarkable, however, that the very thin tranſparent ſhells have the bottom, or margin, always even, and not turned upwards at the end; and yet ſome, not half the ſize, are more opaque, and have all the ſhape of full grown ones.

It has alſo been remarked, that the pellucid variety is always found on the leaves, and the others on the ſtalks of *algæ*; however this may be, there appears no poſſibility of fixing a permanent diſtinction.*

It is a common ſpecies on many parts of the *Corniſh* and *Devonſhire* coaſts: is never found adhering to rocks, but we have frequently taken it alive after ſtorms, adhering to the *Fucus digitatus*, that has been thrown up by the violent agitation of the ſea. It is not uncommon on the coaſt of *Dorſetſhire;* and we have received it from *Sandwich* in *Kent*, where it is always found on the ſame plant; the ſtalk of which the animal excavates, probably as food, and forms a cell; ſometimes two or three are found in the ſame: and Mr. BOYS aſſures us, it

* Variety of ſituation will occaſion variety in ſhape; while young it feeds only on the leaves, and their ſhape at the margin correſponds with the flat ſurface they adhere to: ſo when they attack the ſtalk, they acquire that ſhape which a convex ſurface requires for cloſe contact; and which occaſions the difference of growth in the old and young ſhells.

it is occaſionally ſeen on the broad bottom part of the leaf, while the plant is growing on the rocks. We have found the young in cluſters on the leaves, but rarely on the ſtalks, though ſometimes on the roots.

3.

PARVA.

Patella parva. *Da Coſta* p. 7. t. 8. f. 11.
Don Br. Shells i. t. 21. f. 2.
Turt. Lin. iv. p. 592.

P. with a thin, ſub-pellucid, ſub-conic, oval ſhell, of a blueiſh-grey, and ſometimes horn-colour, tinged with purple; but uſually covered with a dark *epidermis*, or extraneous matter, that obſcures the ſhell; it is obſoletely ſtriated longitudinally, wrinkled circularly, and elegantly marked with purpliſh-red lines, radiating from the *apex* to the margin; in ſome theſe lines are broad, in others narrow and undulated, running into each other like the links of a chain; ſometimes only viſible at the margin, and always moſt conſpicuous in the inſide: vertex placed neareſt to one end, pointed, reflected, but not curved. Inſide ſmooth, gloſſy, of a purpliſh hue. Dead ſhells become white, and loſe all their markings, except two lines immediately above the beak, which join and form the ſhape of a V. Length three-eighths of an inch; breadth two-eighths; height not quite ſo much: rarely half an inch long.

DA COSTA ſeems to be the firſt author that deſcribed this ſhell; and ſince by Mr. DONOVAN: the former, however,

however, appears to have only met with dead ſpecimens, by his ſaying it is whitiſh in its ground colour, as well as having no gloſs within; neither did he ſeem acquainted with its natural hiſtory. The latter author is alſo ſilent on this head, and has followed DA COSTA, in ſtating it to be a production of the *Dorſetſhire* coaſt, the only place he ever received it from. We firſt found it in ſand from *Falmouth* harbour, and *Whitſand* bay, in *Cornwall*, not common, and all dead ſpecimens; and afterwards in great abundance alive, in *Salcomb* bay in *Devonſhire:* they always lie near the loweſt water-mark, adhering to looſe ſtones, old *oyſters*, and other ſhells, and are moſtly obtained by dredging.

It is alſo found ſparingly on other parts of the ſame coaſt, thrown upon the ſhores. We have received dead, and much worn ſhells, from *Sandwich* in *Kent*.

It ſeems to be a local ſpecies, and has not often been obtained by collectors in a recent ſtate.

Doctor PULTENEY does not give it in his Catalogue of *Dorſet* Shells, notwithſtanding DA COSTA received it from that coaſt, and has been found by Mr. BRYER at *Weymouth*.

Mr. BOYS informs us, that although only dead ſhells are to be met with at *Sandwich*, it is found alive on the rocks at *Dover*.

4.
BIMACULATA. Tab. 13. f. 8.

P. with an opaque, oval ſhell, of a gloſſy yellow colour, and perfectly ſmooth, with only the rudiment of a vertex at the ſmaller end, marked by a tranſverſe, oblong, black ſpot; another oblong ſpot of the ſame colour near the other end, placed longitudinally: the ſhell is convex, but not much elevated. Inſide concave, ſmooth, gloſſy, yellow; margin thin. Length a quarter of an inch; breadth rather more than one eighth; height about one ſixteenth of an inch.

We found one of this rare and ſingular ſpecies at *Falmouth* in *Cornwall;* and another, in every reſpect the ſame, at *Milton* ſands, on the ſouth coaſt of *Devon;* they were both recent and perfect ſhells, but not alive.

5.
FLUVIATILIS.

Patella fluviatilis.	*Gmel. Syſt.* p. 3711. 98.
	Gualt. t. 4. f. A. A.
	Liſter Conch. t. 141. f. 39.
	Id. Angl. t. 2. f. 32.
	Da Coſta. p. 1. t. 2. f. 8. 8.
	Favan. t. 61. A. 3. 4.
	Schroeter Fluſſconch. t. 5. f. 1. 2. 3.
Ancylus fluviatilis.	*Muller Verm.* ii. p. 201. No. 386.
Patella lacuſtris.	*Br. Zool.* No. 149.
	Pult. Cat. Dorſet. p. 51.
	Turt. Lin. iv. p. 577.

P. with a ſub-conic, pellucid, horn-coloured ſhell, uſually covered with a dark-brown, green, or duſky *epidermis,*

epidermis, and marked with a few circular wrinkles: vertex ſharp, placed near to one end, reflexed, or ſomewhat hooked: aperture or opening oval, margin thin, inſide gloſſy. Length three-eighths of an inch; breadth two-eighths; height not quite ſo much.

A variety is ſometimes met with, finely ſtriated longitudinally from the beak; and we received ſome ſpecimens from a freſh-water ſtream, near *Folkſtone* in *Kent*, more ſtrongly ſtriated than uſual; which were conſidered as a diſtinct ſpecies.

Theſe were of an inferior ſize, and covered with a duſky *epidermis*: they appear to us to be only a variety, differing in nothing but the ſtriæ being more conſpicuous.

This ſpecies has generally been conſidered as the *P. lacuſtris* of LINNÆUS, the ſynonyms, however, of GMELIN, are certainly thoſe of the *P. fluviatilis*. It is a very common ſhell in moſt of our rivers, and in many ſmall ſtreams and ſtagnant waters, adhering to ſtones, and rarely to the leaves or ſtalks of aquatic plants. Is almoſt the only ſhell, we believe, found to inhabit the rapid torrents, with the *Mya margaritifera*. In *Devonſhire*, eſpecially in the ſouth, every little ſtream produces abundance; even the cold rills that originate from ſprings, and flow down the wooded declivities, except where granite prevails: on the contrary, about the eaſtern parts

of *Kent*, it has been conſidered a rare ſpecies, and the *P. lacuſtris* altogether as plentiful; a ſhell we believe not known ſo far weſt as the former county. Such is the locality of nature's ſtores.

6.
LACUSTRIS.

Patella lacuſtris.	*Lin. Syſt.* p. 1260? *Gmel. Syſt.* p. 3710. 97. *Favan.* t. 61. A. 1?—*Turt. Lin.* p. 577. *Schroeter Fluſſconch.* t. 5. f. 4. a. b.
Patella oblonga.	*Pult. Cat. Dorſet.* p. 51. *Phil. Trans.* LXXVI. p. 168. t. 3. f. 1. 2. 3. 5. *(Lightfoot.)*
Ancylus lacuſtris.	*Muller Verm.* ii. p. 199. No. 385.

P. with a thin, pellucid, compreſſed, and almoſt membranaceous ſhell, of a pale horn-colour, moſt commonly covered with a greeniſh *epidermis*: ſhape oblong: vertex very ſmall, pointed, a little reflected, ſtanding rather oblique, or turning to one ſide; not quite central, but rather neareſt to one end: outſide nearly ſmooth, or very faintly wrinkled, but not gloſſy: aperture oblong-oval, nearly equal at each end: margin membranaceous. Inſide ſmooth and gloſſy. Length a quarter of an inch, or rather more; breadth one eighth; height about half its breadth.

Doctor PULTENEY ſays, this ſhell is found on plants in the river *Stour* in *Dorſetſhire*, and has quoted the *P. fluviatilis* of GMELIN and MULLER, in which we think

think the Doctor has erred: the latter author has well defined this ſhell No. 385, where he ſays "*Ancylus teſta membranacea mucrone verticis ſubcentrali, apertura oblonga.* It differs from the *fluviatilis* in being much longer in proportion to its breadth, in being much more compreſſed, and in the vertex being much ſmaller, placed more central, and always turning a little to one ſide. It is not near ſo plentiful a ſpecies as the other, never attaches itſelf to ſtones, but is always found on plants under water, eſpecially the *Scirpus lacuſtris* and other ruſhes, as well as the common reed, *Typha latifolia,* ſtalks of the common flag, and *Irus pſeudacorus.* Is not uncommon upon theſe plants in the ditches of *Deal* marſhes, in *Kent,* particularly on the laſt, as we are informed by Mr. BOYS; and LIGHTFOOT ſpeaks of its being found on the ſame plant, in waters near *Beaconsfield,* in *Buckinghamſhire.* MULLER ſays "*Foliis Nymphææ, Potamogetonis, & Stratiotis adhæret.*"

We have them tolerably plentiful in a fiſh-pond at *Lackham* in *Wiltſhire;* and in the river *Avon,* on the ſtalks of the *Yellow water-lily;* but is rarely, if ever, found in rapid waters, in which the *fluviatilis* ſeems moſt to delight.

7.

Patella antiquata. *Lin. Syſt.* p. 1259.—*Gmel. Syſt.* p. 3709? ANTIQUATA.
Martini Conch. i. t. 12. f. 111. 112. Tab. 13. f. 9.
Liſter Conch. t. 544. f. 31.

Patella

Patella antiquata. *Pult. Cat. Dorſet.* p. 51.
Patella Mitrula. *Gmel. Syſt.* p. 3708.
Turt. Lin. iv. p. 575.

P. with a ſtrong, thick, opaque, white ſhell, ſomewhat of a conic ſhape, furniſhed with concentric, imbricated wrinkles: vertex varying; ſometimes obliquely pointing upwards, often extended and recurved; and frequently obtuſe, and placed near to one end: aperture oval, ſometimes nearly round. Diameter about half an inch.

Doctor PULTENEY informed us, this ſhell had been found at *Weymouth* after a ſevere ſtorm, by Mr. BRYER of that place; and in a liſt of the ſhells found by this gentleman on that coaſt, which he obligingly favoured us with, this is mentioned.

8.
UNGARICA.

Patella Ungarica. *Lin. Syſt.* p. 1259.
Gmel. Syſt. p. 3709. 89.
Martini Conch. i. t. 12. f. 107. 108.
Pult. Cat. Dorſet. p. 51.
Don. Br. Shells. i. t. 21. f. 1.
Borlaſe Cornw. t. 28. f. 4.
Gualt. t. 9. W.
Patella Hungarica. *Br. Zool.* t. 90. f. 147.
Turt. Lin. p. 576.
Patella Pileus Morionis major. *Da Coſta.* t. 1. f. 7. 7.

P. with a ſub-conic, ſub-pellucid, thin ſhell; vertex much reflected, terminating in a ſpiral turn underneath, of two or

or three ſmall wreaths, rarely inclined to either ſide, except at the *apex*, where the whirls are only viſible on that ſide which makes it a dextral ſhell; but frequently projects as far as the margin, ſometimes quite low, and almoſt touching that part; others are more conſiderably elevated.

In a live, or recent, ſtate, it is covered with a rough, pilous *epidermis*, of a brown colour; beneath which the ſhell is of a deep fleſh-colour, inclining to carnation: finely ſtriated longitudinally, and frequently wrinkled tranſverſely. Inſide extremely ſmooth, and gloſſy, generally of the ſame colour, but brighter, ſometimes white; margin of the aperture nearly round, more or leſs undulated or indented, and crenated: the *epidermis*, which projects beyond the margin, forms a ciliated border. Diameter rarely more than an inch; and half an inch, or five-eighths in height.

This is a rare ſpecies, and, as far as we have been able to aſcertain, is only found on the coaſts of the weſtern counties. It has been dredged up at *Weymouth* in *Dorſetſhire;* and is ſometimes found on the ſouth coaſt of *Cornwall* and *Devonſhire*, eſpecially about *Looe*, and at *Plymouth;* at the latter place, we have taken it by dredging, attached to *Pecten opercularis*, which is commonly called *Frill.* Have alſo found it on the ſhore at *Milton* ſands, and have obtained it alive from the bay of *Salcomb* in the ſame county, on the *Pinna ingens.*

One

One ſpecimen, from the laſt place, is of an extraordinary ſize, meaſuring two inches in diameter, and one inch and a quarter in height: it is thick, ſtrong, opaque, and much wrinkled tranſverſely.

Dead ſhells uſually become white, or very little tinged with fleſh-colour, are deſtitute of *epidermis*, and loſe the crenated margin.

9.
MILITARIS.
Tab. 13. f. 11.

Patella militaris. *Lin. Mant.* p. 553.
Liſter Conch. t. 544. f. 32.
Favan. i. p. 538. t. 4. B. B.
Pult. Cat. Dorſet. p. 51.

P. with a ſub-pellucid, ſub-conic, white ſhell, finely ſtriated both ways, ſo as to give it a pretty cancellated appearance: vertex much reflected, recurved, and turned to one ſide, deſcending almoſt to the edge of the ſhell, but projecting beyond it: aperture round, and even. Inſide gloſſy white. Diameter at the baſe about half an inch.

This ſpecies has ſomewhat the habit of the laſt, but is not ſo broad at the baſe in proportion; and is at once diſtinguiſhed by the beak turning to one ſide, by being reticulated, and a much ſtronger ſhell. In a recent ſtate it is covered with a brown, pilous *epidermis*.

This is certainly a very rare ſhell on the *Engliſh* coaſt,

but

but has been found at *Weymouth* by Mr. BRYER; a ſpecimen of which we received from Doctor PULTENEY.

10.
CHINENSIS.
Tab. 13. f. 4. 4.

Patella Chinenſis. *Lin. Syſt.* p. 1257.
Martini i. t. 13. f. 121. 122.
Liſter Conch. t. 546. f. 39.
Patella Sinenſis. *Gmel. Syſt.* p. 3692.
Turt. Lin. p. 562.
Patella albida. *Don. Br. Shells.* iv. t. 129.

P. with a very thin, ſub-pellucid, ſub-conic ſhell, of a pale-brown, or whitiſh colour, ſometimes tinged with bluſh, much compreſſed, and rounded at the margin: vertex central, terminating in a very ſmall, ſub-ſpiral volution: ſlightly wrinkled concentrically, and rough with ſhort, concave ſcales, not unuſually all over the ſhell, but commonly moſt on one ſide, and rarely towards the top. Inſide extremely gloſſy, ſmooth, and white, furniſhed with a ſub-ſpiral *Columella*, or pillar lip, which extends from very near the margin to the end, and forms the external ſub-volution; it is broad, flat, thin, and ſtands oblique to the ſide of the ſhell.

There ſeems very little doubt but this is the *P. Chinenſis* of LINNÆUS. MARTINI gives a figure of it, and quotes that ſhell; and GMELIN quotes MARTINI for his *P. Sinenſis*.

This ſpecies we believe had never been noticed as *Britiſh*, when we were firſt favoured with it by Colonel GEORGE, of *Penryn* in *Cornwall*, in 1795, who took it from an *oyſter* ſhell; and we afterwards found a few others on *oyſters* from *Helford* harbour, the ſame place from which the original came. As far as we have been able to aſcertain, it is always attached to thoſe ſhells, as we have ſince taken it ſparingly in *Salcomb* bay in *Devonſhire*: theſe were alive, adhering very cloſely to the upper valve. Some are rather more conic than others, but are rarely above a quarter of an inch in height: diameter five eighths of an inch, uſually leſs, having taken it of all intermediate ſizes, between that and one tenth of an inch.

DONOVAN gives his as a production of *Cornwall*.

It has been received from *India*, and is a ſhell of the *Mediterranean Sea*.

11. FISSURA.

Patella Fiſſura. *Lin Syſt.* p. 1261—*Gmel. Syſt.* p. 3728.
Martini Conch. i. t. 12. f. 109. 110.
Liſter Conch. t. 543. f. 28.—*Petiv.* t. 75. 2.
Br. Zool. t. 90. f. 152. (number miſplaced)
Da Coſta. p. 11. t. 1. f. 4.
Pult. Cat. Dorſet. p. 51.
Don. Br. Shell. i. t. 3. f. 2.
Turt. Lin. iv. p. 592.

P. with

P. with a ſub-pellucid, conic ſhell, of a brown colour when alive, ſtrongly, and elegantly cancellated: vertex a little reflected: diſtinguiſhed by a longitudinal fiſſure, or ſlit at the anterior end, from the margin upwards, about one fourth the length of the ſhell: Inſide ſmooth, gloſſy, fleſh-coloured; margin oval, crenated. Length half an inch; breadth three eighths; height the ſame.

In young ſhells the vertex is much more reflexed, and ſometimes ſlightly hooked, turning backwards almoſt perpendicular to the poſterior margin. Worn ſhells become white, or pale fleſh-colour, and loſe their crenated edge.

This appears to be a local ſpecies, and ſeems to be chiefly confined to the weſtern coaſts. Doctor PULTENEY mentions it on the ſhores of *Dorſetſhire;* and DA COSTA on thoſe of *Cornwall* and *Devonſhire*, particularly at *Barnſtable;* but had probably never ſeen a live, or recent ſpecimen, as he deſcribes it to be white.

We have found it ſparingly on ſome parts of the *Corniſh* coaſt; and more plentiful on that of *South Devon*, obtaining the moſt perfect ſpecimens by dredging in *Salcomb* bay, adhering to ſtones, and old *oyſter* and other ſhells; but not common, or of a large ſize. Have alſo received ſmall ones from *Sandwich* in *Kent*.

12. APERTURA. Tab. 13. f. 10.

Patella Fiſſurella. *Gmel. Syſt.* p. 3728. 193?
Turt. Lin iv. p. 592?

P. with a ſub-conic, ſub-pellucid white ſhell, marked with ſtrong, longitudinal, tuberculated ribs, and a few circular ridges, that give it a cancellated appearance: vertex reflected, the point very ſmall, and turning downwards: not detached, but adhering to the top of the ſhell, ſometimes making one convolution; immediately above which is a rhomboid perforation. Inſide ſmooth, gloſſy, white; margin oval, edge crenated by the ribs.

This rare ſpecies we firſt found in ſand, from *Falmouth* harbour in *Cornwall*, and afterwards dredged it up alive in *Salcomb* bay, in *Devonſhire*, adhering to ſtones. Length not quite a quarter of an inch, and ſcarce one eighth of an inch in heighth.

In one inſtance this ſhell had a few brown ſtreaks running half way up from the margin.

At the time the figure was engraved, we were not in poſſeſſion of ſo large a ſpecimen as above deſcribed.

13. GRŒCA.

Patella Grœca. *Lin. Syſt.* p. 1262.—*Gmel. Syſt.* p. 3728.
Martini Conch. i. t. 11. f. 98.
Liſter Conch. t. 527. f. 2.
Br. Zool t. 89. f. 153.
Pult. Cat. Dorſet. p. 52.
Turt. Lin. iv. p. 593.
Patella reticulata. *Don. Br. Shells.* i. t. 21. f. 3.
Patella Larvæ reticulata. *Da Coſta* t. 1. f. 3.

P. with

P. with an oblong, oval, thick ſhell, of a dull brown colour, ſtrongly reticulated; ſome of the longitudinal ridges are much coarſer than the reſt, and are frequently tuberculated by the croſſing of the tranſverſe ſtriæ: vertex not much elevated, truncated, and furniſhed with an oblong perforation. Inſide ſmooth, white, ſometimes rayed with dull purple or brown; margin not even, but ſomewhat indented or arcuated at the ſides, and finely crenated. Length about three-quarters of an inch; breadth ſcarce half an inch; height a quarter.

This ſhell is rarely found of a ſuperior ſize on the *Engliſh* coaſt, but foreign ſpecimens are ſometimes an inch and a half in length. It has generally been conſidered as a rare ſpecies in this country: DA COSTA ſpeaks of it from *Weymouth*, and obſerves, that he never could learn that they inhabit any other *Britiſh* coaſt.

Doctor PULTENEY alſo mentions it from the ſame place, and from *Poole*. We have found it on *Studland* beach in *Dorſetſhire*, larger than uſual. Is rare in *Cornwall*; but on ſome parts of the ſouth coaſt of *Devon* not uncommon, eſpecially on *Milton* ſands: and frequently dredged up alive in *Salcomb* bay, but ſeldom exceeding half an inch in length. It is not unuſual on *Sandwich* flats in *Kent*, as we have been aſſured by Mr. BOYS. Dead ſhells are moſt commonly of a pale-brown, or yellowiſh-white, and ſometimes ſtreaked, or ſpotted with dark-brown.

GEN.

GEN. XXXII.

DENTALIUM.

Animal a TEREBELLA.

SHELL univalve, tubular, nearly ſtrait; not divided into chambers; and (for the moſt part) pervious, or open at both ends.

1. ENTALIS.

Dentalium Entalis. *Lin. Syſt.* p. 1263.—*Gmel. Syſt.* p. 3736.
Martini i. t. 1. f. 1. 2.
Liſter Conch. t. 547. f. 2. & t. 1056. f. 4.
Br. Zool. t. 90. f. 154.—*Petiv.* t. 65. 9.
Pult. Cat. Dorſet. p. 52.
Borlaſe Cornw. t. 28. f. 5.
Turt. Lin. iv. p. 601.
Dentalium vulgare. *Da Coſta.* p. 24. t. 2. f. 10.

D. with a ſlender, ſmooth, gloſſy, ſub-arcuated ſhell, tapering to a ſmall point, pervious: ſometimes marked with a few circular wrinkles or annulations: colour white or yellowiſh. Length an inch and a half; diameter at the larger end two-tenths of an inch; and one fourth as much at the ſmaller end.

This

This ſpecies is found on many of our ſhores, particularly thoſe of the weſt of *England;* is not uncommon on the coaſt of *Sandwich* in *Kent*, and on the ſandy flats of *Caermarthenſhire*. It is, however, rarely taken alive, even by dredging, from which we may conclude it is a pelagic ſhell.

A variety is marked with duſky bands: and ſometimes a little ſtriated towards the point.

2.
STRIATUM.

Dentalium Dentalis. *Gmel. Syſt.* p. 3736. 3 ?
Turt. Lin. iv. p. 600.
Born Muſ. t. 18. f. 13.

D. with a ſlender, ſub-arcuated, taper ſhell, very ſmall at the point, and pervious, regularly and cloſely ſtriated the whole length of the ſhell; the ſtriæ in freſh ſpecimens are very conſpicuous, and are about twenty in number: ſometimes a few faint annulations are obſervable at the larger end: colour white, but not gloſſy. Length half an inch; diameter of the largeſt part, one line.

We have found this rare ſpecies at *Falmouth* in *Cornwall,* and on the ſouth coaſt of *Devonſhire.*

It is readily diſtinguiſhed from the young of the preceding ſpecies, by its being elegantly ſtriated.

D. with

3.

GADUS. Tab. 14. f. 7.

D. with a ſub-pellucid, ſub-arcuated ſhell, tapering to a ſmall point, pervious, contracting a little towards the larger end; is white, gloſſy, and perfectly ſmooth, without the ſmalleſt appearance of wrinkles or ſtriæ. Length ſcarce three-eighths of an inch; diameter of the largeſt part, about one ſixteenth.

This is a pelagic ſpecies, found in many parts of the *Britiſh* channel; and is known to mariners by the name of *Hake's-tooth*, who frequently find it within ſoundings, adhering to the log line (as we are informed) but moſt likely to the plumb line.

4.

IMPERFORATUM.

Dentale apice imperforata tranſverſaliter ſub-ſtriata. *Walk. Min. Shells*. f. 15.

Dentalium imperforatum. *Adams Microſc.* t. 14. f. 8. *Turt. Lin.* iv. p. 602.

D. with a cylindric, ſub-arcuated ſhell, ſtriated tranſverſely: aperture round, a little contracted at the margin: the oppoſite end cloſed, truncated, and furniſhed with a ſmall round protuberance: colour white or cinereous. Length one eighth of an inch; breadth one third of its length.

We firſt received this ſhell from Mr. BOYS, for that of WALKER referred to; and have ſince found it in ſand from *Falmouth* harbour, but rare. Mr. WALKER ſays from *Sandwich*, not very common.

D. with

5.

D. with a ſub-cylindric, arcuated ſhell, marked with regular, ſtrong, tranſverſe ſtriæ, or annulations: aperture round, from whence it tapers a little to the other extremity, which is cloſed, truncated, and furniſhed with a ſmall, round protuberance: colour ferruginous-brown, lighteſt towards the ſmaller end. Length rather more than one eighth of an inch; diameter one fifth of its length. TRACHEA. Tab. 14. f. 10.

This ſpecies is at once diſtinguiſhed from the laſt, by being more arcuated, and a little tapering; is longer in proportion to its breadth, the margin of the aperture even, and not contracted, and the annulations ſtronger, giving it the appearance of the windpipe or *trachea* of an animal.

We found it in ſand from *Milton* in *Devonſhire*, but is extremely rare.

6.

D. with a cylindric, arcuated, ſmooth, gloſſy, white ſhell, devoid of either ſtriæ or wrinkles, and equal in ſize throughout: aperture orbicular; the other end cloſed, rounded, and ſub-marginated. Length ſcarce one line; diameter one fifth of its length. GLABRUM.

This nondeſcript ſpecies is found amongſt the ſand at *Biddeford* bay, but more plentiful near *Barnſtable*, on the north coaſt of *Devonſhire*, amongſt the *rejectamenta* of the river, occaſioned by the influx of the tide.

GEN. XXXIII.

SERPULA.

Animal for the moſt part a TEREBELLA.

SHELL univalve, tubular, adhering, or affixed to other bodies; (in ſome ſpecies divided into cells.)

* SPIRAL.

1. SPIRORBIS. Serpula Spirorbis. *Lin. Syſt.* p. 1265.—*Gmel. Syſt.* p. 3740. *Martini Conch.* i. t. 3. f. 21. A. B. C. *Liſter Conch.* t. 553.—*Gualt.* t. 10. f. O. *Chem. Conch.* ix. t. 116. f. 999? *Br. Zool.* t. 91. f. 155. *Da Coſta.* p. 22. t. 2. f. 11. *Don. Br. Shells.* i. t. 9. *Turt. Lin.* iv. p. 603.

S. with an opaque, white ſhell, with three or four regular, lateral whirls, rounded on the upper part, and a little wrinkled: umbilicated in the centre: baſe flat, ſpreading. Diameter one eighth of an inch.

This

This ſpecies is common on ſtones, ſhells, and *algæ*, on moſt parts of our coaſt.

A variety is not unfrequent with the mouth erect, and ſometimes one or two volutions turning a little ſpirally upwards. Theſe, however, muſt be conſidered as accidental diſtortions, by being obſtructed in their general growth.

Animal a *Terebella*, with branched, ciliated *tentacula*, and a clavate, or ſub-funnel ſhaped proboſcis, uſually of a pale colour.

2.

SPIRILLUM.

Serpula Spirillum. *Lin. Syſt.* p. 1264.
Gmel. Syſt. p. 3740.
Martini Conch. i t. 3. f. 20. C. D.
Turt. Lin. iv. p. 602.

S. with a ſub-pellucid, gloſſy, white ſhell, with two or three ſub-cylindric whirls a little wrinkled: theſe are moſt commonly placed laterally; umbilicated in the centre, and ſometimes pervious; but frequently the mouth turns upwards, and not uncommonly the volutions riſe ſpirally upon each other, attached by the ſmaller end. Diameter one line.

This ſpecies has much the habit of the preceding, but is diſtinguiſhed from it, by its gloſſy appearance, being more cylindric, and not ſpreading at the baſe. It is

found on ſome ſpecies of *algæ*, ſeldom on ſtones, ſhells, or cruſtaceous animals, like the laſt, and rarely, if ever, in company with that ſhell.

On the *Corallina officinalis*, from *Milton* rocks, is found in great abundance, a minute ſpecies of *Serpula*, differing ſo little from *S. Spirillum*, except in ſize, that we dare not give it a diſtinct place, though we are inclined to think it is really different, as it never grows above one third the ſize of that ſhell. Although this is found to inhabit the ſame ſpecies of *Zoophyta* as *S. minuta*, yet they are rarely found together.

This very intricate claſs of ſhells requires a thorough knowledge of their animal inhabitants; and which, in the ſmaller ſpecies, is attended with a conſiderable difficulty, for even when collected, put into ſea water immediately, and examined upon the ſpot, few appear to protrude themſelves ſufficiently for critical notice: indeed it muſt be admitted, many of the ſpiral kind are inhabited by animals of very ſimilar appearance.

3.

GRANULATA.

Serpula granulata. *Gmel. Syſt* p. 3741.
Turt. Lin. iv. p. 604.
Don. Br. Shells. iii. t. 100.

Serpula ſulcata. *Lin. Trans.* iii. p. 254. *(Adams.)*
Turt. Lin. iv. p. 608.

S. with

S. with an opaque, white ſhell, with two volutions, deeply grooved longitudinally, or in a ſpiral direction, and tranſverſely wrinkled, eſpecially in the furrows: aperture round. Size of the *Spirorbis*.

This ſpecies bears ſome reſemblance to *S. heteroſtropha*, but is at once diſtinguiſhed by the whirls not being reverſed: the two *ſulci* are much deeper, making the upper part of the ſhell more ſtrongly tricarinated: the inner volution is nearly obſolete, only being marked by the third, or interior ridge.

This is alſo much more rounded at the top, with only an *umbilicus* in the middle; whereas the other is concave at the top, and the interior volutions conſpicuouſly tapering to a fine point, within the depreſſion. In colour and ſize too they alſo differ; this is of a white, like glaſs enamel, but not ſo gloſſy; whereas, the *heteroſtropha* is of a dull browniſh, or dirty-white, and never grows to half the ſize.

We have found this ſpecies in great abundance on the rocks, as well as on the under ſide of looſe ſtones at *Milton;* and ſometimes on old ſhells from other parts of the coaſt of *Devonſhire*, eſpecially *Arca piloſa;* and have received it from *Guernſey* on *Haliotis tuberculata*, ſpecimens of which we have ſeen perfectly covered with it, but ſometimes in company with a ſpecies of *Serpula* very different from any of the genus hitherto deſcribed. It has

has one very thick, rounded, gloſſy, white volution; very convex, and wrinkled tranſverſely, with a minute *umbilicus* at the top, and ſometimes only a ſuture.

Not having aſcertained this to be truly *Britiſh*, we cannot give it a diſtinct place in this work.

Animal a *Terebella*, of a buff-colour, with ten ciliated rays, and a ſub-funnel ſhaped proboſcis at one ſide, of the ſame colour, with a brown margin, ciliated, hyaline.

4. CARINATA. S. with a dull, opaque, white, ſpiral ſhell; the outer whirl riſing into a carinated ridge on the top; the middle concave, ſometimes pervious; the interior volutions inconſpicuous; baſe a little ſpreading: aperture round. Size about half that of the *S. Spirorbis*, from which it is readily diſtinguiſhed, by the angulated ſhape of the exterior whirl, which is formed like *S. triquetra*, but always regularly ſpiral.

This we found on old valves of *Arca piloſa*, with the laſt, in conſiderable abundance; and plentiful in *Salcmob* bay, on *Pinna ingens*, and many other ſhells, eſpecially *Trochus cinerarius* and *parvus*, unmixed with any other ſpecies.

5. CORRUGATA. S. with a ſtrong, ſpiral, white ſhell, roughened by tranſverſe wrinkles; a ſmall portion of the ſecond volution

tion only viſible: centre umbilicated: baſe very little ſpreading: aperture orbicular. Diameter about one eighth of an inch.

This ſpecies is not uncommon on the ſlate rocks at *Milton*, and ſometimes on the under ſide of looſe fragments, in company with *S. heteroſtropha*. It is a much ſtronger ſhell than *S. Spirillum*, and never expoſes ſo much of the interior volution; and, though more wrinkled, poſſeſſes a ſuperior gloſs, when cleared from extraneous matter.

Animal orange-red, with eight, greeniſh, ciliated rays; and a ſub-funnel ſhaped proboſcis, of the ſame colour.

6.

S. teſta regulari rotundâ pellucida, tribus anfractibus. *Lin. Trans.* v. t. 1. f. 33. 34. 35. *(Adams.)* CORNEA.

Obs. Browniſh horn-colour.

Shell regular, rounded, pellucid, with three whorls. *Turt. Lin.* iv. p. 608.

7.

S. with a ſtrong, ſpiral ſhell, of a dull dirty-white colour, with two or three reverſe volutions placed laterally, furniſhed with three longitudinal ridges, one along the back, and another on each ſide, roughly wrinkled tranſverſely: the baſe is flat, and ſomewhat ſpreading: HETEROSTROPHA.

ing: aperture orbicular, and invariably placed oppoſite the ſun's apparent motion. Diameter not a line.

Is not uncommon upon *oyſter* and other ſhells, and upon *algæ;* ſometimes in company with *S. Spirorbis*, but from which it is readily diſtinguiſhed by the longitudinal ridges, and by the contrary turn of the volutio ns

Is found in ſome parts of *Kingsbridge* bay, on the under ſide of ſlate ſtones, between high and low water-mark, in ſuch vaſt abundance, that the ſurface of the ſtones is covered with them; and in this ſituation are unmixed with any other ſpecies: poſſibly the ſub-ſaline quality of the water ſo far up this inlet, at ebb tides, is not congenial to its congenera, for we never found any of the other *Serpulæ* ſo far up.

8.

SINISTRORSA.

Serpula. *Walk. Min. Shells.* f. 13. 14.

S. with a ſemi-pellucid, gloſſy, white ſhell, with two or three reverſed volutions uſually placed lateral, but ſometimes coiled upon each other: it is ſomewhat wrinkled tranſverſely; but has no longitudinal irregularities: aperture orbicular. Diameter one line.

The form of this ſpecies is much like *S. Spirillum*, but is at once diſtinguiſhed from it, by the aperture turning the contrary way: it has the ſame ſub-pellucid appearance

ance as that ſhell, and when recent, has a tinge of red, from the colour of the animal, which is ſcarlet.

From being a *heteroſtrophe* ſhell, it might be more readily confounded for *S. lucida*, but is double the ſize, not ſo pellucid, and is broader at the baſe; this, too, is principally found on cruſtaceous animals; the other is peculiar to *Sertularia*, eſpecially *S. abietina;* and neither is found in any one inſtance, to inhabit the place of the other.

Mr. WALKER has figured two, which we conſider as only this ſhell in different ſtages of growth; he deſcribes them as differing only in the number of ſpires, one having four, the other two; the laſt of which he expreſsly ſays, is found on *lobſters*. Both are figured as reverſed ſpecies, a circumſtance omitted in the deſcription, but ſufficient to confirm our opinion, eſpecially, as we have never obſerved this ſhell attached to any thing on our coaſts but the common *lobſter, Cancer Gammarus*, and *ſpiny lobſter, C. Homarus*, taken on the ſouth coaſt of *Devon.** It does not conſtantly occur on thoſe animals, but is ſometimes thickly cluſtered together on various parts of the ſame ſubject.

9. MINUTA.

S. with a very ſmall, ſpiral ſhell, of a dirty-white colour, with two or three lateral volutions, wrinkled tranſverſely:

* On the *Guernſey* coaſt is ſometimes found to inhabit *Haliotis tuberculata*.

verſely: ſometimes it has a ſlight, longitudinal furrow, on each ſide, forming a ridge, or *carina*, along the back. Diameter a quarter of a line.

This, very minute ſpecies, is alſo an heteroclitical ſhell, and not eaſily diſtinguiſhed from *S. heteroſtropha*, except by its inferior ſize, rounded baſe, and habits: this affects only the *Corallina officinalis*, (Ellis *Coral.* tab. 24. f. 2. and *Zoophytes*, tab. 23. fig. 14. 15.) frequently in abundance, both on ſtalks and branches.

This *Coralline* is plentiful on the rocks about *Milton*, which are partly of the ſame ſlaty nature, on which *Serpula heteroſtropha* is found; but none of that ſpecies occur on the rocks contiguous to this *Coralline;* indeed the *S. heteroſtropha* is rarely expoſed, but lies concealed, affixed to the under part of the looſe, flat, ſlate ſtones: this, on the contrary, is always expoſed to the rude action of the waves.

The young of this, as well as moſt of the longitudinally ſulcated, or ribbed ſpecies, are quite ſmooth, and may be eaſily miſtaken.

Animal a *Terebella*, with ciliated feelers, and clavated proboſcis, varying in colour from brown to green.

10. Lucida.

Serpula reflexa. *Lin. Trans.* v. t. 1. f. 31, 32? *(Adams.)* *Turt. Lin.* iv. p. 608.

Serpula

Serpula vitrea. *Gmel. Syſt.* p. 3746?
Turt. Lin. iv. p. 607.
Ellis Zooph. p. 37.

S. with an irregular, pellucid, gloſſy, white ſhell, always more or leſs ſpiral; ſometimes lateral, with two or three whirls; in others the volutions turn upon each other, with the aperture projecting upward, and not unfrequently the ſpires are unconnected. Diameter half a line.

This is at once diſtinguiſhed from all other ſpecies, by its extremely ſmooth, gloſſy, and vitreous appearance.

It is by no means an uncommon ſhell, but we believe is peculiar to ſome ſpecies of *Sertularia*, eſpecially *S. abietina*, on which it is almoſt a conſtant attendant;* and ſometimes on *S. argentea:* is gregarious and very numerous on the branches of thoſe *Zoophytes*, which are thrown up on moſt of our coaſts, eſpecially in the weſt of *England:* and we have been aſſured by Mr. Boys, (who ſent it to us by the name prefixed,) that it is not leſs common on the coaſt of *Kent*, on *S. abietina*.

This, though ſubject to much variety in ſhape, will be always found to turn its aperture towards the apparent motion of the ſun, and conſequently is a *heterostrophe* ſhell.

* Ellis ſays this *Sertularia* "is frequently infeſted with little minute ſhells, called *Serpulas*."

Animal red, with plumoſe *tentacula* of a pale colour, and two brown ſpots on the head.

11.
REVERSA.

S. with a ſub-cylindric, rugoſe, white ſhell, much wrinkled tranſverſely, more or leſs ſpiral, and tapering to a ſmall point, but ſubject to great variety in its turns and windings; ſometimes, three or four whirls, pretty regularly placed laterally, making a diameter of half an inch: others have the ſmaller end projecting, and the larger end coiled, either lateral or upon each other, and open in the middle. Sometimes, the ſmall end turns contrary to the reſt of the ſhell; but it is remarkable, in a ſpecies ſo irregular in growth, that the aperture ſhould almoſt invariably turn in the reverſed direction. Diameter at the larger end, one tenth of an inch.

This is ſometimes taken on the coaſt of *Devonſhire*, upon the *Pecten opercularis*, and rarely on *crabs*.

The animal is a *Terebella*, with branched, ciliated *tentacula*, ſpotted with crimſon, which, when ſpread, almoſt ſurrounds a double funnel-ſhaped proboſcis, placed one within the other, the ſtalk of which is long and ſlender, and originates on the left ſide below the *tentacula*: this in ſome is green, others reddiſh, the interior funnel is cut in deep longitudinal ſtriæ; external one ciliated round the margin: on the right ſide, correſponding with the proboſcis, is a ſhort, cylindric appendage.

** CONTORTED, IRREGULAR.

12.
VERMICULARIS.

Serpula vermicularis. *Lin. Syſt.* p. 1266.
Gmel. Syſt. p. 3743.
Br. Zool. No. 159.
Turt. Lin. iv. p. 605.
Da Coſta. p. 18. t. 2. f. 5.

Serpula intricata. *Lin. Syſt.* p. 1265.
Gmel. Syſt. p. 3741.
Br. Zool. t. 91. f. 158. (fig. miſplaced)
Turt. Lin. iv. p. 603.
Martini Conch. t. iii. f. 24. A?

S. with a cylindric, white ſhell, gradually tapering, generally terminating in a fine point, and wrinkled tranſverſely.

Nothing has puzzled the conchologiſt more than the four ſpecies of *Linnæan Serpulæ* under the denomination of *Vermicularis, intricata, triquetra,* and *contortuplicata.*

We have collected a vaſt quantity of theſe *Serpulæ* ſingle and grooped, angulated and cylindric, with all the intermediate gradations, which connect them ſo nearly, that were it not for the animals, we ſhould have been induced to have conſidered them as one and the ſame ſpecies: we have, however, by the animals more than by the ſhells, formed them into two ſpecies: namely, *vermicularis* and *triquetra.*

This

This is to be met with from the ſize of a ſewingthread to that of a ſwan's quill, as frequently in groops, twiſted and contorted in all directions, as ſingle; and is never obſerved to ſpread at the baſe, or to poſſeſs the ſmalleſt degree of *carina* along the back; and is generally attached its whole length to ſome other body: this circumſtance, independent of the difference in the animals, is the only leading character, by which it may be known from *S. tubularia*, which is attached only in part towards the ſmaller end, and uſually aſcends in a conſiderable angle.

We have ſeen both theſe ſhells moſt complicatedly entwined with each other, and mixed with *S. triquetra;* and ſome of the laſt poſſeſſing ſo little appearance of a ridge along the back, that had not the animals been conſulted, it would not have been poſſible to have divided them. As the animals therefore are the only certain criteria, theſe ſhells, as well as many others of this intricate genus, will ever be confounded in cabinets.

It may be thought, that although we have brought four of the *Linnæan* ſpecies into two, in ſome inſtances we have multiplied others of the *Britiſh Serpulæ:* to this it can only be ſaid, that as far as human fallibility will admit, care has been taken to fix characters of diſtinction, from ſhape, habits, or animal; except, therefore, in *S. reverſa*, we have not a doubt but thoſe deſcribed, are really diſtinct. The inhabitant of that ſhell, we muſt confeſs,

confeſs, is ſo very ſimilar to the animal of this, that a reference will ſave the trouble of a repetition: the circumſtance of that ſhell being always coiled in a circular form, and generally in a reverſed manner, added to its ſolitary habit, are ſtrong preſumptive evidence of diſtinction.

13. TRIQUETRA.

Serpula triquetra.	*Lin. Syſt.* p. 1264.
	Gmel. Syſt. p. 3740.
	Martini Conch. i. t. 3. f. 25.
	Turt. Lin. iv. p. 603.
	Baſter Opuſc. i. t. 9. f. 2. A. B.
	Br. Zool. No. 156.
Serpula vermicularis.	*Ellis Corall.* t. 38. f. 2.
	Don. Br. Shell. iii. t. 95.
Serpula angulata.	*Da Coſta.* p. 20. t. 2. f. 9.
Serpula contortuplicata.	*Lin. Syſt.* p. 1266.
	Gmel. Syſt. p. 3741.
	Turt. Lin. iv. p. 604.
	Br. Zool. No. 158. t. 91. f. 157. (figure miſplaced.)

S. with a ſtrong, opaque ſhell, irregularly twiſted and contorted; ſometimes nearly ſtrait, or only a little flexuous, roughened with tranſverſe wrinkles, and uſually more or leſs carinated: in ſome the dorſal ridge is much elevated, and the baſe ſpreads ſo much as to give it a triangular appearance; and, not unfrequently, there are two other ſmaller ridges along the ſides, one on each ſide the dorſal *carina*.

In

In many inſtances, however, the ridge along the back is ſo nearly obſolete, eſpecially in old ſhells, and ſuch as are grouped, that they would with difficulty be ſeparated from *S. vermicularis*, were it not for the animal; ſuch have been generally confounded for that ſpecies, and is figured by ELLIS; but the ſingle, trumpet-ſhaped proboſcis, of the animal, forbids it to be the *S. vermicularis.*

That figured by DONOVAN, appears alſo to be a *triquetra* for the ſame reaſon, but the *tentacula* of the animal are wanting in this figure; though that part is very well repreſented by ELLIS.

It is with no ſmall difficulty, and in ſome degree uncertainty, that we have placed the ſynonyms to this and the preceding ſpecies, as heretofore the animals have not been attended to ſufficiently, to form the beſt and ſureſt character of diſtinction.

If the *triquetra*, and the *Linnæan contortuplicata* be carefully examined, the animals will be found to be the ſame, poſſeſſing only a ſingle, trumpet-ſhaped proboſcis, as repreſented by ELLIS for the *Vermicularis:* and it will be obſerved, that all the ſhells inhabited by ſuch animal, are, whether grouped or ſingle, more or leſs furniſhed with a dorſal ridge, though in ſome of the larger ſpecimens it is ſcarcely to be diſcerned, or at leaſt might be paſſed unnoticed. On the contrary, the *vermicularis*

and

and the *Linnæan intricata* never poſſeſs the ſmalleſt degree of *carina*, and the animal, as before remarked, has a double-trumpet, or funnel-ſhaped proboſcis.

The *Serpula triquetra* is moſt times of a dirty-white, but ſometimes red, or tinged with that colour; ſuch we have in large groups as well as ſingle, a circumſtance never having occurred to us in the *vermicularis*.

It is, like the laſt, equally plentiful on all our coaſts, adhering to ſtones, old ſhells, cruſtaceous animals, timber, and various other ſubſtances: a ſpecimen in our cabinet, on a piece of glaſs bottle, is more than commonly ſpread at the baſe, as if it was requiſite to take a firm hold of ſo ſmooth a ſurface.

The *tentacula* of the animal are two, plumoſe, or furniſhed with numerous, ciliated fibres, varying in colour, being barred with blue, yellow, brown, or red, and all the intermediate ſhades: the trumpet-ſhaped proboſcis is finely ſtriated, and the margin crenated.

14. TUBULARIA.

S. with a round, taper, opaque, white ſhell, ſlightly wrinkled tranſverſly; the ſmaller end is uſually ſubconvoluted irregularly, ſometimes only flexuous; this part is fixed; the larger part is detached frequently for half its length, and aſcends in a conſiderable angle from the baſe, though rarely perpendicular: the erect part is

nearly ſtrait, or ſlightly flexuous; but always turning with the ſun: aperture orbicular. Diameter at the larger end two-tenths of an inch, gradually tapering to a fine point; length four or five inches.

This ſpecies has probably been confounded with the *S. vermicularis*, from which, indeed, it might be difficult to ſeparate it, was it not for the great difference in the animals. We have, however, obſerved that *S. vermicularis* is uſually attached to ſome other body its whole length, and never reflects in the manner of this.

It is by no means common; thoſe we procured alive were at *Torcroſs* in *Devonſhire*, where an opportunity offered of examining the animal, by putting the ſhells into a glaſs of ſea water as ſoon as they were dredged up: theſe were affixed to old bivalves, the fineſt ſpecimens were on that of the *Mactra lutraria*: two had their baſe entwined, and the larger ends attached longitudinally, aſcending in an angle of thirty degrees.

The animal is an *Amphitrite*, with between fifty and ſixty annulations; the head long, white, barred with pink and green; on each ſide a looſe, ſcalloped, tranſparent membrane, capable of contraction and expanſion, and frequently ſurrounding the under part: *tentacula* two, beautifully feathered, each originating from a ſingle ſtalk, placed near to each other on the fore part of the head: on one ſide of each of theſe ſtalks are long fibres,

fibres, placed in regular order; theſe again are furniſhed on each ſide with finer fibres. When the animal withdrew its *tentacula* it became ſomewhat convoluted, as the fibres cloſed, and turned a little ſpiral up the ſtalk: their colour pale yellow, or yellowiſh-white, the fibres, or *pinnæ*, annulated with pink, ſo as to form regular, ſemi-circular lines, when the plumes were ſpread.

*** CONCAMERATED.

15. LOBATA.

Serpula Nautiloides. *Gmel. Syſt.* p. 3739?
Turt. Lin. iv. p. 602?
Nautilus lobatulus. *Turt. Lin.* iv. p. 307.
Adams Microſc. t. 14. f. 36.
Walk. Min. Shells. f. 71.

S. with a compreſſed, ſpiral, lobated ſhell; ſhape various, ſometimes roundiſh, others oblong; above convex; with ſix, ſeven, or eight lobes: beneath flat; the interior volution only marked by one or two ſmall elevations, and frequently not viſible: colour white, or yellowiſh: aperture minutely ſmall, ſcarce definable. Diameter barely one line.

This ſpecies has much the habit of a *Nautilus*, the interior part being divided into unequal, parallel concamerations.

We originally received it from Mr. BOYS, for WALKER,S ſhell above quoted; have ſince found it adhering to the roots of *fuci*, common on the *byſſus* of *Pinna ingens* on the coaſt of *Devonſhire*, and ſometimes on ſhells. Is found alſo at *Sandwich* and *Whitſtable* in *Kent*, where, as well as on many of our arenaceous ſhores, it may be found dead amongſt the finer ſand.

The circumſtance of its being ſeſſile, or fixed to other bodies in a living ſtate, forbids it claiming a place amongſt the *Nautili*.

GEN. XXXIV.

VERMICULUM.

Animal a TEREBELLA?

SHELL, univalve, ſhape various: not attached, or adhering to other bodies.

We have been induced to ſeparate the *Linnæan* claſs of *Serpulæ*, not only from their diſſimilitude in ſtructure, but becauſe many of them do not come under the generic character, (of being fixed to other bodies.) Thoſe, therefore, which are independant, or not attached to other bodies, we have formed into a new genus, under the title of *Vermiculum*. Theſe, again, might with propriety be divided into two diſtinct genera; thoſe which are convoluted, or ſub-convoluted, and thoſe which are ſtraight, and of a bottle ſhape: the latter of which Mr. WALKER has very ſignificantly diſtinguiſhed by the name of *Lagena*. The number of theſe, however, as yet diſcovered are inconſiderable, we ſhall therefore only make them into two diviſions of the ſame genus.

The

The animals of two or three ſpecies we have examined, are not the leaſt like any thing obſerved in the genus *Serpula;* when alive they rarely protrude any thing beyond the ſhell; but when recently dead, a fleſhy bulb, without any viſible *tentacula,* or feelers, makes its appearance; but hitherto we have not been able to fix any thing as definable characters.

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* SUB-CONVOLUTED.

1. INCURVATUM.

Serpula incurvata. *Turt. Lin.* iv. p. 609.
Adams Microſc. t. 14. f. 7.
Serpula recta anfractibus tribus contiguis regulariter involutis.
Walk. Min. Shells. f. 11.

The ſtrait horn Wormſhell, with three cloſe intorted ſpires at the tip; the colour white, ſemi-tranſparent. From *Sandwich,* rare.

This ſhell is ſomewhat in ſhape like *Nautilus ſemilituus* of LINNÆUS; but is perfectly ſmooth, cylindric, and has neither *Syphon* in the aperture, nor internal concamerations. Length ſcarce one line.

2. PERVIUM.

Serpula recta umbilico pervio anfractu apicis unico involuto.
Walk. Min. Shells. f. 12.

The ſingle-ſpired ſtrait horn Wormſhell, with a pervious

vious *umbilicus:* the colour whitiſh, tranſparent and gloſſy. From *Reculver*, very rare.

This is rather ſmaller than the laſt, and differs from it in the turn of the leſſer end, where it only makes one volution, which is open or pervious.

3.

Serpula bicornis. *Turt. Lin.* iv. p. 609. BICORNE,
Adams. Microſc. t. 14. f. 2.
Serpula bicornis ventricoſa. *Walk. Min. Shells.* f. 2.

The bellied ſemi-lunar Wormſhell; colour white, opaque and gloſſy. From *Sandwich* and *Reculver*, though not common. Length one line.

We received this ſpecies from Mr. BOYS for that deſcribed by WALKER, the figure of which does not exactly expreſs the formation of the ſhell, which repreſents only two compartments, whereas it has three; the middle one is extremely ſmall, ſometimes raiſed, at other times depreſſed: is ſub-oval, compreſſed, and ſtriated longitudinally on the longer ſide from the aperture; the other ſide is ſmooth: it contracts towards the mouth, which is very ſmall and orbicular.

4.

Serpula perforata. *Turt Lin.* iv. p. 609. PERFORATUM.
Adams. Microſc. t. 14. f. 3.
Serpula bicornis umbilico perforato. *Walk. Min. Shells.* f. 3.

The

The ſemi-lunar perforated Wormſhell: the colour white, opaque and gloſſy. From *Sandwich*, very rare.

The ſhell, which Mr. Boys favoured us with for that given by Walker, was not perforated, and differed ſo little from the preceding, that we are inclined to believe, it is no other than a mutilated ſpecimen of that ſhell.

We have found it in *Cornwall*, and ſometimes with the ſmall interior compartment worn off, which gives it the appearance of being naturally perforated.

5.

Intortum.

Serpula ſubovalis intorta umbilico pervio. *Walk. Min. Shells.* f. 1.

Serpula Seminulum. *Lin Syſt.* p. 1264?
Gmel. Syſt. p. 3739?
Turt. Lin iv. p. 602?
Martini Conch. i. t. 3. f. 22. a. b?
Gualt. t. X. f. S.

Serpula ovalis. *Lin. Trans.* v. t. 1. f. 28. 29. 30. *(Adams.)*
Turt. Lin. iv. p. 608.

V. with a ſub-oval, compreſſed, opaque, gloſſy-white ſhell, compoſed of three, and ſometimes four, compartments; the interior ones varying in ſhape and ſize; ſome are longer in proportion to their breadth than others: theſe have uſually only three well defined compartments: but the larger and more ſub-orbicular ſhaped

variety

variety has ſometimes five, one of which is extremely ſmall and linear: theſe ſub-volutions are defined by a depreſſion, and are wrinkled tranſverſely: aperture compreſſed, ſemi-lunar. Diameter one tenth of an inch.

This is ſo variable in its formation, that without great attention, it might be formed into ſeveral ſpecies.

We have found it plentiful on all the ſandy ſhores we have examined; the fineſt and largeſt on the coaſts of *Devonſhire* and *Cornwall*. It frequently happens, that the interior part is worn, and becomes pervious; in which ſtate Mr. WALKER has figured it; for we cannot conſider it any other than his ſhell; and we are the more confirmed in this opinion, by the ſpecimens favoured us by Mr. BOYS from the coaſt of *Sandwich* for it, none of which were perforated.

If this is the *S. Seminulum* of GMELIN, of which there is very little doubt, it is found in the *Adriatic* and *Red-Seas;* and ſometimes in a foſſile ſtate.

6.

Serpula ſubrotunda dorſo elevato. *Walk. Min. Shells.* f. 4. SUBROTUNDUM.

V. with a ſub-orbicular, ſub-compreſſed, ſmooth, gloſſy, opaque, white ſhell; compoſed of three compartments, the middle one elevated above the others on the upper ſide; not viſible beneath: aperture ſmall,

angulated; margin in live ſhells yellow. Diameter about half a line.

This ſpecies is not half ſo common as the laſt; but is found in ſand on ſeveral of our ſhores.

7.
OBLONGUM. Tab. 14. f. 9.

V. with an oblong, oval, opaque, gloſſy, white ſhell, ſomewhat compreſſed; on one ſide a ſingle longitudinal ſuture, that ſeems to divide the ſhell into two parts: on the other ſide, the middle compartment is ſurrounded by a faint depreſſion, that ſeparates it from the exterior one, and is more elevated; aperture a little produced, oval; margin yellow. Length not half a line.

In ſand from *Salcomb* bay *Devonſhire:* rare.

The five laſt deſcribed ſpecies have ſomewhat the habit of *Nautili*, though not regularly concamerated, or divided into chambers: they are contracted at the angulated turns, which form the ſub-volutions.

** BOTTLE-SHAPED, NOT CONVOLUTED.

8.
LACTEUM.

Serpula lactea. *Turt. Lin.* iv. p. 609.
Adams Microſc. t. 14. f. 4.
Serpula tenuis ovalis lævis. *Walk. Min. Shells.* f. 5.

The

The thin, ſmooth, egg-ſhaped Worm-ſhell: the colour pellucid, with milky veins. From *Sandwich*, not common.

We have found this ſpecies on the coaſt of *Devonſhire*. It is not compleatly egg-ſhaped, as Mr. WALKER deſcribes it, but is ſomewhat compreſſed; the white lines mark the compartments, which appear to be four: the border round the ſhell is alſo opaque white: aperture extremely ſmall. Length half a line.

9.

Serpula (Lagena) ſtriata ſulcata rotunda. *Walk. Min. Shells.* f. 6. STRIATUM.

Serpula Lagena. *Turt. Lin.* iv. p. 609.
Adams Microſc. t. 14. f. 5.

V .with a pellucid, gloſſy, white, ſub-oval ſhell, with a ſlender, produced mouth; finely ſtriated longitudinally, very conſpicuous by being more opaque than the reſt of the ſhell: ſhape like a *Florence* flaſk: aperture ſmall, orbicular. Length not half a line.

This elegant ſpecies is mentioned by Mr. WALKER to be rare at *Sandwich*, *Reculver*, and *Shepey*. We have received it from Mr. BOYS, and have found it in fine ſand on the ſouth coaſt of *Devonſhire*.

10.

Serpula (Lagena) lævis globoſa. *Walk. Min. Shells.* f. 8. GLOBOSUM.

The ſmooth round Flaſk Wormſhell: the colour white and tranſparent. From *Sandwich*, very rare.

This ſeems to differ from the laſt in being deſtitute of ſtriæ, and in the mouth not being lengthened, but terminating in a ſmall round aperture; and is rather leſs.

11. LÆVE.

Serpula (Lagena) lævis ovalis. *Walk. Min. Shell.* f. 9.

The ſmooth oval Flaſk Wormſhell: the colour bluiſh-white, very tranſparent like glaſs. From *Sandwich*, very rare.

This differs from the laſt in being more oblong, and in having a produced, cylindric mouth, like the *ſtriata*.

12. MARGINATUM.

Serpula (Lagena) marginata. *Walk. Min. Shells.* f. 7.

The bordered Flaſk Wormſhell: the colour white, tranſparent and gloſſy. From *Reculver*, very rare.

This is in ſhape like the *globoſum*, rather leſs, a little compreſſed, and diſtinguiſhed by an elevated ridge, or margin, that ſurrounds the ſhell longitudinally.

We have found it in ſand on the coaſt of *Devon*: but never with the mouth ſo much protruded as Mr. WALKER's figure repreſents.

13. RETORTUM.

Serpula (Retorta.) *Turt. Lin.* iv. p. 609.
Adams Microſc. t. 14. f. 6.

Serpula

Serpula (Retorta) rotunda marginata cervice curvatim exerto. *Walk. Min. Shells.* f. 10.

The marginated Retort Wormſhell; the colour white and opaque. From *Sandwich* not common.

This ſpecies differs from the laſt in having a produced, ſub-cylindric, recurved mouth; the body is more orbicular, and the margin that ſurrounds the ſhell more ſtrongly defined. The ſpecimen we received from Mr. Boys is a little compreſſed, and has a ſmall depreſſion, or *ſub-umbilicus*, on each ſide near the centre. Diameter not half a line.

14.

V. with a bottle-ſhaped, ſmooth ſhell, furniſhed with ſix, equidiſtant, longitudinal ribs, and a ſmall knob at the baſe; neck very long, ſub-cylindric: aperture extremely ſmall: colour white, tranſparent, and gloſſy. PERLUCIDUM. Tab. 14. f. 3.

Length not one tenth of an inch. Found at *Seaſalter*.

15.

V. with an Urn-ſhaped, ſmooth, gloſſy, ſemi-tranſparent white ſhell; at the baſe a ſlender appendage, or knob: aperture produced by a conic neck. URNÆ. Tab. 14. f. 1.

Length ſcarce one line. Found in ſand from *Shepey* iſland.

V. with

16.
SQUAMOSUM. V. with a ſub-globoſe ſhell, marked with undulated
Tab. 14. f. 2. ſtriæ, like the ſcales on a fiſh: aperture a little produced.

A minute ſpecies from *Seaſalter*.

For the three preceding ſpecies, we are indebted to Mr. BOYS, who, with his uſual liberality, favoured us with excellent drawings, with an aſſurance, that he had ſeen the ſhells from which they were taken.

GEN. XXXV.

TEREDO.

Animal uſually deſcribed as a TEREBELLA.*

SHELL cylindric, taper, flexuous, lodged in woody ſubſtances; with two teſtaceous, hemiſpherical valves, anteriorly truncated, covering the head of the animal: and two others, of a lanceolate ſhape, near the extremity of the tail.

1.

Teredo navalis. *Lin. Syſt.* p. 1267.—*Gmel. Syſt.* p. 3747. 1. NAVALIS.
Martini Conch. t. 1. f. 11.
Planc. Conch. 17. No. 2.
Sellius Hiſt. Natur. Teredinis. 1733.
Pult. Cat Dorſet. p. 53.
Phil. Trans. 1741. No. 455. t. 2. (*Baſter.*
Br. Zool. No. 160.
Turt. Lin. iv. p. 609.
Serpula Teredo. *Da Coſta.* p. 21.

T. with

* The animal certainly has none of the characters of a *Terebella*. It has neither *tentacula*, *branchiæ*, tubercles, nor *faſciculi*; and is diſtinct from any teſtaceous animal we are acquainted with.

T. with a thin, brittle, flexuous ſhell, of a whitiſh colour, tapering to the extremity: aperture orbicular; inſide ſmooth, pervious: at the ſmaller end the ſhell becomes thick and ſtrong, and is furniſhed within with plates or *laminæ*, which contract that part very conſiderably, and leave a very ſmall opening: the anterior valves, attached to the head of the animal, are of a hemiſpheric form, one half the front projecting in a ſharp angle, and ſomewhat pointed; thin and brittle, finely, and regularly ſtriated longitudinally on the front angle, which terminates in a regular line backward, where the ſtriæ conform to the angular ſhape of the valve, and run tranſverſely acroſs the middle, or truncated part; this part is covered with a light-brown *epidermis;* the hinder part, or that which is attached to the animal, is white and ſmooth.

The inſide of each valve is white, furniſhed with a long, flat, curved tooth, projecting inwards under the hinge, as in moſt the *Pholades*, and a ſhort, lateral tooth at the extremity of the hinge, correſponding in each valve: the margin, oppoſite the hinge, runs to an acute angle, at the point of which, in each valve, is a ſmall knob, which comes in contact when the valves are brought together; and as this is the only bearing point beſides the hinge, it may readily be conceived the ſides are extremely open.

Near the extremity of the tail of the animal, are fixed

two

two lanceolate plates, or valves, one on each ſide; a little concave on the inſide, and rounded at the end: the office of which is to cloſe the extremity of the tube at the thickened part. Theſe ſeem to be properly the ſhells of the animal, being attached to it. The tubular, teſtaceous caſe, or ſheath, which lines the hole made by this animal in wood, though neceſſary to its exiſtence, appears only to be formed as an apartment, in which it may move with eaſe and ſecurity; for it is obſervable, that no two tubes ever touch each other, although the *lamina* of wood between them is frequently not thicker than paper. The tube is ſeldom ſo long as the animal, as the interior part of the perforation is uſually not lined with it for two inches or more: the ſmaller end is always even with the ſurface of the timber perforated, but ſo ſmall as not eaſily to be diſcovered; but ſufficient to admit the ſurrounding element, and which the animal can regulate by the poſterior valves.

It has been erroneouſly imagined, that the animal perforates wood by means of its anterior valves; but there is no reaſon for aſcribing ſuch a property, becauſe their ſhape has been likened to an auger, when we find all the *Pholas*, the *Mytilus rugoſus*, the *Donax Irus*, and many others perforate not only wood, but even the hardeſt lime ſtone, without the aſſiſtance of their ſhells, a part impoſſible to effect it.

It is obſervable the *Teredo* bores acroſs the grain of the

wood as ſeldom as poſſible; for after it has penetrated a little way, it turns, and continues with the grain, tolerably ſtrait, until it meets with another ſhell, or perhaps a knot, which produces a flexure: its courſe then depends on the nature of the obſtruction, if conſiderable, it makes a ſhort turn back in form of a *ſyphon*, rather than continue any diſtance acroſs the grain.

We had an opportunity of examining a great number of theſe ſhells in the *Dock-Yard* of *Plymouth;* where every means have been tried to prevent the deſtructive quality of theſe pernicious animals, which are now become naturalized to the climate, and have increaſed conſiderably, though ſuppoſed to be of oriental origin.

The piles we examined had been recently taken up to be replaced with new; theſe we were informed, had not been under water above four or five years, and though perfectly ſound and ſolid oak, were greatly perforated.*

It muſt be preſumed, that the tube is lengthened as the animal's growth requires; and that it can extend the whole length of the perforation without quitting the tail; but that it cannot recede far, by reaſon of the increaſe of the anterior valves affixed to the head, and the taper ſhape

* The method now adopted to preſerve the timbers neceſſarily uſed about the docks, is to cover that part which is continually under water, with ſhort, broad-headed nails, which in ſalt water, ſoon cover every part with a ſtrong coating of ruſt, impenetrable to theſe animals: and we are aſſured this has been found to ſucceed better than ſheathing with copper.

ſhape of the tube. This part is rarely above three-quarters of an inch in diameter at the larger end, and a foot in length, in our climate; but exceeds that in the more ſouthern parts, from whence it was brought into our harbours to the deſtruction of our ſhips, as LINNÆUS juſtly obſerves, *calamitas navium.*

This ſhell has been uſually placed amongſt the univalves, but certainly without reaſon, for undoubtedly, it is as compleat a multivalve, as any other of that claſs, and ought to be either placed with the *Pholas*, or between that and the *Balanus*, for it has no affinity either to the *Serpula* or *Dentalium.*

GMELIN in a marginal note expreſſes himſelf thus, "*Teredines intra vegetabilia habitantes, quæ deſtruunt, "vitæ genere, victu, et habitatione, navalis certe, ipſa "valvarum vermi adhaerentium fabrica, propius ad "pholades accedunt, quam ad ſerpulas.*"

We have, however, thought proper to leave it where LINNÆUS laſt placed it, for the conſideration of thoſe who may write more largely upon this branch of natural hiſtory.

It might be aſked by thoſe of leſs philoſophic minds, why an animal ſhould be formed wholly for deſtruction.

The anſwer is, that the greater apparent deſtruction, aſſigned to certain beings, is but the neceſſary link in

the great chain of nature: all, more or leſs, are endowed with the ſame inclinations, even man, intellectual man, is the moſt deſtructive of all animals.

The powers with which ſome of the ſeemingly moſt contemptible beings are endowed, to promote the ſpeedy deſtruction of uſeleſs matter, cannot perhaps be better exemplified, than by Mr. SMEATHMAN's curious acount of the *Termes*, or what has been commonly called *White-ant*, given in the *Philoſophical Tranſactions* for 1781, to which we refer our readers.

That the *Teredines*, as well as the *Pholades*, and many other aquatic animals were created, by the Father of the Univerſe, for equally beneficent purpoſes in that element cannot be diſputed; for though they may ſeem to impede, and even deſtroy the operations of man in ſome degree, yet, they are of ſuch importance in the great ſcale of nature, that, as it has been obſerved, it would not be difficult to prove, we ſhould feel the want of one or two ſpecies of larger quadrupeds much leſs, than one or two ſpecies of theſe deſpicable-looking animals.

Were it not for theſe, whoſe office it is to perfect what nature has already begun on land, either by the means of inſects, or tornadoes, which by the aid of rapid torrents would fill the tropical rivers with timber, and not only choke them up, but even endanger the navigation of the neighbouring ſeas, and perhaps the diſtant ocean;

for

for without ſuch powerful agents of diſſolution, wiſely created, ſuch trees might under water endure for ages.* Whereas, nothing can more plainly demonſtrate the power of an all-wiſe Ruler of the Univerſe, than the works aſſigned to theſe little, and ſeemingly deſpicable, beings, whoſe buſineſs is to haſten the total deſtruction of all uſeleſs matter, and proves them a neceſſary, connecting link in great nature's chain, ſo beautifully deſcribed by STILLINGFLEET.

* In the *Leverian* Muſeum is an oak ſtake, which is ſaid to be one of thoſe driven into the river *Thames* on the invaſion of JULIUS CÆSAR, eighteen hundred years ſince. Timber is frequently taken out of bogs, which have probably lain ſince the deluge, and perfectly ſound.

GEN. XXXVI.

SABELLA.

Animal various, *AMPHITRITE, TEREBELLA, SPIO, and NEREIS?*

THE animal inhabiting ſome of the *Linnæan Sabellæ* has, by later authors, been conſidered as an *Amphitrite;* and to this new genus the *Sabella Penicillus* and *granulata* have been removed.

Before we enter upon the deſcriptions of the ſeveral ſpecies of *Sabella* indigenous to the *Britiſh* coaſts, it may not be improper to remark, that in placing them amongſt ſhells, we have deviated from our own opinion, and have followed the ſyſtem of LINNÆUS, and other later writers, in continuing this genus amongſt the *Vermes Teſtacea.*

The tubes in which the animals of this claſs are encloſed, are all, more or leſs, compoſed of extraneous matter agglutinated together, ſuch as ſand, gravel, and broken

broken ſhells, of a finer or coarſer texture, according to the nature of the animal inhabitant; and not prepared by a teſtaceous ſecretion from the body of the animal, forming a compact, ſolid ſubſtance, the true character of a ſhell.

Amongſt the *Sabellæ* of LINNÆUS many *larvæ* of ſub-aquatic flies are placed, ſeveral of which are to be found in our rivers and ſtagnant waters: but theſe, deriving their origin from winged inſects, have no claim of affinity to a *Sabella*, much leſs to a place in Conchology.

We are not aware that any true *Sabella* is found in freſh-water; and certainly no winged inſect has yet been diſcovered, to perform its change from the *larva* to the perfect fly, in ſalt-water.

GMELIN has enumerated a great many *Sabellæ*, which inhabit freſh-water, principally on the authority of SCHROETER; many of which are varieties only of the ſame imperfect inſect, the *larva* of *Ephemera vulgata*, ſome that of *Phryganea*, and perhaps other *Neuropterous* inſects.

The tubes, or caſes, in which theſe *larvæ* are concealed, are formed of whatever extraneous matter is near, and which is encreaſed as its growth requires: this accounts for the many elegant varieties of ſuch tubes.

Some

Some are compoſed wholly of ſmall ſhells of various kinds; others of fragments of ſhells mixed with ſand, bits of ſtick, ſtalks or fibres of plants; and it is remarkable, that ſome ſpecies attach pieces of ſtick longitudinally, while others bite off ſhort pieces and place them tranſverſe, like baſket-work, ſome placing them triangular, others quadrangular, or lozenge-ſhaped. But the moſt beautiful variety, is that found in waters abounding with *Helix nautileus*, with which we have ſeen theſe caſes compleatly coated in a regular and moſt elegant manner, with their apertures outwards, and ſome of the animals yet alive. Another variety, coated with fine ſand, and minute bits of ſhining *mica*, found in *Cornwall*, and other ſtreams running over micaceous granite, is deſerving notice: but we muſt not enter further on a ſubject which more properly belongs to Entomology.

Why a part of the *Linnæan Sabellæ* ſhould be removed into the *Molluſca* claſs of *Vermes*, and others left amongſt the *Teſtacea* is difficult to determine; for thoſe whoſe inhabitants are *Nereis*, have no more claim to a place amongſt ſhells, than ſuch as are inhabited by an *Amphitrite*, or *Terebella*; and might certainly, with as much propriety, be transferred to their proper animal claſs.

That the *Sabella* genus ſhould be wholly expunged, and the ſeveral animals placed in their reſpective *genera* amongſt the *Molluſca*, there can be no doubt; for thoſe, whoſe caſes are made up of agglutinated fragments

ments of ſhells the *exuviæ* of other animals, are as little deſerving a place amongſt *Teſtacea*, as thoſe formed wholly of ſand, or compoſed of both: ſuch are equally extraneous ſubſtances, foreign to the animals, and are only attached by a *mucus*, or glutinous ſecretion, which forms the internal coating, and is the only part of ſuch tubes really belonging to the animals; and which, in any ſpecies cannot be termed more than coriaceous, but more commonly membranaceous, of a thin, flimſy, flexible ſubſtance when moiſt, but extremely fragile when dry.

It may be aſked why, as we do not conſider the *Sabella* in the leaſt connected with ſhells, nor even deſerving a ſeparate place in the Syſtem of Nature, we have deviated from our hypotheſis. To this we ſhould reply, that we have only followed the example of greater naturaliſts, at the ſame time ſubmitting our obſervations to thoſe, who may hereafter take up the ſubject on a more enlarged ſcale.

We are aware it will be ſaid, that ſhells are only the coverings of animals; granted; but they are really teſtaceous, wholly ſecreted, and prepared by the animals, and as much a part of them, as the covering of a tortoiſe, which is inſeparably fixed. We admit, however, that it is an imperfect claſs in the *Syſtema Naturæ*, and was originally rejected by LINNÆUS as ſuch: but as it was impoſſible to bring their ſeveral animals into any

regular ſyſtem, from the very little knowledge hitherto obtained of them; and as the more durable parts of ſuch animals were ſo eaſily preſerved, and ſo extremely coveted from their attractive beauty, it became neceſſary to throw them into ſome ſyſtematic arrangement, in order that the ſpecies might be aſcertained, and names given them, for the more ready communication of naturaliſts on the ſubject. Indeed, could we aſcertain the ſeveral ſpecies of animals inhabiting ſhells, we are inclined to believe, they would ſtill continue to be divided and ſubdivided by the form and ſtructure of their coverings, as much as the *Tortoiſe*, *Echinus*, or the more cruſtaceous animal the *Cancer*, whoſe bones are external. It muſt, however, be admitted, that the animal inhabitants of ſhells may, as far as they can be aſcertained, be an eſſential aid in diſcriminating ſpecies.

The animals inhabiting ſhells, as far as we yet know, are confined to a very few *genera*, as may be ſeen in our generic deſcription of ſuch; ſome of which are found in a molluſcous ſtate, and are properly ſeparated. On the contrary, as the tubes, or caſes, uſually called *ſabellæ*, are of that fragile, imperfect, and periſhable nature without being readily definable; a covering from agglutinated pebbles, to a thin tranſparent film not preſervable; we muſt ſyſtematize the animals and not their occaſional coverings, (from which many of them retire at pleaſure, and all independent of them) and endeavour to make ſuch ſubſervient to ſpecific purpoſes only.

Let

Let us aſk, in return, if it is not inconſiſtent with a ſyſtematic arrangement, to deſcribe the animal in one place as a *Vermes Molluſca* inhabiting a tube, and in another place as a *Vermes Teſtacea*, or *Sabella*, inhabited by an *Amphitrite*, or a *Terebella?* Such, however, is the caſe in ſome modern ſyſtems,* and muſt be where the animal is capable of living independent of its caſe or covering, and may ſometimes be found deſtitute of it in perfect vigour.

Surely, it would have been a much more natural arrangment, to have placed the *Echinus* in the order *Teſtacea*, than the *Sabella:* indeed, ſome authors have conſidered theſe as ſhells; but in the *Linnæan* ſyſtem are placed amongſt the molluſcous animals, though covered with a ſhell.

We ſhall not, however, enter more largely on this ſubject in a monographical work; it is for thoſe to conſider who write a general ſyſtem, whether the *Sabella* ſhould not be expunged from the book of nature as a ſubſtantive, and only deſcribed with their ſeveral animals, with a view to ſpecific diſtinctions: and by ſo doing, all the caſes of *larvæ* belonging to winged inſects, which have been moſt unaccountably intruded upon the *Teſtacea* claſs, would naturally find their way to thoſe

 perfect

* Gmelin has deſcribed *Amphitrite Auricoma* in its proper place as a molluſcous animal, and its caſe amongſt the *Teſtacea*, under the title of *Sabella Belgica*.

perfect flies to which they properly belong, and conſolidate their ſeveral hiſtories, which are now broken and divided.

Having ſaid thus much, we ſhall, without further apology, proceed to the deſcription of the ſeveral *Sabellæ* which have occurred on our ſhores, together with ſuch of their animals as have come within our reſearches.

1. ALVEOLATA.

Sabella alveolata. *Lin. Syſt.* p. 1268.
Gmel. Syſt. p. 3749. 3.
Br. Zool. t. 92. f. 162.
Turt. Lin. iv. p. 610.
Pult. Cat. Dorſet. p. 53.
Tubularia arenoſa Anglica. *Ellis Coral.* p. 90. t. 36.

S. with numerous tubes placed parallel to each other, cloſely joined, but not interfering; compoſed of fine ſand and comminuted ſhells, cemented together in an aggregate maſs: the aperture of each tube is conſiderably expanded, and has ſomewhat the appearance of a honeycomb: the length of ſome of theſe tubes nearly three inches.

This gregarious ſpecies is not uncommon on many of our fine ſandy ſhores, covering the ſunken rocks for a conſiderable ſpace between high and low water-mark.

Mr.

Mr. PENNANT mentions it on the coaſt of *Angleſea, Caernarvonſhire,* and *Yarmouth:* at this laſt place ELLIS alſo noticed it about low water-mark.

We have obſerved it in prodigious maſſes on the coaſt of *Caermarthenſhire,* between *Laugharne* and *Tenby;* and alſo a little to the weſt of *Teignmouth* in *Devonſhire.*

The animal is a *Terebella,* furniſhed with three ſeries of pale, gloſſy briſtles, ſet in an oval form on the head; the outer ſeries reflect; the interior, which immediately ſurround the mouth, incline inwards: the body, like the reſt of its congeners is provided with many tufts of briſtles on each ſide, but the three uppermoſt are much more conſpicuous than the reſt.

Mr. ELLIS has given a very good figure of the animal magnified, and a very copious deſcription; to which we refer the curious reader.

2.

PENICILLUS.

Sabella Penicillus. *Lin. Syſt.* p. 1269.
Martini Conch. i. t. 4. f. 32.
Pallas Miſc. Zool. t. 10. f. 1.
Corallina Tubularia Melitenſis. *Ellis Coral.* p. 92. t. 34.
Amphitrite Ventilabrum. *Gmel. Syſt.* p. 3111.
Turt. Lin. iv. p. 82.
Scolopendra. *Baſter Op. Subſ.* i. t. 9. f. 1. A.B.

S. with

S. with a long, ſlender tube, gradually tapering to the lower extremity, which is ſmall, and flexuous; the upper part is nearly ſtrait; the interior part is formed of a tough, coriaceous, ſub-pellucid ſubſtance, ſmooth within; the external covering is wholly extraneous compoſed of the fineſt particles of ſand, or earthy matter, agglutinated together, forming an even, and ſomewhat ſmooth ſurface, of a dull brown colour, ſometimes marked with a few faint wrinkles. Diameter at the larger, or open end, a quarter of an inch; length ſix or ſeven inches.

This ſpecies, not hitherto noticed as *Britiſh*, is found on ſeveral parts of our coaſts, but does not grow to the ſize met with in the *Mediterranean*. We firſt noticed it on the ſhore at *Teignmouth*, and afterwards dredged up ſeveral, with their animals, at *Torcroſs* in *Devonſhire*, adhering to *Aſcidia Mentula*, and interwoven with *abietina* and other *Sertularia:* have alſo found it on the north ſhore, near *Poole*, cluſtered, and ſingle.

The beauty of the animal inhabitant (which is an *Amphitrite*) is not to be ſeen in ſuch as are brought to *England* in ſpirits: we muſt examine ſuch in their natural element, to form a perfect idea of their extreme elegance. Thoſe we took alive were immediately put in a glaſs of ſea water, and by ſuch means were kept alive two or three days, giving a full opportunity of examining them in various ſtates. In this ſituation the plumoſe

tentacula

tentacula did not appear divided, and irregular, or one ſmaller than the other, as deſcribed, and figured by Ellis, and afterwards by Martini, who has evidently copied from the former; but are thrown out and expanded ſo as to form a regular circle; the feathers, or ciliated fibres that compoſe the *tentacula*, are longer on the upper part than beneath. It is probable, an unnatural diviſion of theſe fibres, in a preſerved ſpecimen from *Malta*, had miſled the accurate eye of ſo great a naturaliſt, for if Mr. Ellis had ever had an opportunity of examining the living animal, he would have given a much more correct and elegant figure of the beautiful plumoſe *tentacula*.

To Mr. Henry Boys of *Sandwich*, we are not only indebted for the knowledge of this *Sabella* being found at *Whitſtable* in *Kent*, and not uncommon about *South-ſea Caſtle* near *Portſmouth*, on ſtones at low water-mark, but for ſeveral well executed drawings, accompanied by a very correct deſcription.

The body is flattened, long, with numerous joints and *faſciculi*; a reflected, ſcalloped membrane round the neck: *tentacula* two, furniſhed with about twenty-four long fibres, or feathers, ciliated on both ſides;* theſe are of

* Mr. Boys obſerved twenty-four in one, and twenty-one in the other. The *tentacula* are capable of great contraction; in which ſtate, as well alive as in thoſe preſerved in ſpirits, the fibres appear feathered only on one ſide, by reaſon of their cloſing; in this ſtate they are preſented by Ellis.

of a pale colour, ſpotted with red, which, when ſpread, appear diſpoſed in circles.

A *Sabella* much reſembling the *Penicillus*, and the animal an *Amphitrite*, of very ſimilar make and colour, but differing ſomewhat in the formation of the *tentacula*, occurred to us on the coaſt of *Devonſhire;* whether it is a mere variety, or diſtinct, we are not ſufficiently authoriſed to determine, having only ſeen one ſpecimen, and that in a languid ſtate when examined.

In this the fibres of the *tentacula* are jointed, or knotted, and beſides the ciliated ſides as in the other; they were verticillated at the joints, like thoſe plants of the *Cryptogamia* claſs called *Equiſetum* or *Horſe-tail:* theſe joints are at regular diſtances.

The tube was not near ſo long as uſual in the *Penicillus* and was partly compoſed of coarſer materials, particularly broken ſhells: it had been attached to ſome other body near the ſmaller extremity.

3.
GRANULATA.

Sabella granulata. *Lin. Syſt.* p. 1268.
Martini Conch. i. t. iv. f. 27. & 26?
Pallas Miſc. Zool. t. 9. f. 3. & 2?
Pult. Cat. Dorſet. p. 53.
Sabella tubiformis. *Br. Zool.* t. 92. f. 163.
Nereis conchilega. *Id.* No. 34.

Sabella

Sabella Belgica.	*Gmel. Syſt.* p. 3749.
	Turt. Lin. iv. p. 611.
Amphitrite auricoma.	*Gmel. Syſt.* p. 3111.
	Turt. Lin. iv. p. 82.
	Muller Zool. Dan. i. p.87. t.26. f.1.6.
Terebella conchilega.	*Turt. Lin.* iv. p. 84.

S. compoſed of fine ſand, agglutinated together into a thin, brittle tube, without any membranaceous internal coating. Length two inches or more: diameter at the larger end three-eighths of an inch, gradually tapering to half that ſize at the ſmaller end.

This is not uncommon upon many of our fine ſandy ſhores.

Great confuſion has ariſen with reſpect to the ſynonyms of this *Sabella:* GMELIN has given it firſt under the article *Amphitrite,* quoting MARTINI, tab. 4. f. 26. 27. and afterwards as a *Sabella,* with reference only to the 27 fig. of that author.

Doctor TURTON has given it an additional place in the genus *Terebella,* with reference to the *Sabella tubiformis* of the *Britiſh Zoology;* and Mr. PENNANT has given the animal as *Nereis conchilega.*

The animal is certainly the *Amphitrite auricoma* as deſcribed by GMELIN, and is generally known by its two rigid, gloſſy, gold-coloured, briſtly *tentacula.*

4.

CHRYSODON. Sabella Chryſodon. *Lin. Syſt.* p. 1269?
Gmel. Syſt. p. 3749?
Turt. Lin. iv. p. 610?
Martini Conch. i. t. 4. f. 29. 30.
Pallas Miſc. Zool. t. 9. f. 14. 15. 16.
Baſter Opuſc. Sub. i. t. 9. f. 4.

S. with a cylindric tube, of nearly the ſame ſize throughout, and about as large as a gooſe quill, compoſed of ſand, fragments of ſhells, or ſmall, flat pieces of ſtone, cloſely cemented together on a tubular membrane, which is ſmooth on the inſide: the upper part is furniſhed with numerous, long fibres, of the ſame texture, projecting in a ſub-funnel ſhape, but generally ſomewhat compreſſed ſideways.

Is ſometimes conſtructed wholly of ſand: others are formed of large fragments of ſlate, and not unfrequently mixed with whole ſhells, ſuch as *Nerita littoralis*.

Theſe are not uncommon in moſt of our inlets and bays, but rarely on the more expoſed ſhores: the largeſt we remember having ſeen, was in the inlet that runs up to *Kingsbridge* in *Devonſhire*, where it is very common a foot in length, and compoſed of very coarſe materials: but this is a circumſtance, entirely depending on the nature of the ſhore the animal inhabits, and which does not appear to be very choice of ſituation, like the animals of the two preceding, who can only inhabit ſuch places as will afford them fine ſand.

The

The *Chryſodon* is uſually buried in a perpendicular direction; the funnel, or mouth of the caſe, is always about an inch above the ſurface, and is readily diſtinguiſhed by its branched fibres: it is generally ſtrait, except where larger ſtones intervene, in which caſe it is flexuous. Found moſt times congregated between high and low water-mark.

This, and the *Sabella conchilega*, have moſt probably been confounded; and, indeed, it is difficult to determine which of theſe is the *Chryſodon* of GMELIN.

It is ſometimes wholly compoſed of broken ſhells, in which ſtate, it may be miſtaken for that ſpecies; but is never found creeping, or laterally attached.

The animal is a *Terebella* of a ſlender form, but conſiderably largeſt at the anterior end: joints about forty, with as many *faſciculi* and *branchiæ* on each ſide, the firſt nine or ten much larger, and nearer together than thoſe on the middle of the body; round the mouth are numerous, long, filiform *tentacula*, like the body, of a a pale fleſh-colour; behind the head are ſhort, branched feelers. Length ſometimes four or five inches.

5. CONCHILEGA.

Sabella conchilega. *Pult. Cat. Dorſet.* p. 54.
Terebella conchilega. *Gmel. Syſt.* p. 3113.
Turt. Lin. iv. p. 84.
Sabella rudis. *Br. Zool.* No. 161. t. 26. lower figure.

S. with a thin, fragile tube, compoſed of largefra g-ments of ſhells, and little or no ſand, cemented ſparing-ly on a thin membrane, uſually attached its whole length in a flexuous or ſerpentine form on old bivalves. Mr. PENNANT, and Doctor PULTENEY both mention this circumſtance on the *Dorſetſhire* coaſt: it is not, how-ever, confined to that part, but is common throughout the weſtern ſhores, and elſewhere.

Is rarely found on ſtones; and what is poſſibly a varie-ty is ſometimes ſeen creeping amongſt the branches of *Sertularia abietina:* if this laſt is diſtinct, we dare not venture to give it as ſuch, never having as yet had an opportunity of examining the animal.

The animal of *S. conchilega* is a *Terebellá*, of a dull orange colour, with numerous, pellucid tubercles, and *branchiæ* on each ſide: *tentacula* round the mouth nu-merous, ſlender, filiform, and extremely long; retrac-tile, but uſually extended two or three inches, or more, and exceeds the length of the body; their colour is orange-yellow, prettily ſpotted with red; and when the animal is in vigour, they are in continual motion, thrown about in all directions: behind the head are ſhort, branch-ed feelers, of a deeper orange colour.

Doctor TURTON has erroneouſly made this animal the inhabitant of *Sabella tubiformis.*

We

We have ſeen this *Sabella* as large as a gooſe quill, complicated, entwined, and interwoven together; and not leſs than four or five inches in length. Is readily diſtinguiſhed from *S. Chryſodon* by its habits, and by the want of the funnel-ſhaped, fibrous mouth; as well as by its component parts being more unconnectedly put together.

The animal, too, differs eſſentially from that of the other, eſpecially in the more numerous joints of the body, which are not only ſwoln, or knotted, but the tubercles are remarkably prominent; and a much greater diſproportion between the ſize of the anterior part, taking in ten or eleven joints, and the reſt of the body; beſides, the anterior part of this appears, through a lens, to be punctured or cancellated.

6. LUMBRICALIS.

Sabella lumbricalis. *Gmel. Syſt.* p. 3752?
Turt. Lin. iv. p. 613?
Fab. Faun. Groen. p. 374. No. 369?
Pult. Cat. Dorſet. p. 53.

S. with a ſtrong tube, compoſed of coarſe ſand, and ſometimes mixed with fragments of ſhells, firmly cemented together in a rough manner, upon ſtones, ſhells, and other bodies, in a ſerpentine form, and frequently entwined with *Serpula triquetra* and *vermicularis;* to which it is very little inferior in ſtrength, being by far the ſtrongeſt of all the *Sabella* tribe. Length two or three inches; diameter one quarter of an inch. Common on all our ſhores.

The

The animal is a *Terebella*, with the proboſcis a little ſpreading, and fringed round the margin with briſtles: the mouth beſet with four long *aculei*, and intermediate ſhort ones: behind the ciliated margin of the proboſcis is a ſcalloped ruff; and, on the back of the head, are numerous capillary *tentacula*, of a red colour, like the body, theſe are curled up when the animal is dead.

Diſcharges a beautiful purple dye.

We have followed Doctor PULTENEY in the prefixed references, though with doubt, as the tube is far from being fragile, and the animal appears to be deſtitute of the ſpines on the back; ſuch at leaſt never occurred to us, although the *faſciculi* and *branchiæ* are always conſpicuous.

7.
CIRRATA.

Terebella cirrata. *Gmel. Syſt.* p.3112.—*Turt. Lin.* iv. p.83.

S. with a thick, fragile tube, a little tapering, compoſed of ſand, mixed with clay, ſlightly agglutinated together; ſoft when moiſt, and crumbly when dry. Length ſix or ſeven inches; diameter half an inch, or more; of the aperture a quarter.

This is gregarious, but not attached, ſtanding upright in a muddy bottom, between high and low water-mark, with about an inch above the ſurface: is ſo extremely ſoft, that it is difficult to obtain more than two or three inches of the tube perfect.

We

We have never as yet obſerved this, but in one branch of the inlet that runs up to *Kingsbridge*. It is the tube of *Terebella cirrata*, and as it has not, we believe, been deſcribed as *Engliſh*, and poſſeſſing as much claim to a place in the *Sabella* genus as many others, could not be omitted.

The animal is furniſhed with two ſeries of *tentacula* or feelers, thoſe on the upper lip, or round the mouth, are extremely numerous, long, filiform, and of a pale colour; theſe uſually contract into curls: the others, ſituated behind the head, are alſo numerous, ſhort, ſtrait, branched, and of a reddiſh fleſh-colour: the body, when extended, is nearly a foot in length; the annulations, about ninety, furniſhed, as uſual, with *faſciculi* and *branchiæ;* the tubercles very prominent, but the joints not tumid as in the animal of *S. conchilega:* colour pale, inclining to purpliſh-brown on the upper part near the head: when bruiſed diſcharges a red liquor.

When drawn from its caſe, it becomes conſiderably larger in the anterior part of the body, than the bore of the tube, but tapers greatly towards the tail.

This claſs of amorphous animals will, in all probability, ever remain in great obſcurity; the great ſimilitude of many, their variable forms, and different appearances in the living, and the dead ſtates, eſpecially when preſerved in ſpirits, will always occaſion great difficulty in diſcrimination.

The

The animals of *S. Chryſodon, conchilega,* and *cirrata,* approach each other ſo nearly, about the hind, or anterior part, that actual compariſon is abſolutely requiſite to diſtinguiſh them; the bodies, however, ſomewhat differ; but the number of joints is not wholly to be depended on in ſome ſpecies: the caſes or tubes, as well as the habits of the animals, are eſſential auxiliaries in this claſs of animated nature.

8.

ARENARIA. S. with an extremely fragile, cylindric tube, compoſed of pure ſand, ſlightly cemented together without any internal membrane, like *S. granulata,* but is never ſo large, and is equal in ſize at both ends.

This is very common on the *Dorſetſhire* coaſt, eſpecially at *Weymouth* and *Portland;* and are driven up in ſuch abundance at *Studland,* that the beach is covered with them. Theſe are uſually from one to two inches in length, and about the ſize of a raven's quill; but are probably only fragments, or that part of the tube the animal forms above the ſand, which is continually deſtroyed by every little increaſed agitation of the ſea, and as frequently replaced.

The animal unknown.

9.

SUBCYLINDRICA S. with a long, ſub-cylindric, ſlender, fragile tube, compoſed of fine ſand, and minute bits of broken ſhells, cement-

cemented together on a fine membrane, adhering by their flat ſides.

This ſpecies is not uncommon in ſand from *Salcomb* bar, above three inches in length, but more commonly broken into pieces of one or two inches; never more than one tenth of an inch in diameter, and nearly the ſame ſize throughout.

Animal unknown.

10. SETIFORMIS.

S. with a long, ſlender tube, gradually tapering to the lower end to half the ſize of the upper part; compoſed of very fine fragments of ſhells, and minute flat bits of ſtones, agglutinated together at their edges, and ſtanding oblique towards the larger end, lying on each other in an imbricated manner. Length three or four inches; ſize double that of a hog's briſtle.

Taken up with ſand from the bar off *Salcomb*, and ſome parts of the bay.

A variety is compoſed of fine ſand, in which caſe the imbricated ſtructure is not obſervable: ſome have a lateral branch near the ſmaller end; poſſibly another in a younger ſtate attached.

Animal unknown.

11. CURTA.

S. with a ſmall, ſhort tube, compoſed of ſand and minute bits of flat ſtones, agglutinated to a tough membrane; ſometimes formed wholly of the fineſt ſand, depending entirely on the ſoil it inhabits: the caſe is a little tapering to the lower end, by which it is fixed, and which is generally, for a quarter of an inch, deſtitute of any covering, but a flexible membrane, by which it adheres to the ſhingle under the ſurface, between high and low water-mark, and ſtands about a quarter of an inch above. Length ſcarce an inch; ſize of a crow quill.

This *Sabella* is gregarious, covering the whole ſurface of the ſhore in the inlet near *Kingsbridge;* appearing like bits of ſtraw covered with mud, and as cloſe and numerous as ſtubble in a field.

Animal a *Terebella*, ſmall, of a pale yellowiſh-green colour; proboſcis pointed, with a few upright, filiform, green *tentacula*, and numerous, ſlender, ciliated feelers, of a pale colour; theſe are much longer, and more ſlender than the others, and are in conſtant motion, but both are quickly protruded and contracted.

When the animal was immerſed in ſpirits the *tentacula* inſtantly contracted, and were totally obſcured. Being diveſted of its caſe, a radiated tuft was perceived on each ſide the head: the annulations of the body about ſixteen, with as many *faſciculi*, and ſhort peduncles on each ſide.

S. with

12.

S. with a ſhort, broad, and extremely flat tube, com- COMPRESSA.
poſed of large pieces, or fragments, of flat bivalve ſhells, chiefly of the *Pecten* genus; theſe are laid without order, but ſometimes cover each other at the edges, and invariably placed with the concave ſide inwards, which leaves a narrow perforation.

The length of thoſe we procured was about an inch and a half, formed of five or ſix fragments of ſhells on each ſide, finely agglutinated together; theſe pieces are in general three-eighths of an inch broad, and form a moſt ſingular ſtructure. Inhabits the deep at *Torcroſs* in *Devonſhire*.

The animal inhabitant has hitherto eluded our reſearches.

ADDENDA.

ADDENDA.

TO render this work as compleat as poſſible, it became neceſſary to give a few ſupplementary pages, in order that thoſe ſpecies, which had been diſcovered ſince the printing of the *genera* to which they belong, might be deſcribed: this will alſo give an opportunity of noting any recent occurrence, or of adding any additional reference to ſuch as are already deſcribed, eſpecially thoſe of the *Britiſh Shells*, which, being a periodical work, could only be referred to as the numbers came out.

The additions here given are ſyſtematically arranged, and where ſuch ſhells have been before deſcribed, a reference to the page is added.

MULTIVALVE.

BALANUS.

STRIATUS. p. 14. This ſhell, though generally conſidered as a *Multivalve*, and as ſuch placed with the *Linnæan Lepas*, has certainly

certainly no claim to either; but is more allied to the *paraſitical Mytili*. It is always ſeſſile, irregular in growth, bivalve, inequivalve; lower, or fixed valve concave; upper valve, or *operculum*, ſmaller, flat: hinge indiſtinct, no apparent teeth.

With theſe characters, it ſhould be removed from its preſent ſituation, and might, with propriety, be placed as a *Mytilus*, unleſs any thing in the hinge, hereafter obſervable in larger ſpecimens, ſhould be found to bring it nearer the genus *Spondylus*.

The animal is a *Triton*, with fourteen ciliated feelers, ſix on each ſide, and two erect.

LEPAS.

Lepas faſcicularis. *Ellis. Zooph.* p. 197. t. 15. f. 6. FASCICULARIS.

This ſpecies of *Lepas*, deſcribed and figured by ELLIS, is certainly very diſtinct from any before given; and as it was from *St George's Channel*, (meaning, we preſume, the *Channel* between *England* and *Ireland*,) it muſt be conſidered as belonging to *Britiſh Teſtaceology*.

ELLIS deſcribes it thus, "*Lepas faſcicularis, teſta "quinquevalvi lævi corpus tegente, valvula dorſali baſi "dilatata, angulo acuto prominente, ſtipite nudo.*"

In

In ſize it is equal to *L. anatifera*, but differs conſiderably in the formation of its component parts or plates: the upper valves are pointed at the *apex*, and turn backwards, giving the front of the ſhell a convexity; whereas the other is rather concave: the dorſal valve ſpreads greatly at the baſe, and forms a conſiderably ſharp, prominent angle, whereas in *anatifera*, this valve is regularly ſemi-circular,

PHOLAS.

DACTYLUS. p. 20.

Pholas Dactylus. *Don. Br. Zool.* iv. t. 118.

This ſhell has four acceſſory valves; the one, not before deſcribed, is very ſmall, and ſtands erect at the inner end of the two large plates to ſupport them. The difficulty of obtaining them quite perfect, occaſioned us to believe it had only three.

CRISPATUS. p. 23.

Solen criſpus. *Gmel. Syſt.* p. 3228.

GMELIN has miſtaken LISTER's ſhell, which is *Pholas criſpatus*, and therefore has deſcribed this in both *genera*.

CANDIDUS. p. 24.

Pholas candida. *Don. Br. Shells.* iv. t. 132.

Pholas

Pholas ſtriata. *Don Br. Shells.* iv. t. 117. *Favan.* t. 60. F. 2. 3. 6. 9.—*Gualt.* t. 105. F. STRIATUS. p. 26.

This is by ſome called *Pholas lignorum*, or *Dutch wood-muſcle.*

BIVALVE.

MYA.

Mya dubia. *Don. Br. Shells.* iii. t. 108. PHOLADIA. p. 28.

Plentiful at *Torbay*, in fragments of lime ſtone, driven on ſhore by winter ſtorms, but is not to be found in the rocks, which are ever uncovered by the loweſt ebb tides; and of courſe is rarely obtained alive: in this ſtate, however, we have procured it, and proved beyond doubt, that it cannot belong to the *Pholades*, as it is void of acceſſory valves.

The perforations in which theſe ſhells are concealed, are ſometimes lined with a concreted, calcareous ſubſtance, cloſely connected with the reſt of the ſtone, and equally hard, compoſed of ſeveral coats, or *laminæ*, of a different texture, not unfrequently half a line, or more, in thickneſs: the openings to theſe chambers are ſmall, and

and have ſomewhat the appearance of two holes broken into one, which is adapted to the ſhape of the tubes of the animal.

The inhabitant is an *Aſcidia*, with two very long, ſlender, white tubes, exceeding the length of the ſhell; theſe are connected together their whole length, but terminated by two orifices, ciliated with fleſhy fibres, of a dark purpliſh-brown: the body is alſo white; near the poſterior end is a *foramen*, through which, a ſmall foot, or *ſuſtentaculum*, is ſometimes protruded, and doubtleſs the apparatus, which aſſiſts in perforating rocks, being always placed in its cell with that end downwards, and incapable of turning,

It is probable this, as well as all other ſimilar animals, whoſe habits are to perforate ſtone, are provided with an acid, or ſome ſolvent menſtruum capable of performing that office: it muſt alſo be recollected, that this, ſeemingly laborious taſk, is not affected in any given time, but is the work of years; as the chamber for the lodgment of the animal, only requires enlarging as the ſhell grows.

Stone of a vitrifiable nature, is impenetrable to theſe animals, but all ſuch as are wholly, or even partly calcareous, are more or leſs attacked;* and while this, the *Mytilus*

* This remark might be attended with conſiderable national advantage, if purſued with experimental application, under the direction and encouragement

Mytilus rugoſus, Donax Irus, Venus perforans, and ſome others, are deſtroying the hardeſt lime ſtone; the *Pholades* are performing ſimilar works, aſſigned by nature, on ſofter ſubſtances, ſuch as chalk, indurated clay, and wood, which in like manner are perforated by ſome ſolvent power; not by the thin, fragile ſhells, that cover ſuch animals, as ſome have erroneouſly aſſerted, and is too generally credited. All theſe become fixed in their cells for life, for as they enter in the moſt minute ſtate, the excavations are conic, with the ſmall end outwards, ſo that the ſhells are as it were become encloſed.

It is moſt probable, the young of theſe, and other perforating *Aſcidiæ,* that drill the ſmall round holes ſo frequently obſerved on ſhells; and not the *Trochi,* which are incapable of ſuch works.

Don. Br. Shells. iii. t. 73.

MARGARITIFERA. p. 23.

Under the article *Pearl,* in the *Encyclopædia Britannica,* we find the following note:

"There has been in theſe parts, (i. e. at *Perth,* in "*Scotland,*) a very great fiſhery of *Pearl,* got out of the freſh-water *Muſcles.* From the year 1761 to 1764, "10,000*l.* worth, were ſent to *London,* and ſold from "10*s.* to

of Government. A coating of pounded flint, or glaſs, laid on timber with a firm cement, would effectually preſerve it from the calamitous ravages of the *Teredo navalis,* and other animals of ſimilar habits.

" 10*s.* to 1*l.* 16*s.* per ounce. We are told that a pearl " had been taken there, that weighed 33 grains. But " this fiſhery is at preſent exhauſted, from the avarice of " the undertakers: it once extended as far as *Loch-Tay.*"

Theſe *Muſcles* were doubtleſs the *Mya Margaritifera*, and it is probable many other rivers in *Great Britain* might afford at this time a ſufficient quantity to repay the experiment. In many of the rivers of *Wales*, as well as in *Devonſhire*, we have obſerved theſe ſhells in abundance; but whether they equally produce *pearls* we cannot determine; thoſe, however, found in the former rivers are uſually more rugged than what are obſerved in the latter; a circumſtance more favourable to the production of *pearls*; and it is a known fact, that the old, rugged, decorticated ſhells, are only worth examining; the ſmooth ones rarely produce any, or ſo inferior in ſize, as to be of no value.

In Doctor PULTENEY's view of the writings of LINNÆUS, page 42, it is ſaid, that the *Swediſh* naturaliſt made a remarkable diſcovery relating to the generation of *pearls*, in the river *pearl-muſcle*, *Mya Margaritifera*. It appears, that five or ſix years are requiſite, after the operation, to compel them to produce *pearls* the ſize of a vetch.

This extraordinary operation the Doctor regrets we are unacquainted with, and which was conſidered of ſo much

much importance, that the author was rewarded with a munificent premium from the ſtates of the kingdom on that account.

It is, however, ſuppoſed, that perforations, or partial fractures in the ſhell, will occaſion the production of *pearls;* for as theſe produce diſtortions, and ruggedneſs in the ſhells, it appears to have the ſame effect as on ſuch as acquire it by age, and common accidents: but how theſe ſhells are opened without deſtroying the animal, and the *pearl* taken out, (which is ſaid will be renewed again after a certain period) we do not pretend to determine.

Mya depreſſa. *Don. Br. Shells.* iii. t. 101.
Mya ovata. *Don. Br. Shells.* iv. t. 122.

OVALIS. p. 34.

Although Mr. DONOVAN has given theſe two ſhells as diſtinct, he very juſtly expreſſes a doubt. That they are only varieties we cannot heſitate to determine; and we have already gone further, by giving them as ponderous varieties of our *Mya Ovalis.* DONOVAN obſerves, both theſe ſhells inhabit the *New River,* near *London,* and the *Froome* in *Somerſetſhire.* We have found them in the *Avon,* many miles above and below its conflux with the *Froome:* at *Bath* they are thrown up in great abundance after floods, and commonly uſed for putting colours in.

That it is difficult to diſcover ſpecific characters of diſtinction in ſome of the productions of nature, all naturaliſts will allow; and when no permanent diſtinguiſhing marks appear, we can only refer to habits: in following this courſe there ſeems nothing to divide theſe two ſhells from each other, nor from that which we have deſcribed as the *ovalis:* all the gradations that join them are commonly found in the ſame waters. That the ſoil and nature of the water have conſiderable effect upon ſhells, there can be no doubt, particularly in ſtrength, and colour; for inſtance, theſe ſubjects, which are figured in the *Britiſh Shells*, with elegant yellow *radii*, are rarely found in the *Avon* with ſuch markings; and inſtead of the ground colour being green, are uſually of a dark olive-brown, and frequently duſky.

The animals of theſe freſh-water *Myæ*, are certainly not *Aſcidiæ*, but are ſimilar to thoſe inhabiting the river *Mytili*.

SUBORBICULARIS p. 39.

This ſhell, which is ſo ſimilar in ſhape to the *Cardium corneum*, is eſſentially different in the animal inhabitant, which appears to be a *Tethys*, of a very pale colour, with one long tube, not internally divided, but furniſhed with only one opening: and about the middle of the ſhell in front, is a retractile, ſlender foot, half as long as the *ſyphon*, capable of adhering to the ſmootheſt ſurface, and will aſcend the ſides of a glaſs filled with ſea-water. The animal of *C. corneum* is ſimilar to that of *C. lacuſtre*.

SOLEN.

SOLEN.

Solen marginatus. *Don. Br. Shells.* iv. t. 110. VAGINA. p. 48.

This, which has generally been conſidered as a rare ſpecies, we have found plentiful at *Torcroſs*, by dredging. PELLUCIDUS. p. 49.

Solen antiquatus. *Don. Br. Shells.* iv. t. 114. ANTIQUATUS. p. 52.

Have ſince ſeen ſpecimens in the cabinet of Mr. BRYER, taken on the ſhore near *Weymouth*. FRAGILIS. p. 51.

S. with an extremely flat, pellucid, thin, white ſhell, of a ſub-orbicular ſhape; moſt minutely, and elegantly punctured all over, appearing under a common pocket lens, like fine ſhagreen; beſides which, there are a few obſcure, concentric wrinkles, moſt conſpicuous round the margin: *umbo* very ſmall, pointed, central, and not turning to either ſide. Inſide ſmooth, gloſſy white, with obſcure ſtriæ radiating from the hinge; margin plain, and rather more opaque than the reſt of the ſhell: teeth two, double, diverging on each ſide the *umbo*; theſe are thin, but ſtand erect, conſiderably above the commiſſure; a depreſſion, or furrow, on the margin, divides each tooth into two *laminæ* almoſt to the beak, where they are united and form an acute angle. SQUAMOSUS.

One

One valve of this curious ſhell has as yet only come under inſpection; we found it in ſand from *Salcomb* bay: it was recent, and as clear and pellucid as the *Bulla aperta;* being very flat, has the appearance of a ſcale of a fiſh. Length three-eighths of an inch; breadth half an inch.

The hinge does not appear to ſtrictly belong to any of the *Linnæan genera,* but ſeems to be moſt nearly allied to the *Solen,* which has induced us to give it a place as ſuch, for the preſent.

PINNA.

Tab. 15. f. 3.

S. with a thin, pellucid, fragile, depreſſed, white ſhell, of a ſub-oval ſhape, ſtrongly wrinkled concentrically: *umbo* ſmall, placed very near the ſmaller end, from whence the connecting cartilage runs in a ſtraight line on the longeſt ſide, and joins the valves nearly the whole width of the ſhell, like a *Pinna;* the ſhort end declines a little from the beak; the margin oppoſite the hinge is ſemi-circular, and extremely thin and brittle; the valves are diſſimilar, the upper is a little convex, the lower ſlightly concave.

Inſide white, ſomewhat pearlaceous: a blunt tooth in each valve running ſtraight from the beak; that in the concave valve is largeſt, and uneven on its ſurface; theſe are not inſerted, but ſtand by the ſide of each other when the valves are cloſed.

Length

Length from hinge to the oppoſite margin above three-eighths of an inch; breadth three-quarters.

This curious, nondeſcript ſpecies, we took alive, by dredging at *Torcroſs*.

TELLINA.

Tellina inæquiſtriata. *Don. Br. Shells.* iv. t. 123. LÆTA. p. 57.

Tellina rigida. *Don. Br. Shells.* iii. t. 103. CRASSA. p. 65.

Venus borealis. *Don. Br. Shells.* iv. t. 103. RADULA. p. 68.

We cannot agree with Mr. DONOVAN in conſidering this ſhell the *Venus borealis* of GMELIN: it is perhaps difficult to determine the true *Linnæan* ſhell, under that denomination.

GMELIN is by no means correct in his ſynonyms, having referred to no leſs than three very different ſpecies for it; that of GUALTIERI, quoted tab. 75. fig. 5. is probably intended for fig S. as there is no fig 5. in the plate: thoſe in LISTER's *Conchology*, and *Anim. Angliæ*, are our *Mactra compreſſa*, the *Venus borealis* of PENNANT:

NANT: that referred to in CHEMNITZ, may poſſibly be the true *borealis*, but that author alſo unfortunately quotes LISTER, and GUALTIERI the ſame; none of which are the leaſt like this ſhell.

CARDIUM.

ECHINATUM. p. 78.

Cardium echinatum. *Don. Br. Shells.* iii. t. 107. f. 1.

TUBERCULATUM.

Cardium tuberculatum. *Don. Br. Shells.* iii. t. 107. f. 2.

The ſhell figured by this author, is a very good repreſentation of that ponderous *Cardium*, we made mention of under the article of *Cardium echinatum*. It probably is the *Gmelinian tuberculatum*, and poſſibly a diſtinct ſpecies.

We have noticed this ſtrong and thick ſhell, deſtitute of ſpines, on the ſhore of *Dawliſh warren* at the mouth of the *Ex* in *Devonſhire*, where at times it is plentiful; and have remarked, that on other parts of the ſame coaſt where we have taken the *echinatum*, and *aculeatum*, not one of theſe ſtrong ſhells were to be found; a circumſtance that favours an opinion of its being diſtinct.

It probably inhabits the deep, as we have never yet obtained it alive.

Cardium

Cardium edule. *Don. Br. Shells.* iv. t. 124. f. 1. 1. EDULE. p. 76.

Cardium ruſticum. *Don. Br. Shells.* iv. t. 124. f. 2. RUSTICUM.

This is another of this very intricate claſs that ſeems to have puzzled the conchologiſt. It is ſaid to grow to a larger ſize, and to poſſeſs fewer ribs than the *edule*, and thoſe more elevated; but whether it is really diſtinct from that ſhell, certainly admits of doubt.

We lately received from a teſtaceological friend, Mr. SWAINSON, what he conſiders as the *ruſticum*, obſerving, that ſuch were known by the name of *Roſſcockle*, and were ſold for three pence per dozen, on the *Eſſex* coaſt, when half a peck of the common ſort ſold only for one penny: ſuch are taken only on one particular ſand off *Leigh*, after ſtrong gales of wind.

This ſhell very well accords with that figured by DONOVAN, and is not unlike that given by CHEMNITZ, which GMELIN quotes. If it is really diſtinct from *edule*, we fear no permanent character will be found, by which it may be diſtinguiſhed from the latter, as the number of ribs vary. That the ſmaller *cockles* are uſually deſtitute of the rufous colour, and are more ſub-orbicular, muſt be admitted; the ribs are alſo finer; but are not theſe marks the effect of immaturity?

If the larger ſort is diſtinct, it appears equally plentiful with the other, for we have obſerved in many places, this is the ſort principally eaten, the ſmaller ones being rejected as young, and left to grow larger; and we muſt confeſs, that the great variety now before us, run ſo much into each other, as to render it impoſſible to divide them, although the two extremes appear different.

LACUSTRE. p. 89. The animal of this ſhell, as well as its congenera *corneum* and *amnicum*, is certainly an *Aſcidia*, not a *Tethys* as was ſtated by miſtake.

MACTRA.

SUBTRUNCATA. p. 93. Mactra ſubtruncata. *Don. Br. Shells.* iv. t. 126.

STULTORUM. p. 94. Mactra ſtultorum. *Don. Br. Shells.* iii. t. 106.

COMPRESSA. p. 96. Tellina plana. *Don. Br. Shells.* ii. t. 64.

By miſtake we have referred to this ſhell of DONOVAN, under the title of *Tellina borealis*, inſtead of *plana*.

Mactra

Mactra glauca. *Gmel. Syſt.* p. 3260. 20. GLAUCA.
Chem. Conch. vi. t. 23. f. 232. 233.
Born. Muſ. t. 3. f. 11. 12.
Don. Br. Shells. iv. t. 125.

M. with an oval ſhell, of a dirty-white colour, very finely ſtriated tranſverſely, and marked with broad and narrow glaucous rays: the anterior end wrinkled: the the beaks reflect backwards, with a narrow gape between them. Length uſually two inches and a half; breadth three and a half.

On the authority of Mr. DONOVAN this is added to the *Fauna* of *Britiſh Shells*; who informs us, it was diſcovered by Miſs POCOCK in 1801, on *Hale* ſands, under *Lelant* in *Cornwall*. It is probable theſe extenſive ſands may be very productive at times, but we muſt conſider this lady as extremely fortunate; for in our viſits to that part of the *Corniſh* coaſt, eſpecially lately at the place mentioned, and about *St. Ives*, no ſuch ſhell was to be found, although *Venus Chione* was plentiful, and which was brought to us by the fiſhermen for *M. glauca*, not knowing the difference: this may account for their ſaying this ſhell is at times found on that coaſt in plenty.

The very good figure given in the *Britiſh Shells*, is conſiderably larger than is uſually deſcribed, meaſuring three inches and a half, by four and a half.

TENUIS. M. with a compreſſed, ſub-triangular, equilateral, ſemi-pellucid, thin, white ſhell, concentrically wrinkled: *umbo* ſmall, central, much produced, and not turning to either ſide.

Inſide moderately ſmooth and gloſſy, with a broad, but nearly obſolete, conic *cicatrix*, running to a point acroſs the middle of the ſhell, towards the beak: hinge furniſhed with a bifurcated tooth, and a narrow *foviola*; and remote, lateral, laminated teeth, one on each ſide in one valve; in the other a plain ſingle tooth, with a correſponding cartilage cavity, but no lateral *laminæ*. Length a quarter of an inch; breadth rather more.

We firſt diſcovered this ſpecies at *Southampton*, where it is not uncommon on the ſhore to the weſt of the town: and have ſince received it from Mr. BRYER of *Weymouth*.

The hinge is ſomewhat ſimilar to that of *M. compreſſa*. but the *foviola* is not ſo broad, and is at once diſtinguiſhed by the lateral teeth, which that ſhell is deſtitute of: it differs alſo in ſhape, being much more angulated, and produced at the beak, as well as the *cicatricula*.

In comparing it with the young of *Mactra ſolida* and *Stultorum*, it differs from them, not only in ſhape, but eſſentially in the central, or primary teeth, and in poſſeſſing lateral ones only in one valve, which both valves of thoſe ſhells are furniſhed with.

The

DONAX.

The animal inhabitant of this ſhell is an *Aſcidia*, and not a *Tethys;* which is probably the caſe with moſt ſuch whoſe nature it is to perforate other bodies: it has two ſlender, pellucid, white tubes, ſpotted with opaque white; theſe are not half ſo long as the ſhell, and joined together, except near the end, where they diverge, and become of a pink colour, the openings ciliated with feathered fibres of the ſame: in ſome the points and fringe are of the ſame colour as the reſt of the tubes. IRUS. p. 108.

D. with a ſtrong, gloſſy, cheſnut-coloured ſhell, furniſhed with a few irregular, tranſverſe, antiquated ridges, or wrinkles; one ſingle ray of the ſame colour, but darker, runs from the beak to the oppoſite margin, in a curved direction, and divides each valve nearly in equal parts; from this to the poſterior end the colour becomes pale: *umbo* obtuſe, rather inclining to the anterior, or longeſt ſide. Inſide of the ſame colour, ſmooth and gloſſy, with a ſmall trace of the ray at the margin: hinge very ſtrong; teeth, one very large, and one ſmall, in each valve; no lateral teeth: *cicatrix* broad, running from the anterior ſide one third acroſs the ſhell, in a tranſverſe direction, from which continues a marginal line almoſt to the oppoſite ſide: margin plain. Length a quarter of an inch; breadth three-eighths. CASTANEA.

This

This appears to be a nondeſcript ſpecies, at leaſt we have not been able to find any thing like it deſcribed: it comes neareſt to *Donax plebeia* in ſhape, being ſubcuneiform, and the teeth are equally ſtrong in proportion; in theſe, however, it differs, eſpecially in their obliquity, being the reverſe of each other; that ſhell, too, has a lateral tooth, and the beak turns towards the poſterior or ſhort ſide; whereas, in this, if any thing, it is inclined to the longer or anterior ſide.

It appears to be a rare ſpecies, as only one mutilated ſpecimen of a ſingle valve, had come under examination till very lately, which was taken at *Falmouth* in *Cornwall*, five or ſix years ago; from which we did not chooſe to hazard a deſcription: a few other ſpecimens, recently found at *St. Auſtle's* bay in that county, and on the coaſt of *Devon*, has enabled us to add it to the catalogue of *Britiſh Shells*. They are all exactly alike in colour and markings.

VENUS.

UNDATA. p. 117.

Venus undata. *Don. Br. Shells.* iv. t. 121.

CANCELLATA.

Venus cancellata *Don Br. Shells.* iv. t. 115.

This may poſſibly be *V. cancellata* of GMELIN p. 3270. but

but be that as it may, it is without doubt the young of *Venus verrucoſa*: in that ſtate it is not only much leſs convex, but the tranſverſe ridges are much thinner, deſtitute of the warty appearance, or very imperfectly ſo at the anterior end, and faintly ſtriated longitudinally in the furrows, which gives it a cancellated appearance towards the beak, where the tranſverſe ridges are not much elevated.

When theſe ſhells attain the length of an inch and a quarter, or thereabouts, they loſe the longitudinal ſtriæ, and the ridges become ſtrongly verrucoſe; they are, however, in moſt of the full grown ſpecimens, to be traced about the *umbo*.

CHEMNITZ has figured the young *V. verrucoſa* vol. vi. tab. 29. fig. 304. 305. and refers to the *V. cancellata* of LINNÆUS: and in the ſame tab. fig. 306. 307. is another which he gives as a variety; this is much broader in proportion to its length, than what the *verrucoſa* is uſually found to be. Theſe figures GMELIN quotes for his *V. cancellata;* ſo that by collating theſe references with the figures in queſtion, and comparing the various and numerous ſpecimens, now before us, of the *verrucoſa*, from the ſize of a pea upwards, we have very little doubt but in its younger ſtate it has been deſcribed as a diſtinct ſpecies, under the title *cancellata;* and that theſe are actually one and the ſame ſhell, in different periods of growth. It muſt alſo be remarked, that the *verrucoſa*

is ſubject to other varieties, from having its ridges partly worn down; in this ſtate the warty appearance is loſt even in the largeſt ſhells, the ridges become ſmooth, not reflected, and deſtitute of longitudinal ſtriæ: in young ſhells, when the ridges are partly worn, the longitudinal ſtriæ become more conſpicuous. Theſe varieties have been the cauſe of much perplexity, but an opportunity of examining on the weſtern coaſts ſome hundreds of theſe ſhells in all ſtages, may be allowed to warrant ſuch an opinion.

VIRGINEA. p. 128.

The figure in the *Br. Zool.* tab. 55, without number, is probably intended for the deſcription of *Venus rhomboides* of that work, as the number of that ſhell is 55, and there is no other figure with that number. The reference to Mr. PENNANT ſhould therefore ſtand thus for our *virginea*. *Ven. rhomboides, Br. Zool.* No. 55. tab. 55. figure without number.

AUREA. p. 129.

Having quoted *Venus rhomboides* of *Br. Zool.* for this ſhell by miſtake, we beg it may be removed to *Venus virginea*, and coupled with the figure there referred to: and in its ſtead the *Tellina rugoſa* of PENNANT to be placed as the *V. aurea*, the reference to which, will ſtand thus: *Tellina rugoſa*, No. 34. tab. 57. fig. 34.

V. with

V. with a ſtrong, ſub-triangular, yellowiſh-white ſhell, with a few antiquated, concentric ridges, in other reſpects ſmooth: *umbo* central, remarkably prominent, and turned a little to one ſide; each ſide ſloping nearly equal, and forming the umbonal regions into an acute angle; under the beak a lanceolate, cordiform depreſſion. Inſide ſmooth; hinge very ſtrong in proportion, furniſhed in one valve with two ſtrong teeth, one running backwards parallel with the cartilage ſlope, bifid, or divided longitudinally; the other is triangular; and near it, running parallel with the cordiform depreſſion, is a ſtrong, lateral *lamina*, of a ſemi-lunar ſhape, the convexity inwards; and a deep groove between that and the margin: the other valve is poſſeſſed of three teeth, two of which greatly diverge, in order to admit the triangular tooth of the oppoſite valve between them; and a lateral tooth, which locks in between that and the marginal edge; the margins are plain. Length half an inch; breadth nearly the ſame. TRIANGULARIS.

This extremely rare ſhell, was found on the coaſt of *Devonſhire*.

V. with a ſub-oval, ſub-triangular, yellowiſh-white ſhell, wrought with numerous, fine, concentric, parallel, equidiſtant, elevated, and ſomewhat reflected ridges, about thirty ſix in number: theſe ridges at the anterior SPINIFERA.

ſide,* on the margin of the cartilage ſlope, on both valves, become confluent in pairs, and form ſhort, obtuſe ſpines, reflecting backwards; this double row of ſpines forms a deep cavity for the cartilage: *umbo* ſmall, nearly central, and turned a little to one ſide, beneath which, is a ſtrong, lanceolate, cordiform depreſſion. Inſide ſmooth, white; hinge furniſhed with a ſingle primary tooth, and a ſmall cavity on each ſide in one valve, which locks in between, and reciprocally receives two in the other valve; the former has alſo a remote, lateral *lamina* on each ſide, which the latter is deſtitute of, or very obſolete: the margins are plain. Length half an inch; breadth rather more.

This new, and intereſting ſpecies, has ſomewhat the habit of that rare, and valuable ſhell *Venus Dione;* and, indeed, is not unlike the figure of it given by LISTER, but the ſpines are neither ſo conſpicuous, nor placed ſo remote from the end; this ſhell, too, wants the inner row of ſpines on each ſide, obſervable in the other, and alſo differs ſomewhat in the hinge.

In ſhape, it much reſembles *Venus ſtriatula,* but rather longer in proportion to its breadth; the concentric ridges are, however, finer; and more reſemble thoſe on the young *Tellina Radula.*

We

* This is uſually termed the anterior end, but certainly is more properly the poſterior, for the tube, or part from which the animal receives ſuſtenance, is protruded at the other end; and in all bivalve ſhells, is uppermoſt in their native ſand.

We found a perfect ſhell of this curious ſpecies, in a heap of ſand, that was brought from *Salcomb* bay; and a ſingle valve, larger than the above deſcribed.

CHAMA.

Chama cor. *Don. Br. Shells.* iv. t. 134. COR. p. 134.

PECTEN.

Oſtrea lineata. *Don. Br. Shells.* iv. t. 116. LINEATUS. p. 147.

There are ſeveral beautiful, and ſingular varieties of this ſpecies; ſome are dull yellow, others purpliſh-brown or cheſnut, with one or both valves mottled, and ſometimes ſtreaked with white, or yellowiſh; and though apparently ſmooth, when examined by a lens, are found to be very finely ſhagreened. One ſpecimen in our cabinet, has the margin, for the breadth of one tenth of an inch, very conſpicuouſly ribbed or rayed, the reſt of the ſhell more ſtrongly ſhagreened than uſual; the rayed part divided from the other, by a very regular concentric line; the rays about fifty in number: the inſide edge finely crenated. LÆVIS. p. 150.

This was taken at *Plymouth* by the trawl net, and is rather larger than that before deſcribed.

OSTREA.

STRIATA. p. 153.

In making this ſhell of LISTER an *oyſter*, we had followed our precurſors, but not without doubt; for though we had never ſeen the flat, or what had been termed the upper valve, there always appeared ſufficient character in the hinge of the convex valve, to have placed it with the *Anomiæ*, had not LISTER, DA COSTA, and others, ſpoken of it as an *Oyſter*, with ſo much confidence. It is, however, beyond diſpute, an *Anomia*, and we think, there is ſo little doubt with reſpect to the *A. undulata* being only the young of it, that the *ſynonyma* of theſe two ſhells, ſhould be brought together under the title of the latter.

It is now eaſily accountable, why ſo many concave, or, as was termed, the under valves, were found in proportion to the upper or flat valve; for, as DA COSTA ſays, there are hundreds of the former found to one of the latter. The fact is, that the ſtriated, or concave valve, is the upper, and the flat, or perforated valve adheres ſo firmly to the rocks, as not often to be ſeparated with the other; and therefore the perfect ſhell is never met with but alive, adhering to other ſubſtances: indeed,

indeed, this valve would not be diſcriminated from that of *A. Ephippium*, if found detached from the other, being always deſtitute of ſtriæ. It is evident, therefore, thoſe who have deſcribed the flat valve, muſt have miſtaken for it, the flatteſt of the concave valves that have been ſomewhat worn, as DA COSTA expreſſes it, "the "outſide work is generally more obſolete." We have recently taken alive, a few larger and ſtronger ſpecimens, on the ſouth coaſt of *Devon*, adhering to old bivalves, (about an inch and a quarter in diameter,) which confirms our opinion.

All the *Anomiæ* are ſubject to ſuch variation in growth, that it is impoſſible to fix permanent ſpecific characters to many of them, and we ſuſpect the exotic ſpecies are multiplied beyond their natural limits.

When we gave the *A. Squamula* as diſtinct, it was more from popular opinion, all of which ſeems to have flowed from LINNÆUS; we muſt, however, acknowledge, that if the *Squamula* is continued as diſtinct, we ſhall in all probability never find the young of the *Ephippium*; if, therefore, the ſynonyms of *Squamula* as well as *Cepa*, were conjoined to thoſe of *Ephippium*, no violence would be offered to nature, for there really are no diſtinguiſhable characters.

MYTILUS.

Mytilus edulis. *Don. Br. Shells.* iv. t. 128. f. 1. 1. EDULIS.
Mytilus p. 159.

UNGULINUS. Mytilus ungulinus. *Don. Br. Shells.* iv. t. 128. f. 2. 2.
Gmel. Syſt. p. 3354. 12.
Chem. Conch. viii. t. 84. f. 747.
Id. t. 85. f. 756.

On the authority of Mr. DONOVAN, this is given as a *Britiſh* ſpecies; who ſays, "ſeveral ſhells of this kind "were picked up by Miſs POCOCK, on the coaſt of "*Cornwall.*"

It very much reſembles *M. edulis*, but is generally allowed to be more pointed, and curved at the beak; beneath which it ſwells, or projects more at the poſterior margin: according to different authors, the hinge ſeems to be furniſhed with from two to ſix teeth at the tip, and the groove with numerous *crenulæ:* valves very convex, of a greeniſh, or blueiſh-black colour. Length four or five inches; breath from two, to two and a half.

Inhabits *New Zealand, Cape of Good Hope,* and *Mediterranean.*

Much caution is requiſite, in determining the ſpecies of this genus, ſo ſimilar to each other, and ſubject to ſo much individual variation by climate, and other circumſtances: which have already, we fear, been the occaſion of multiplying the ſpecies beyond their natural bounds.

ANATINUS. Mytilus anatinus. *Don. Br. Shells.* iv. t. 113.
p. 171.

PINNA.

PINNA.

This ſpecies, is doubtleſs the ſame as Mr. PENNANT noticed in the cabinet of Doctor WALKER of *Moffat;* we are informed by the author of the *Elements of Natural Hiſtory*, vol. 2. p. 381. that a very large ſpecies was found by Doctor WALKER, off the iſland of *Barra*, in 1764; called by him *Pinna borealis*. INGENS. p. 180.

UNIVALVE.

BULLA.

Bulla aperta. *Vignette.* 2. f. 1.—animal, f. 2.—its gizzard, f. 3. 4.
Don. Br. Shells. iv. t. 120. f. 1. APERTA. p. 208.

Bulla Haliotoidea. *Vignette* 2. f. 6. encloſed by the animal. HALIOTOIDEA. p. 211.

Bulla plumula. *Vignette* 2. f. 5. encloſed by the animal. PLUMULA. p. 214.

Bulla

HYDATIS. p. 217. Bulla Hydatis. *Vignette* 1. f. 1. 2.—animal's gizzard, 3. 4. 5.

CYLINDRACEA. p. 221. Bulla cylindrica. *Don. Br. Shells.* iv. t. 120. f. 2.

It is unfortunate, that this ſhell, which was properly firſt named by Mr. PENNANT, and we believe has hitherto only been noticed as *Britiſh*, ſhould have been ſo confounded; eſpecially, as the figure given in the *Britiſh Zoology* is very expreſſive.

DA COSTA firſt led to theſe errors, by making it the *Voluta pallida* of LINNÆUS, not knowing the ſhell. DONOVAN, following DA COSTA, fell into the ſame error; but afterwards corrected his miſtake, by figuring the true *cylindracea* of PENNANT, and by acknowledging, that it more clearly correſponds with that ſhell than the *V. pallida:* unfortunately, however, this author has referred to *Bulla cylindrica* of GMELIN, a ſpecies totally different, and not the leaſt allied to it, if we may judge from the figure referred to by that author, in FAVANNE, CHEMNITZ, and GUALTIERI: nor does he quote the *Britiſh Zoology*.

Doctor PULTENEY was not aware, or rather, did not recollect, that the name of *cylindrica* was preoccupied for a very different ſpecies of *Bulla*, or certainly he would not have recorded it by that name, and thereby have continued perplexity; but he ſeems to have been induced to do ſo, from its being ſo called in the *Muſeum Port-*

Portlandicum. As, however, Mr. PENNANT was the original author of the name given to the ſhell in queſtion, and whom Doctor PULTENEY quotes, and not the *cylindrica* of GMELIN, it could be wiſhed he had adopted the name of the former, and not of the latter.

LISTER probably was the firſt who figured *B. cylindracea,* Tab. 714. fig. 70. and has marked it with an *A.* denoting it as *Engliſh;* at the ſame time adding *(Barnſtable,)* the place from whence he obtained it. With two figures of this ſhell is alſo placed *Voluta pallida,* without any number, or mark to denote diſtinction; and over them are theſe words, "*exigua, alba, vere cylindracea:*" this circumſtance has, amongſt other things, ſerved to confound theſe ſhells.

BUCCINUM.

Buccinum undatum. *Don. Br. Shells.* iii. t. 104. UNDATUM. p. 237.

We have been lately favoured with a variety of this ſhell from Mr. RACKET, much thinner, and with a greater number of ribs, (fifteen inſtead of eleven) and thoſe regularly and finely ſtriated tranſverſely, without riſing into tubercles. AMBIGUUM. p. 242.

MUREX.

GRACILIS. p. 267.

At the time we deſcribed this ſhell, one ſpecimen only had occurred, and that ſomewhat worn. We have now the ſatisfaction to ſay that, Mr. BRYER has ſince favored us with a live ſpecimen, taken with two or three others, by dredging in the weſt bay of *Portland*. This is larger, exceeding an inch in length, with thirteen ribs: the whole ſhell of a yellowiſh brown, except between the junction of the ſpires, which is purpliſh-brown, and a white band round the middle of the body whirl, beginning at the upper angle of the aperture, and terminating about the middle of the outer lip; the ſame mark appears in the other, but almoſt obſolete: the exterior lip is ſharp at the edge, thickened at the back by a rib, and ſub-crenated within. This extremely rare *Murex*, is one of the moſt beautiful of the *Britiſh* ſpecies.

TROCHUS.

TENUIS. p. 275.

Trochus papilloſus. *Don. Br. Shells.* iv. t. 127.

TURBO.

JUGOSUS.

T. with a ſub-oval, ventricoſe ſhell, with four ſpirally ridged volutions; the firſt very large, occupying three-fourth

fourths of the ſhell: *apex* not much elevated, but moderately pointed: aperture ſub-orbicular; outer lip thin, ſub-crenated by the ridges; pillar lip broad and ſmooth, imperforated.

Diameter about three-eighths of an inch, uſually as broad as it is high.

We received a ſhell of this deſcription from a conchological friend, for the *T. obtuſatus* of LINNÆUS; it was of a dull orange-yellow colour, and was taken on the coaſt of *Dorſet*.

Mr. GIBBS, who has recently taken at our deſire, a tour of reſearch on the coaſt of *Cornwall*, brought ſeveral of theſe ſhells from the rocks at low water-mark, near *St. Ives*.

Theſe agree in every reſpect with that from *Dorſetſhire*, except in colour; ſome are dark-purple, with the ridges white; others greeniſh on the outſide, the inſide dark purpliſh-brown, or chocolate-colour: on the body are ten or eleven, much elevated, ſharp ridges, reflecting a little upwards; on the ſecond volution are three or four, and ſometimes the ſame on the third, but more commonly worn ſmooth.

Amongſt the variety of littoral ſhells that have puzzled the moſt able teſtaceologiſts, and which in the com-

mon *perriwinkle*, *T. littoreus*, and *T. rudis*, differ ſo much at various periods of growth, that it is no eaſy matter to identify them; this ſeems to be the moſt diſtant, without the gradations which might bring it to any of its congeners; but is certainly not *T. obtuſatus*, which is deſcribed to be ſmooth, roundiſh, and very obtuſe; a ſhell we have before, under the article *Turbo littoreus*, doubted if not a variety. We muſt, however, confeſs that, although we have in part fallen into the opinion of ſcientific friends, in giving this a diſtinct place, yet we are not without ſuſpicion, that the intermediate links may be found on ſome parts of our coaſts, that would connect this with *T. littoreus*, as the varieties of that ſhell in its infant ſtate are infinite.

HELIX.

OCTANFRACTA p. 396.

In the former part of this work, we referred this ſhell to *H. octona* of the *Britiſh Zoology*, but with doubt: we are indeed almoſt inclined to think, the figure of a mutilated ſpecimen given in that work, muſt be referred to the *Linnæan octona*, which the author has quoted, and in which he had probably been deceived, as to its being *Engliſh*, as others have.

Mr. PENNANT's deſcription unfortunately conveys little or nothing, and a mutilated figure not much more; ſo

ſo that we muſt ever remain in the dark with reſpect to his intentions; indeed, he ſeems to have been quite unacquainted with any thing relative to the hiſtory of the ſhell, as a native of this county, and therefore our doubts will the more readily be pardoned.

This author has referred to a minute ſhell in GUALTIERI, tab. 6. fig. B. for his ſhell; the *Buccinum terreſtre* of this work, a ſpecies not in the leaſt like what is conſidered in general by collectors as the *H. octona* of LINNÆUS; and yet GMELIN has fallen into the ſame error, by quoting the ſame figure in GUALTIERI, though he does not notice PENNANT's ſhell.

Doctor TURTON, of courſe, has followed GMELIN's errors, and has added a reference to PENNANT's ſhell; though he has omitted the *Buccinum Acicula* of MULLER, which the other has as erroneouſly quoted.

The *H. octanfracta* is, as we have before aſſerted, perfectly diſtinct from theſe ſhells, except that of the *Br. Zoology*, and poſſibly may be entirely new, as hitherto we believe it has only been found in one place, and that in *Cornwall*, as remarked in the former hiſtory of it.

If it really is a new ſpecies, the merit of its diſcovery reſts with Mr. GIBBS, whoſe induſtrious exertions for collecting, and excellent diſcrimination, eſpecially of the more minute ſpecies, have tended to enrich theſe ſheets.

In

In a recent visit to the neighbourhood where this shell was discovered in the year 1798, strict search was made, with a view to ascertain if it had spread; but although a great many were observed of all ages, in the same muddy pool, on the side of the high road, upon the top of a hill; not one could be found in similar situations, either contiguous, or in any other parts of the country. From these we renewed our *cochlearium*, the first colony having failed, probably from the different nature of the waters.

ASPERSA. p. 407.

Helix hortensis. *Don. Br. Shells.* iv. t. 131.

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EXPLA-

EXPLANATIONS

OF THE

Abbreviated Names of the principal Authors referred to.

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FINIS.

Mollis, Printer, Romſey.

Supplement

TO

TESTACEA BRITANNICA

with

Additional Plates

By

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

CORK INSTITUTION

SUPPLEMENT

TO

TESTACEA

BRITANNICA.

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

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

1808.

SUPPLEMENT

TO

TESTACEA

BRITANNICA.

INTRODUCTION.

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 compleatly 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-

*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 compleat 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 it

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 *Mactræ* 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 developement 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.

CHITON.

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*.

BALANUS.

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 *epedermis*, 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 ſeſile 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 *ſtriæ* 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. 3213.—*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 *Cornucopiæ*, 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*.

TEREDO.

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.

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

In

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 *laminæ*, thickening by age.*

The

* 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 ſyphons 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 ſound 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-

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 ſyphons. 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 inſnare 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 circumambiant water may be diſcharged through the exterior ſyphons at pleaſure.

As the laminated part of the tube is even with the ſurface of the timber perforated, the ſyphons 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 ſyphons, 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 2½ 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, cartilageous ſubſtance which has been termed a proboſcis, and the centrebit on which the animal turns in the act of boreing, 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 epedermis 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 *Teredo navalis*, 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 æſophagus, in the animal of *Teredo navalis*, intended for this purpoſe?

It

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 elaboratory 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

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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 very 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

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.

MYA.

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*.

DECUSSATA. Tab. 28. f. 1.

Shell ovate, white, with irregular concentric ridges, decuſſated by regular longitudinal *ſtriæ*, 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*.

PHOLADIA. p. 28. & p. 559.

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 *laminæ*; ſometimes theſe caſes protrude a quarter of an inch or more beyond the ſurface of the ſtone, in form of

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a tube, whoſe bore is ovate, with an internal rib on each ſide, adapted to the grooves formed by the junction of the animals ſyphons, 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 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, ſlghtly bifid. Length not above one line, and ſomewhat more in breadth. PURPUREA.

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

Shell

FERRUGINOSA. Tab. 26. f. 2.

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 ferrugenous coat of argillacious 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.

LIGULA.

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 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.

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 *Mactra* 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.

SOLEN.

Solen Marginatus *Pult. Hutch. Dorset.* t. 4. f. 8. VAGINA.
Solen Vagina *Lin. Trans.* viii. p. 42. 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*.

The animal like all thoſe belonging to this family of ſhells, as far as we have been able to inveſtigate, is a true *Aſcidia*, 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.

FRAGILIS. p. 51. p. 565.

By ſome unaccountable miſunderſtanding we find our friend the Rev. Mr. RACKETT has refered to us under the 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 *ſtriæ*, 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*.

LASKEYI. Tab. 28. f. 3. Shell ovate-oblong, ſmooth, and of a purpliſh-white colour, 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 *Scotiſh* 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.

CARDIUM.

Mactra 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 *ſtriæ*: 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 *ſtriæ* 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.

FASCIATUM. Tab. 27, f. 6. 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.

ACULEATUM. p. 77. Cardium spinosum. *Br. Miscel.* 1. t. 32.—*Lin. Trans.* viii. p. 62.
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 *Scotiſh* 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. Mactra 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 *Mactra 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 *ſtriæ* 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 *Mactra 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 refering his ſhell to *Trigonella ſubtruncata* of DA COSTA, which is without doubt our *Mactra 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 *Mactræ* in queſtion, when they favoured us with ſpecimens of each from the northern coaſt, and denominated this by the name prefixed.

CINEREA. Shell thin, ſub-triangular, truncated, and of a cinereous 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 coutour; the oppoſite ſide is much compreſſed laterally. The inſide is pale, with a tinge of bluſh: the hinge reſembles that of *Mactra 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 *Mactra 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.

Mactra subtruncata, *Pult. Hutch. Dorset*, t 5. f. 10. SUBTRUNCATA.
Lin. Trans. viii. t. 1. f. 11. 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 *Mactra truncata* in contour, being nearly equiangular, and not produced at one end as uſual; but this is known from *truncata* by the fine tranſverſe *ſtriæ*.

Shell ſub-triangular, white, and nearly ſmooth: *umbo* 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. MINUTISSIMA.

This ſpecies is one of the moſt minute of the bivalve diviſion, and might eaſily be miſtaken for *Mactra 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 *Mactra* 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.

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.

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

refered 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 *ſtriæ;* 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 *Doctor 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 *ſtriæ* is evident by the aſſiſtance of a lens in the *ſulci* between the tranſverſe ridges.

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 *ſtriæ* 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 *ſtriæ-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. Tab. 29. f. 7. Shell white, orbicular, depreſſed, and cancellated: the *umbo* 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. t. 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 ſulcated, or irregularly wrinkled: the colour is white, but 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. COMPRESSA. Tab. 26. f. 1. 1. 1.

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 ſulcata* may poſſibly have cauſed their being confounded. That this is a *Scotiſh* production is beyond all doubt, but how far the *ſulcata* 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. McLeay, on the coaſt of *Caithneſs*. A ſpecimen which we received from *Scotland*, is covered with a pale yellowiſh-brown *epidermis* in the *ſulci*, but worn off from the elevated parts, ſhewing the ſhell to be white. In this ſpecimen not leſs than twenty-two *ſulci* 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 *ſulci*, 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,

ſame, 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*.

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

Shell lentiform, ſomewhat compreſſed, with thick, elevated, obtuſe, concentric *ſtriæ*, 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 *ſtriæ* 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.

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. McLEAY, on the coaſt of *Caithneſs*.

Whether the figure of a worn ſhell, given by Mr. PENNANT for *Venus Eryoina, 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 prominency 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 *striæ-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, Tab. 29. f. 6. Shell transversely ovate, sub-pellucid, white, concentrically wrinkled, and obsoletely wrought with undulated, longitudinal

longitudinal *ſtriæ: 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 *ſtriæ: 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 *ſtriæ*, 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.

CHAMA.

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

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 Noæ*, from which however it differs in the following particulars. It is longer in proportion to its breadth, and the longitudinal *ſtriæ*, except between the two angles at the longer end, are infinitely finer; the *Noæ* 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 cheſnut-coloured bands that croſs *Arca Noæ* 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 Noæ;* 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. Noæ* 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 *ſtriæ*, 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 *Noæ*. 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 Noæ* 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.

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

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.

TENUIS. Tab. 29. f. 1

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 nacred; 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*.

PECTEN.

Pecten obsoletus, *Br. Zool.* t. 61, f. 66. OBSOLETUS.
Pecten lævis, *Test. Brit.* p. 150. p. 149.
Ostrea obsoleta, *Lin. Trans.* viii. p. 100.
Ostrea lævis, *Lin. Trans.* viii. p. 100, t. 3, f. 5.

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

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.

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 ſixteen middle ones are placed in fours; that is to ſay, there are four rays between the *ſulci* 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 *ſulci* 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 *ſulcus*." 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

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.

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 *striæ*. The specimen adverted to was found in *Falmouth* harbour; a similar one but smaller was taken amongst *Sertulariæ*, 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.

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.

SUBAURICULATA. Tab. 29. f. 2.

Shell ovate-oblong, pellucid, white, equilateral, equivalve, 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.

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 *Caithneſs*. And we have examined a ſpecimen from *Scotland*, in which the *ſtriæ* were very conſpicuous.

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

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 admittrd 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*.

DECUSSATUS.

Mytilus faba, *Gmel. Syſt.* p. 3359?
Chem. Conch. viii. t. 85. f. 761?

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

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 nacred 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

We cannot help expreſſing ſome doubts with reſpect to the *Mytilus umbilicatus* being a diſtinct ſpecies; Mr. PENNANT 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*.

UMBILICATUS. p. 164.

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.

PINNA.

INGENS. Pinna lævis. *Don. Br. Shells.* v. t. 152.
p. 180. P. ingens. *Lin. Trans.* viii. p. 112.
p. 583.

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 *Feaſhand*, 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 asthe *Feaſhand* 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.

NAUTILUS.

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.

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, refering 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. Tab. 18. f. 7. 8.

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 compariſon of fig. 4, Tab. 15, and fig. 7, 8, Tab. 18. This ſhell is alſo different in colour, is larger, and the cells more numerous.

Aperture a ſmall ſyphon near the exterior angle, not protruded.

CALCAR p. 189

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

In our former *ſynonyma* of this ſhell, it will be ſeen we had refered to WALKER, and ADAMS, for our *Calcar*, with doubt: the light however thrown upon the ſubject by the *Boyſian* cabinet, requires that thoſe references ſhould be transferred to *Nautilus ſubarcuatulus*, hereafter deſcribed. 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 diſcriminate ſuch minute objects with his uſual accuracy.

MARTINI gives the figure of a *Nautilus*, which he conſiders as one of the varieties of the *Linnæan calcar;* it is however perfectly diſtinct from our ſhell. That ſpecies which may be conſulted in MARTINI, *Conch.* i. Tab. 20, fig. 182, 183, Mr. MEAD diſcovered foſſil with thoſe before mentioned near *Sienna*. The ſpecimens that we have examined do not much exceed a quarter of an inch in length, and ſomewhat

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

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.

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

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.

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 *ſimilituus*, 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 concamerations

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

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

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.*

RECTUS. p. 197. Tab. 19, f. 4 & f. 7.

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

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.

LEGUMEN. Tab. 19, f. 6.

Nautilus Legumen, *Lin. Syst.* p. 1164.—*Gmel. Syst.* p. 3373. *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.

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. COSTATUS VAR. Tab. 19, f. 2.

This ſhell we found in the *Boyſian* cabinet. It is nearly cylindric, with five articulations, and ſeven longitudinal ribs; one end is truncated, the other is terminated by a ſlender cylindric 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 ſyphon, 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 ſyphon, 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.

SPINULOSUS. Tab. 19. f.5. Shell with three extremely globoſe articulations, of a pale cheſnut 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 radicula;* 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.

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 poſter iorend, 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.

Shell ſmooth, gloſſy, ſtraight, a little compreſſed, linear, and nearly of equal ſize throughout, or a trifle tapering, and 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 ſyphon; the other end is rounded. Length nearly a quarter of an inch; breadth about one eighth of its length. LINEARIS. Tab. 30. f. 9.

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 *ſulcus*. If indeed it had been proved that the ſulcated 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 ſulcated 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 ſulcated ſpecies was found on the

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 ſulcus, 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 ſulcated 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 opportuuity has offered to collect theſe ſhells

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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 acceeded, 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.

Voluta lævis, *Don. 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. p. 205. Recent opportunity of examining the animal in ſeveral of 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.

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

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. p. p. 208. 583

Lobaria quadrilobata. *Mull. Zool. Dan.* iii. t. 100. (animal)
Id. Prodr. No. 2741.
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,

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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 ferrugenous *epidermis*.

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 ſurpriſed 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 Bulaoides*, by Dr. SOLANDER; for a deſcription and figure of which we refer to *Voluta Bulaoides* 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.

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 anthority of thoſe who firſt introduced this ſhell to public notice, we have no heſitation in bearing record of the iden-

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. TRIPLICATA.

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, cheſnut-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.

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.

BIDENTATA. Tab. 29. f. 3. Shell ſtrong, thick, conic, and of a pure white, with ſix or ſeven moderately ſmooth, and ſomewhat gloſſy volutions, wrought with a few diſtant longitudinal wrinkles that andulate 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 *Scotiſh* 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.

HYALINA. Tab. 29. f. 5.

Shell pellucid, white and ſmooth, tapering to an obtuſe point, with fix, flat volutions ſcarcely defined by the ſeparating line: the body whirl 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.

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

ALBA. p. 235.

A very minute ſpecies, which appears ſo nearly allied to the ſhell originally ſent to us by Mr. BOYS for No. 61, of 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. Tab. 23. f. 6. Shell ovate, pale horn-colour, inclining to purpliſh-brown 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 ſile 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.

CATINATA. p. 236. 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.

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 antients, 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

* 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 antients 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

* 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 *Guatimala*, 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-

* *Encyclopædia Britannica*, Article Murex.

dual

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

Buccinum brunneum. *Don. Br. Shells* v. t. 179. f. 2. MINIMUM.
Buccinum minimum. *Lin Trans.* viii. p. 139. p. 247.

Buccinum glaciale. *Gmel. Syſt.* p. 3491. GLACIALE.
Turt. Lin. iv. p. 404.
Chem. Conch. x. t. 152. f. 1446.—47.
Don. Br. Shells. v. t. 154.
Lin. Trans. viii. p. 136.
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 ſemicoſtated: near the baſe it uſually has a ſingle tranſverſe *ſtriæ* larger than the reſt, which has occaſioned it to be deſcribed as ſlightly 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 ſlight ridge ſurrounding 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.

STROMBUS.

TURBOFORMIS. Tab. 30. f. 7. Shell with ſeven plain coſtated volutions, deſtitute of ſpiral *ſtriæ*; 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 eighteen. 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 I. *Columb-kil*: not common.

MUREX.

Murex antiquus. *Mull. Zool. Dan.* iii. t. 118. DESPECTUS.
Don. Br. Shells. i. t. 31. p. 256.
Lin. Trans. viii. p. 145.
Pult. Hutch. Dorset. t. 17. f. 4.

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, whenfirſt 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 undutum* is notorious to thoſe who have taken the trouble to extract them from the *ova*, ſo commonly thrown in cluſters upon our coaſt.

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 *ſtriæ*. 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 *ſtriæ* is alſo much finer.

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

Shell

Shell ſlender, white, with about fifteen ſcarcely raiſed ſpires, defined by a purpliſh-brown ſpiral line, each wrought 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. SUBULATUS. Tab. 30, f. 6.

Found amongſt ſea ſand at *Scalaſdale*, in the ſound of *Mull*: very rare.

Murex duplicatus. *Don. Br. Shells.* iii. t. 119.
subantiquatus. *Lin. Trans.* viii. p. 147. ANTIGUUS. p. 257.

Murex elegans. *Don. Br. Shells.* v. *t.* 179. f. 3.
Linearis. *Lin. Trans.* viii. p. 148. LINEARIS. p. 261.

Murex angulatus. *Don. Br. Shells.* v. t. 156.
Turricula. *Lin. Trans.* viii. p. 144.
Pult. Hutch. Dorset. t. 14. f. 15. TURRICULA. p. 262.

Murex emarginatus. *Don. Br. Shells.* v. t. 169. f. 1.
Gracilis. *Lin. Trans.* viii. p. 143.
Pult. Hutch. Dorset. t. 14. f. 18. GRACILIS. p. 267.

Murex septemangulatis. *Don. Br. Shells.* v. t. 179. f. 4.
septangularis *Lin Trans.* viii. p. 144. SEPTANGULARIS. p. 268.

Turbo reticulatus. *Don. Br. Shells.* v. t. 159.
Murex adversus. *Lin. Trans.* viii. p. 151. ADVERSUS. 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 refering 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*.

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 *Scotiſh* 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.

PROXIMUS. Tab. 30. f. 8. Shell thick, white, with ſix ſtrongly coſtated ſpires; *apex* 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 *Tyningham* ſands, near *Dunbar*, and is extremely rare.

TROCHUS.

TROCHUS.

Trochus conicus. *Don. Br. Shells.* v. t. 155. f. 1. — STRIATUS.
Trochus erythroleucos. *Lin. Trans.* viii. p. 156. — p. 278.
Pult. Hutch. Dorset. t. 18. f. 2.

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. — CINEREUS.
Lin. Trans. viii. p. 152. — 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 ſurpriſed 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 primative 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. 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*.

Turbo vittatus. *Don. Br. Shells.* v. t. 178. f. 1. CINGILLUS.
Cingillus. *Lin. Trans.* viii. p. 165. p. 328.

Turbo tridens. *Lin. Trans.* viii. p. 181. TRIDENS.
Pult. Hutch. Dorset. t. 19. f. 12. 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 refered 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 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, whirls ſtriated with raiſed dots, and ſlightly angulated by a few of the *ſtriæ*, 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,

* 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.

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 *Linnæan 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.

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 diſunited, 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.

Lin. Trans. viii. p. 162.

SEMICOSTATUS. p. 326.

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

Shell ſub-cylindric, gloſſy, white, with five or ſix ſpires 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 *ſtriæ* are confined to the *ſulci*, 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. INDISTINCTUS.

This ſpecies has ſomewhat the habit of *T. interſtinctus*, but is much finer in the longitudinal ribs or *ſtriæ*; 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. INSCULPTUS.

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 ſurpriſe 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 ſutures; 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.

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

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

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

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

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

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

CALATHISCUS. Tab. 30. f. 5. Shell conic, with ſix brown ſpires elegantly tuberculated 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 that ſhell; the *ſtriæ* however that form the *cancelli* are much cloſer, leaving the depreſſions much ſmaller; the ſhape of the ſhell is alſo more ſlender, and may readily be known even in this ſtate from *Cimex*, by having four ſeries of *cancelli* on the ſecond ſpire inſtead of two, which that ſhell invariably has.

Voluta Ambigua. *Lin. Trans.* viii. p. 132. PALLIDUS, p. 325.

We may be permitted to remark in this place that, although our *Cypræa Voluta* may with as much propriety be placed in the genus *Voluta*, as in that it now ſtands in *Teſtacea Britannica*, yet we cannot aſſent to the removal of our *Turbo pallidus*, no more than of *ſpiralis*, *unidentatus*, *interſtinctus*, 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 *columella* 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 denticular, or as ſome may term it, plicated *columella*, without regard 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.

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.

SIMILLIMUS.

SIMILLIMUS. Shell ſlender, white, with eight or nine ſpires furniſhed with fourteen ribs, or elevated *ſtriæ*; theſe ſtand ſtraight in the line of the ſhell: *apex* pointed: baſe deſtitute of *ſtriæ*: 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 *ſulci* 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*.

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 *ſtriæ* 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 *columella*. Length one eighth of an inch; breadth one half its length.

The

The contour of this ſhell is not unlike *T. interuptus*, and is ſometimes ſimilarly marked with faint interupted brown ſtripes; the mouth however is different, the outer lip is not ſo much expanded, which together with the ſpiral *ſtriæ* 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. CALCAR.
Chem. Conch. v. t. 180. f. 1786-87. Tab. 29. f. 3.
Gualt. t. 65. f. N. P.
Lister Conch. t. 608. f. 46. a.

Shell ſomewhat compreſſed with four volutions, the ſuperior ones depreſſed, forming the ſummit flat; round the larger, and part of the ſecond whirls, 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.

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. PUTRIS.
limosa. *Pult. Hutch. Dorset.* t. 18. f. 19. p. 376.
Helix succinea. *Lin. Trans.* viii. p. 218.

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 refered 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

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 tortoiſhell.

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.

LÆVIGATA. 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.

Lin. Trans. viii. p. 205. VIVIPARA.
Pult. Hutch. Dorset. t. 17. f. 2 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.

Turbo albus *Don. Br. Shells:* v. t. 177. POLITA.
Strombiformis albus *Da Costa.* p. 116. p. 398.
Helix polita. *Lin. Trans.* viii. p. 210.
Pult. Hutch. Dorset. t. 19. f. 15?

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 refering 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 transfered 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 refered 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.

Shell with four ſtrong, convex volutions, and the *apex* 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 nacred: baſe very convex, and largely umbilicated. Diameter one eighth of an inch or more. MARGARITA.

Frequently

Frequently quite white with a pearlaceous 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 *Scotiſh* 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 *Linnæan 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. ruſeſcens* for it. We have introduced a figure of this ſhell in its hiſpid ſtate, for the purpoſe of compariſon with the true *hiſpida*, which is alſo figured in the ſame plate fig. 3.

Helix pallida. *Don. Br. Shells.* v. t. 157. f. 2. CANTIANA.
Cantiana. *Lin. Trans.* viii. p. 197. p. 422.
Pult. Hutch. Dorset. t. 19. f. 21. 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. LUCIDA.
Pult. Hutch. Dorset. p. 47. t. 21. f. 10. 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.

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. p. 462.

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

CONTORTA. p. 457. Tab. 25. f. 6.

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

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

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

Shell compreſſed, gloſſy, white, with three volutions deſtitute of *ſtriæ: 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 cylindric 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*.

VIRGATA. p. 415.

Lin. Trans. viii. p. 195.
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. p. 424.

A ſhell in every reſpect like this except in colour, has been 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.

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 *Engliſh*, 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.

TUBEROSISSIMA. Tab. 29. f. 5.

Shell pellucid, white, with three or four volutious: on the 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.

RUFA. Tab. 30. f. 3.

Nerita rufa. *Gmel. Syſt.* p. 3672
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 cheſnut, 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 cheſnut, 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 refered 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.

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 obſerveable, 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*.

V INTORTA.

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 tubercules 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. APERTURA.
Id. prodr. No. 2865. p. 491.
——— apertura *Lin. Trans.* viii. p. 236.

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 striatulum. *Lin. Trans.* viii. p. 238. STRIATULUM.
Dentalium octangulatum. *Don. Br. Shells.* v. t. 162.

There appears very little reaſon to doubt but this is the *D. ſtriatulum* 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 ſtriatulum* 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.*

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.

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 concamerated 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 *Linnæan 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 *ſeminulum* of *Linnæus*; 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 Farctus. *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.

CONCAMERATA. 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 diſtingui ed 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.*

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

nearly allied to ſome parts of the claſs *Zoophyta* than to that of *Teſtacea*. To the genus *Tubularia* 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 *Tubularia;* 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 leafed *Conferva*; one groop 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.

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

* 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 intirely 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 *Welch* 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.

Shell ovate, of a pink colour ſhaded to white at the ſhorter end, and regularly ſtriated concentrically: the beak is not 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. MYA NITENS.

This ſpecies bears ſome reſemblance to *Tellina læta*, 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.

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 *Britain*, ſince a ſpecimen has been noticed in the *Bryerian* cabinet, without doubt the production of the coaſt of *Weymouth*.

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 unuſually 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 *prætenuis* 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 *Devon*, 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 *prætenuis* is the leaſt common, and of which no inſtance to our knowledge has yet occurred of its being aken much above one inch in breadth.

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 *ſtriæ*. 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.

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

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*.

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

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 Haliotoidea*, and a few others.

VOLUTA. HETEROCLITA.

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.

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.

STROMBUS COSTATUS.

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 *ſtriæ*, we readily

 ſubſcribed

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 cheſnut-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.

In the cabinet of Mr. LASKEY is the fineſt ſpecimen of grooped *Serpula tubularia* we ever ſaw; the tubes ſtand in four detached parcels on an old valve of *Mactra lutraria*, 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. SERPULA TUBULARIA.

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 desſtitute of any mark are plentiful.

CHITON.

Marginatus, Lævis, Cinereus, Fascicularis — Amongst the rocks and stones, at low water, *Dunbar.*

BALANUS.

Communis, Balanoides, Punctatus, Rugosus — Upon the rocks, on various parts of the oast.

*Tintinnabulum, Shore of *Dunbar.*

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

LEPAS.

Anatifera, Anserifera, Pollicipes — Single specimens on the shore of the island of *Y Columb kil.*

*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.

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, †Nitens, †Decussata, *Truncata — *Dunbar*.

Inæquivalvis — *Leith* roads of a superior size.

Margaritifera — River *Tay*.

LIGULA.

Pubescens, Prætenuis — On *Porto Bello* 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, *Vespertinus — *Dunbar*.

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

TELLINA.

*Fervensis — *Dunbar* and *Leith* roads.

†Squalida, †Læta — *Belton* sands.

†Donacina — *Dunbar*.

Tenuis — *Porto Bello* sands.

Fabula — *Belton* and *Porto Bello* sands.

Solidula, †Proficua, †Carnaria, †Striata — *Dunbar*

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 *Dunbar*.

*Rubrum — *Dunbar*, at the roots of *Corallina Officinalis*.

*Exiguum — *Musselburgh* sands.

Fasciatum — *Dunbar*.

MACTRA.

MACTRA.

Solida — *Aberlady* bay and *Leith*.
uncata — *Musselburgh* sands.
Subtruncata — *Porto Bello* sands.
*Lutraria — *Tyne* and *Porto Bello* sands.
*Stultorum — *Musselburgh* sands, small size.

DONAX.

Trunculus — *Porto Bello*.
†Castanea, †Plebeia — *Dunbar*.

VENUS.

†Paphia — *Belton* sands, and other parts.
†Verrucosa, †Orbiculata — *Dunbar*.
Striatula — *Dunbar* and *Leith* roads and Sound of *Mull*.
Islandica — *Aberlady* bay and *Leith* roads.
*Decussata — *Musselburgh* sands, small.
Exoleta, Undata — *Porto Bello* sands.
†Substriata — Isle of *May*.
Ovata, †Scotica, †Danmonia — *Dunbar*.
Pullastra, Perforans — *Leith* roads and *Dunbar*.
†Reflexa, †Laminosa — Dredged off the coast of *Dunbar*.
†Guineensis, †Subrhomboidea — Dredged off *St. Abb's Head, Frith of Forth*.
*Auria, †Dysera, *Compressa, †Casina, †Granulata — *Frith* of *Forth*.

CHAMA.

†Cor — *St. Abb's Head* and *I-Columb kil.*

ARCA.

†Fusca, †Noæ, †Minuta, Nucleus, †Tenuis — *Dunbar* and *Leith* roads.
†Rostrata — Dredged near *St. Abb's Head*.

PECTEN.

*Maximus — *Leith* roads.
Opercularis — *Porto Bello* and *Leith* roads.
*Pusio, *Obsoletus, †Glaber, †Lævis — *Dunbar* and *Belton* sands.

OSTREA.

Edulis — *Leith* roads and *Porto Bello*.

ANOMIA.

ANOMIA.

Ephippium, Striata, *Aculeata, *Cymbiformis — *Frith* of *Forth.*

MYTILUS.

Edulis — On all parts together with the incurvated variety.
Pellucidus — *Leith* roads.
Modiolus — *Dunbar* and *Leith* roads.
Rugosus, Præcisus — *Dunbar*, in the roots of *Fucus digitatus.*
Discors — *Dunbar* and *Leith* sands, and in the roots of the larger *Fuci.*
Discrepans — Dredged in the *Frith* of *Forth* of a very superior size.
†Ungulinus — *Aberlady* bay.
†Plicatus — Isle of *Sky.*

PINNA.

*Ingens — *Barra*, one of the Western islands.

NAUTILUS.

*Beccarii, *B. perversus, †Linearis. — *Porto Bello* sands.

CYPRÆA.

Europæa — *Dunbar* and *Leith*, with the spotless and smooth varieties.

BULLA.

†Ampulla, *Aperta, Catena, †Flexilis — *Dunbar.*
*Patula — *Tyne* and *Porto Bello* sands.
Haliotoidea — *Porto Bello* sands.
†Cylindracea — *Tyne* sands.
Truncata — *Dunbar* and other parts.
†Obtusa, †Hydatis — *Dunbar*, the latter very small.

VOLUTA.

*Tornatilis — *Dunbar* and *Tyne* sands.
*Catenata, *Denticulata, †Bidentata, †Hyalina, †Alba, †Heteroclita — *Dunbar.*

BUCCINUM.

Undatum, Lapillus, Macula — *Dunbar, Leith* roads, and most other parts.
Reticulatum — *Dunbar*, the smaller variety plentiful, the other scarce.
†Bilineatum, †Minimum, †Terrestre — *Dunbar.*

STROMBUS.

†Pes Pelecani — Dredged in *Leith* roads.
*Turboformis

*Turboformis, *Costatus — On the shore of the isle of *Nuns*.

MUREX.

*Antiquus — *Aberlady* bay and *Leith* roads.
†Carinatus — *Dunbar*.
†Purpureus — Dredged in *Leith* roads.
Linearis, †Muricatus, †Sinuosus — *Dunbar*.
Turricula, *Rufus — *Dunbar* and *Belton* sands.
*Costatus, †Gyrinus, *Gracilis, Nebula, *Septangularis — *Dunbar*.
*Tubercularis, *Adversus — *Leith*, and white var. of the former.
*Reticulatus — Coasts of the Western Highlands.
†Fuscatus — Isle of *Jura*.
Bamffius — *Dunbar* and larger specimens in *Leith* roads.
†Accinctus, *Erinaceus — *Frith* of *Forth*.
†Subulatus — Sound of *Mull*.
†Proximus — *Tyningham* sands.

TROCHUS.

†Crassus — *Dunbar*.
Cinerarius — On all parts of the coast.
Umbilicatus — On many parts of the coast, but not plentiful.
†Tumidus — Taken from the rejectamenta of a boat at *Newhaven*.

TURBO.

Terebra — *Leith* and *Porto Bello* sands.
*Clathrus, †Clathratulus, †Elegantissimus — *Dunbar*.
Littoreus, Rudis — All the rocky shores.
Canalis, Parvus, Costatus, Striatus — *Dunbar*.
*Bryereus, Interuptus — *Belton* sands
*Subumbilicatus, Ulvæ, *Cingillus, *Subtruncatus, *Truncatus — *Dunbar*.
Jugosus — Rocks *Dunbar* and Isle of *May*.
*Crassior — *Dunbar*.
Punctura, †Disjunctus — *Belton* sands.
†Cimex, *Semicostatus, Unifasciatus — *Dunbar* sands.
†Calcar — *Jona*, one of the Western isles.
*Unidentatus, Ruber — *Dunbar*.

†Calathiscus

†Calathiscus, †Simillimus } Island of *Jura*.
†Juniperi } Upon a hill near *Dunbar*.
†Tridens — *Carline* park.
Perversus } *Arthur's Seat*, near *Edinburgh*.

HELIX.

Putris — *Dunbar*.
Lubrica — *Carline* park near *Leith*.
*Obscura, *Polita, *Subulata, Lacuna } *Dunbar*, and the banded variety of the last, common.
*Lævigata — *Porto Bello* sands.
*Labiosa } Near *Dunbar*, with the ribbed variety.
*Decussata — *Porto Bello* sands.
*Fusca — *Musselburgh*.
Aspersa, Nemoralis } In many parts common.
*Contorta — *Leith*.
*Alba — *Dunbar*.

NERITA.

Littoralis — All the coasts.
Pallidula — *Dunbar*.
Glaucina } *Porto Bello* and *Dunbar*.
†Rufa, †Nitida } *Dunbar*.
†Tuberosissima, *Frith* of *Forth*.

HALIOTIS.

†Tuberculata — *Leith* sands.

PATELLA.

Vulgata — On all the coasts.
Cærulea, Pellucida, Parva } *Dunbar*.
†Intorta — *Frith* of *Forth*.
†Antiquata, †Militaris, Fissura } *Dunbar*.
Ungarica } *Dunbar*, not uncommon but small.
*Chinensis — *Dunbar*, very small.
Fluviatilis — *Dunbar*.

DENTALIUM.

*Entalis — *Leith* roads.
†Glabrum — *Dunbar*.

SERPULA.

Spirorbis, Spirillum, Granulata } *Dunbar*, and other parts.
Lucida, Tubularia, Triquetra } *Dunbar*.
Vermicularis } *Belton*, *Porto Bello*, and *Leith*.

VERMICULUM.

Subrotundum, †Lacteum, †Marginatum } *Dunbar*.

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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*
13, l. 17, cartilageous, r. *cartilagenous*
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, *inequivalvis*, r. *inæquivalvis*
Page 96, l. 4 & 5, *Bulaoides*, r. *Bullaoides*
100, l. 8, andulate, r. *undulate*
103, l. 26, indiginous, r. *indigenous*
109, l. 14, DUCHESS, r. *DUTCHESS.*
109, l. 21, *Gronland*, r. *Gröenland*
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 Interuptus, r. *Interruptus*

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VIGNETTE I.

1 Bulla hydatis, natural ſize, p. 217.
2 Ditto, with the anterior part of the animal, and lateral fin-like membranes protruded.
3 The gizzard or ſtomach of the animal. Natural ſize.
4 Ditto, as it appears when firſt extracted from the animal, magnified; ſhewing the tips of the plates A. A. A. covered by a thin membrane, and ſurrounding muſcular integument, thickened at the upper part B.
C The part attached to the mouth, with the Oeſophagus, or gullet, communicating with the gizzard.
D. The inteſtinal, or alimentary canal.
5 The gizzard laid open at its anterior end, ſhewing the three corrugated, corneous plates, E. E. E. with their connecting ligaments F. magnified.
6 A plate of ditto of its natural ſize.
7 Helix criſtata, natural ſize, p. 460.
8 Ditto, with the anterior part of its animal protruded, as in the act of crawling, magnified.

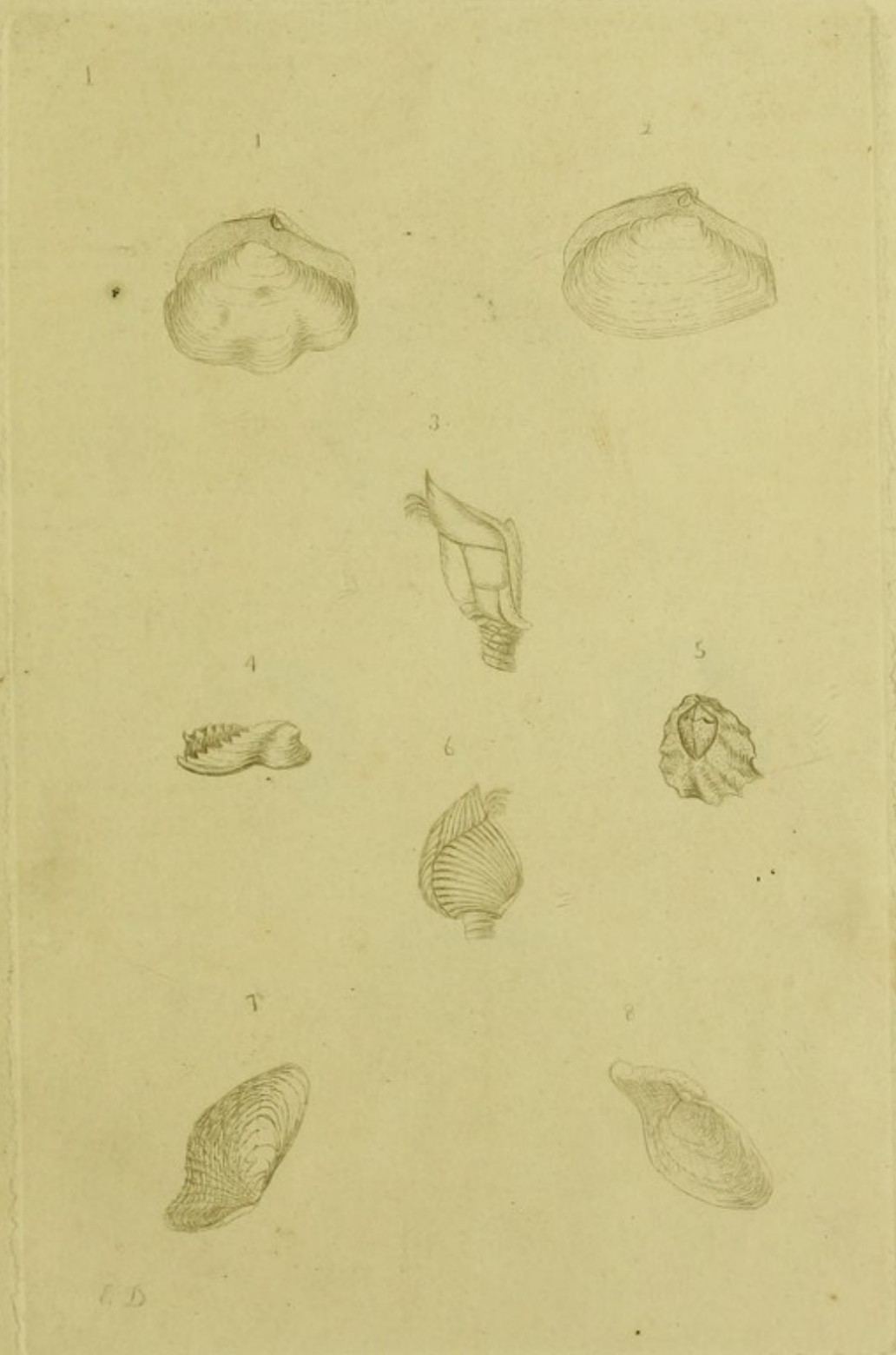
VIGNETTE II.

1 Bulla aperta, natural ſize, p. 208.
2 Animal of ditto, with the ſhell concealed under the poſterior ſhield A
3 The gizzard, of its natural ſize, compoſed of three teſtaceous plates, ſhewing the ſmaller plate B. with the connecting ligament C.
4 Another view of the gizzard, ſhewing the two larger plates D. D. with their connecting ligament.
E. The gullet. F. The alimentary canal.

5 Animal of Bulla plumula, p. 214. G. Its protruded foramen. H. H. the lower lamina, or border of the ſuſtentaculum.

I. The upper lamina, under the middle of which the ſhell is concealed. K. A plumoſe feeler. L. the tentacula, at the baſe of which the eyes are placed.

6 Animal of Bulla haliotoidea, p. 211. M. The membranaceous ſhield, under which the ſhell is concealed. N. a ſinus, through which an appendage, or arm, is ſometimes protruded. O. The tentacula, at the baſe of which the eyes are placed.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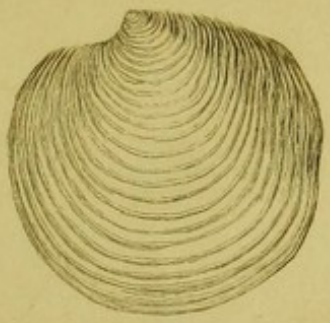

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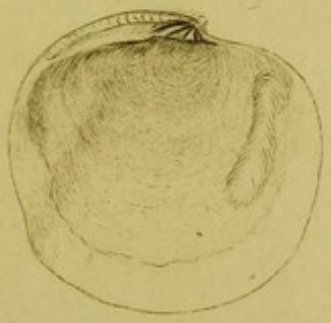

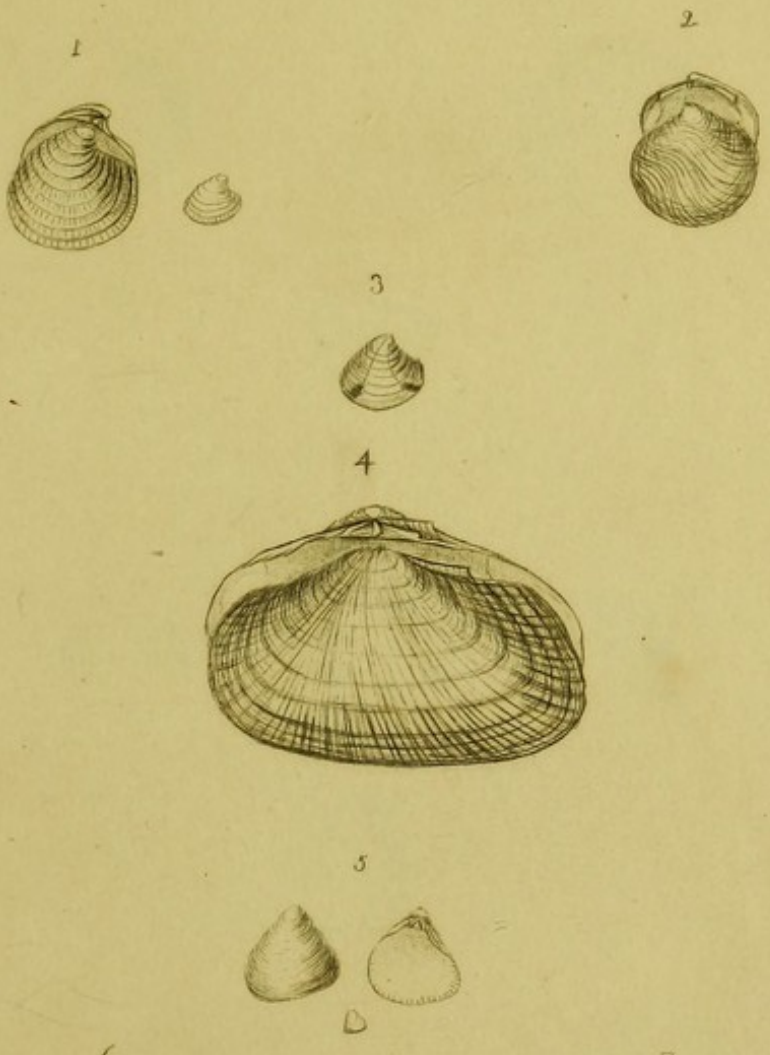
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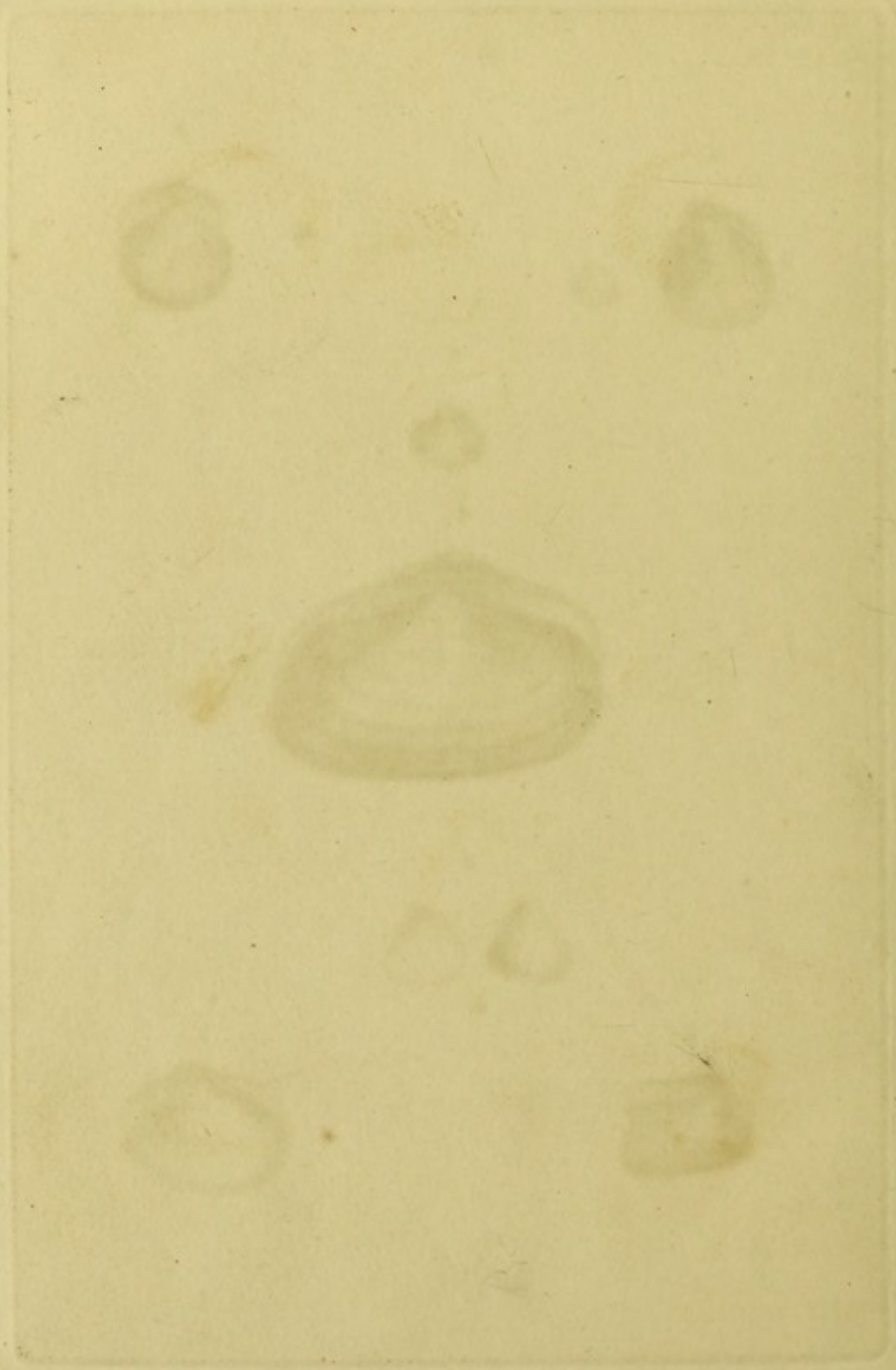

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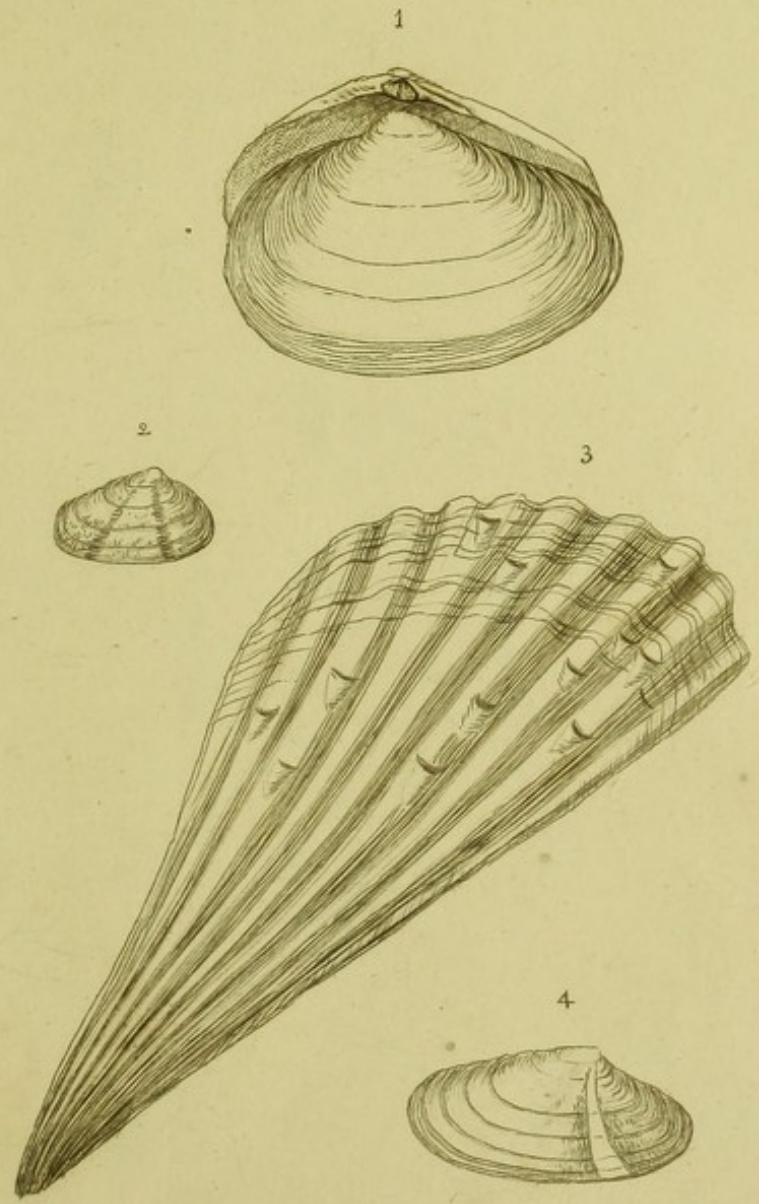
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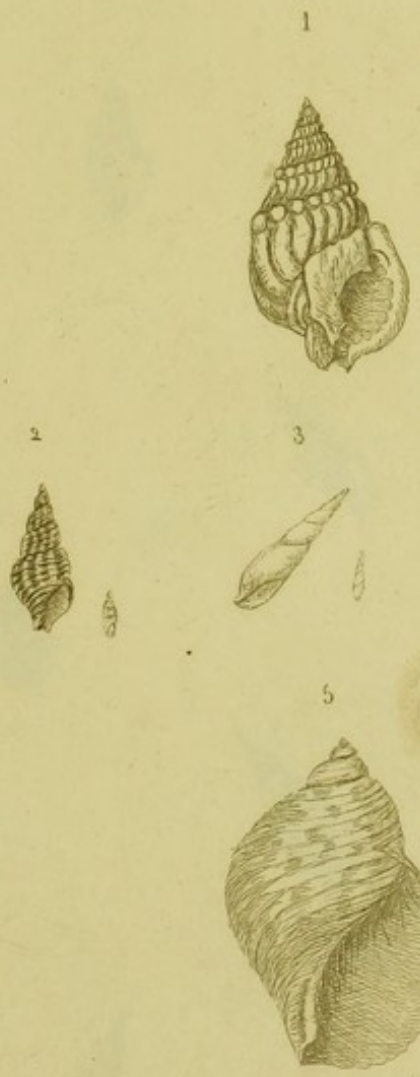

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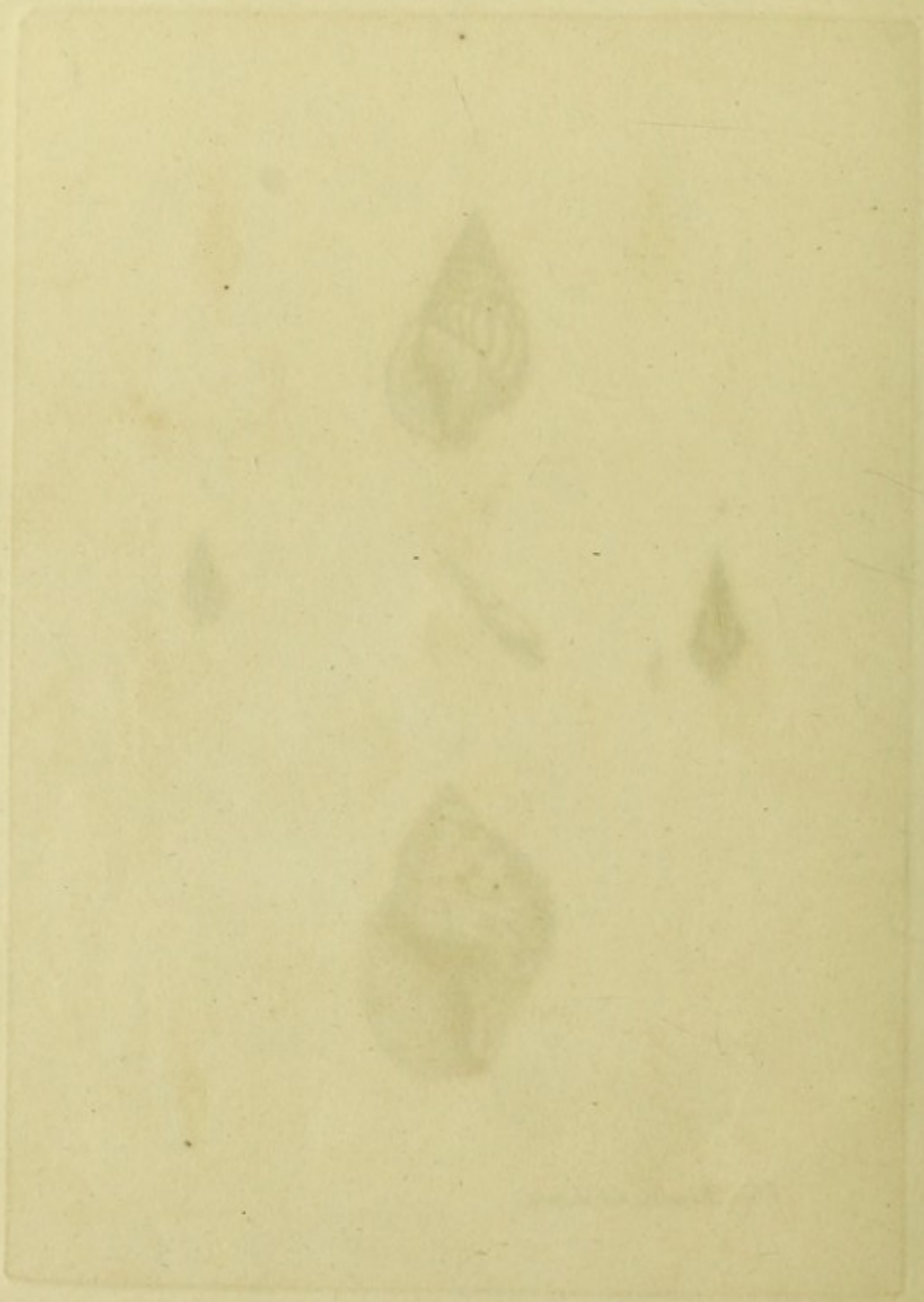

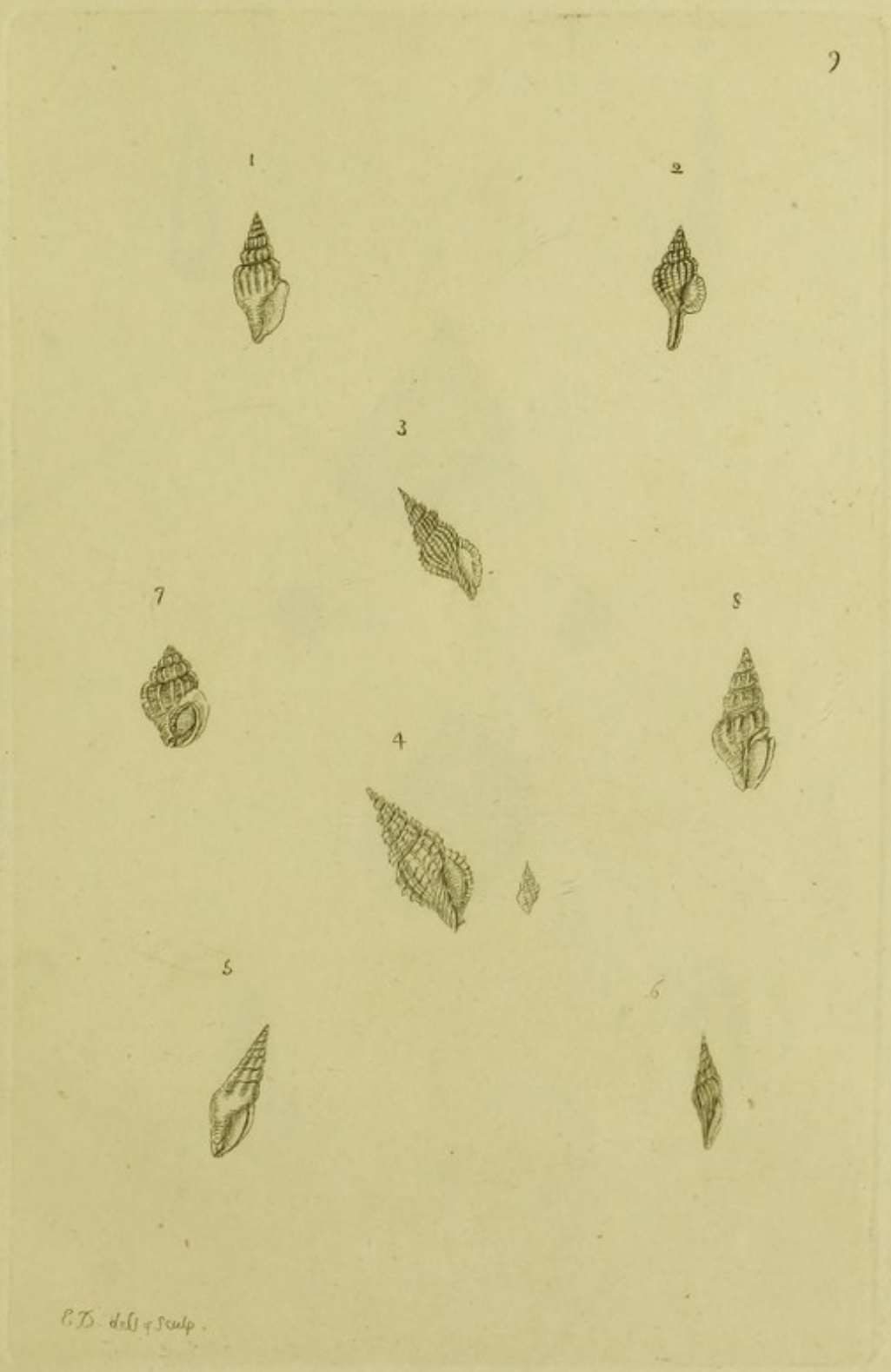
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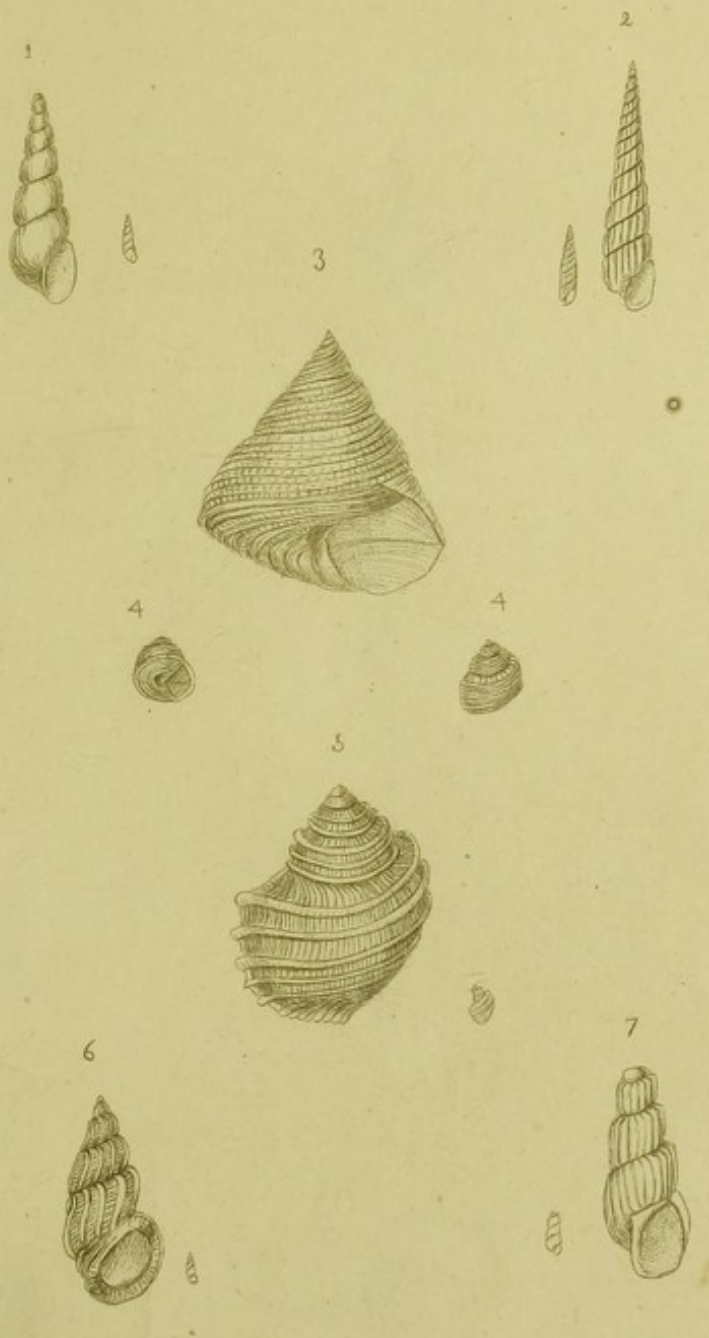
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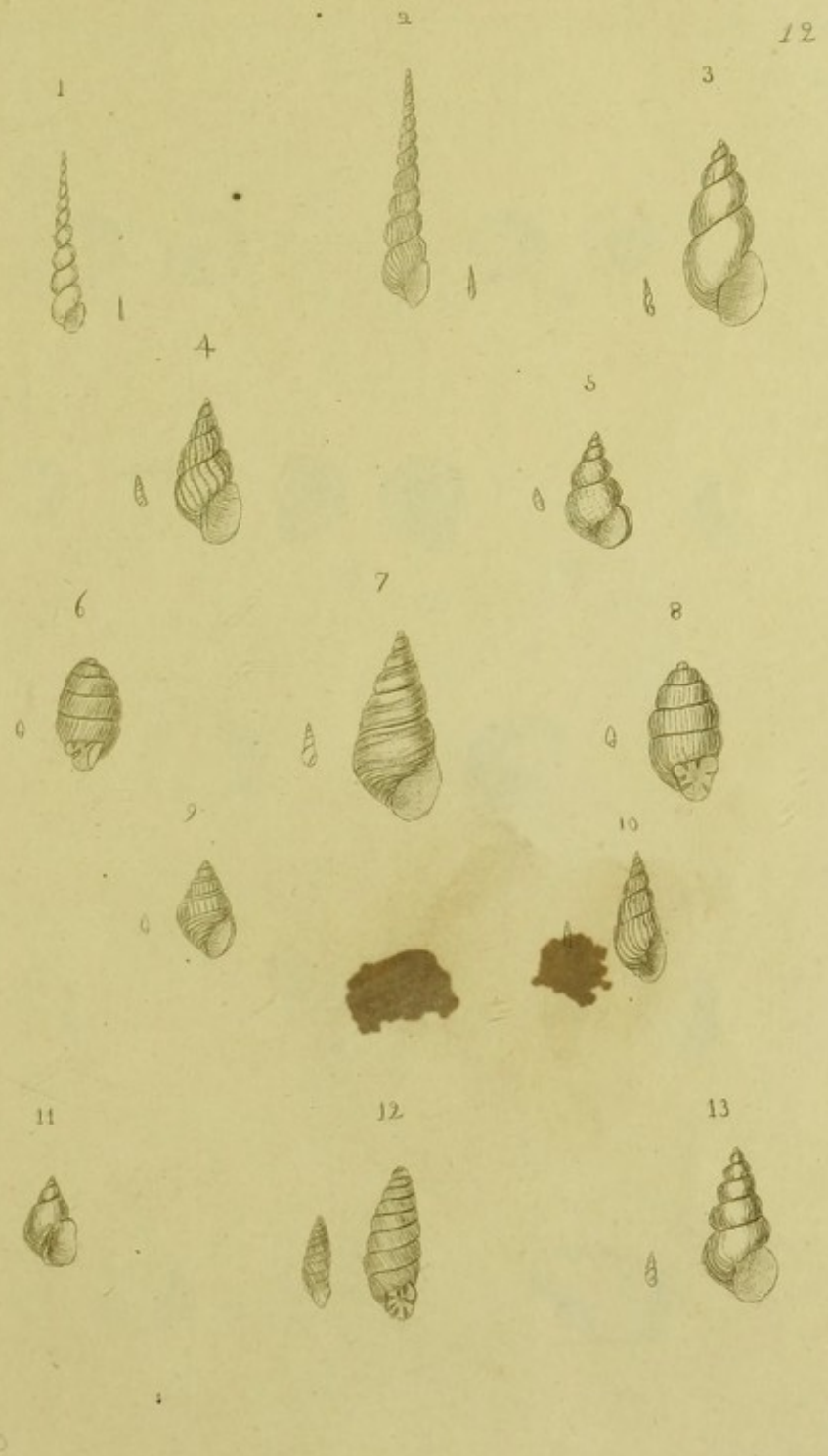
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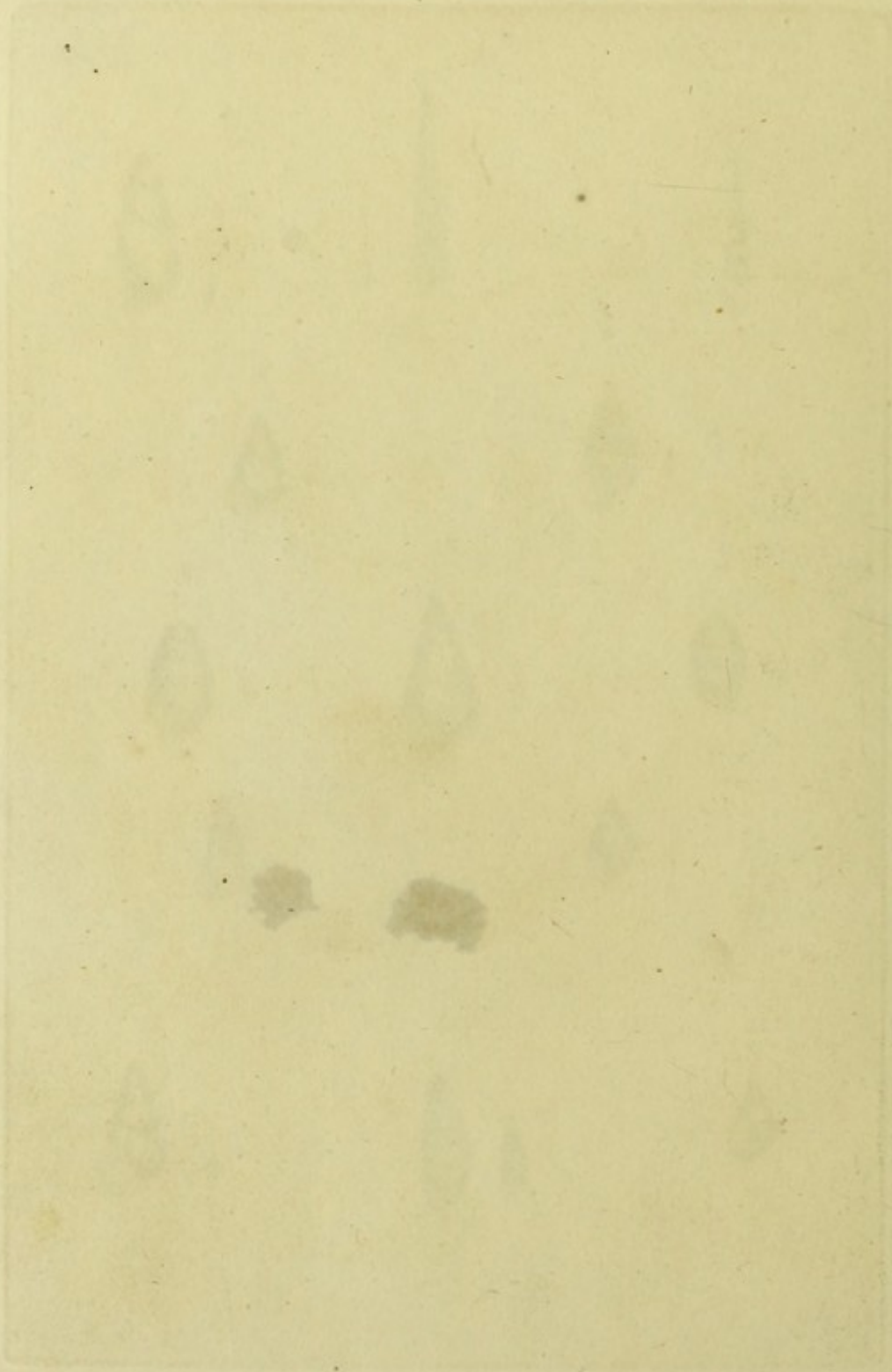

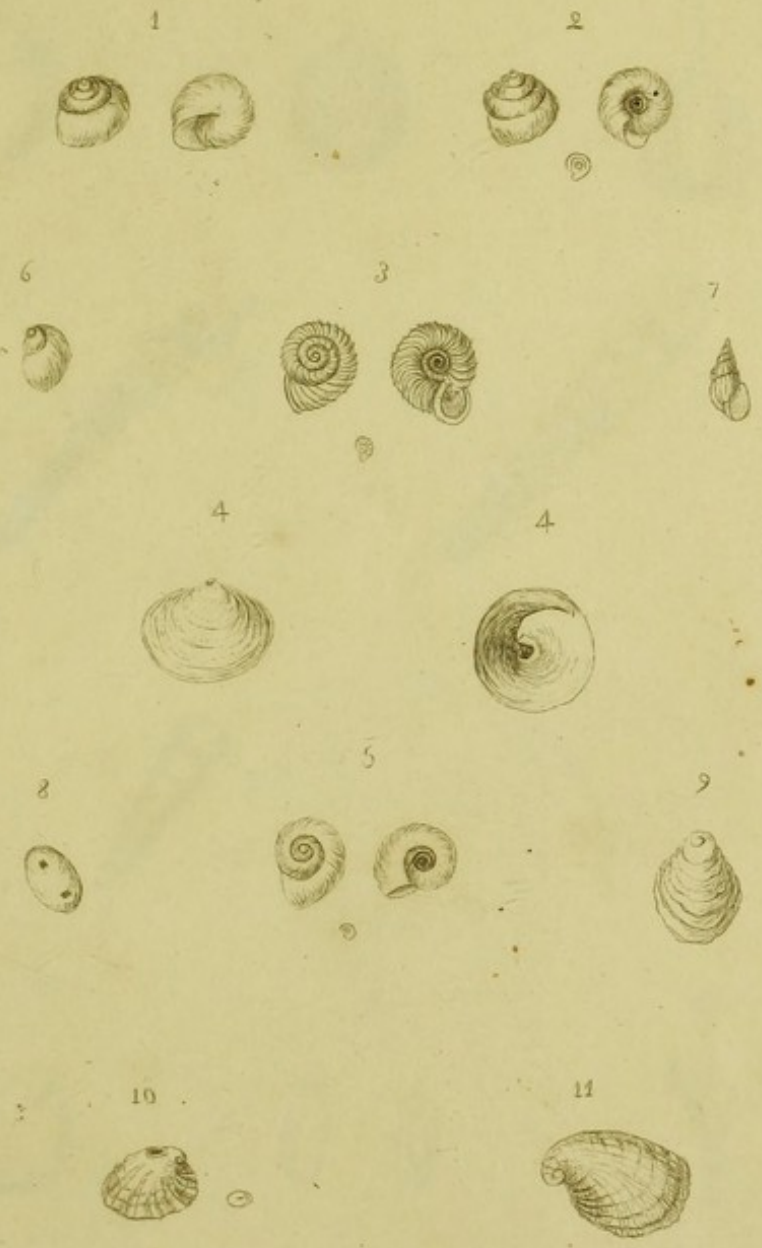
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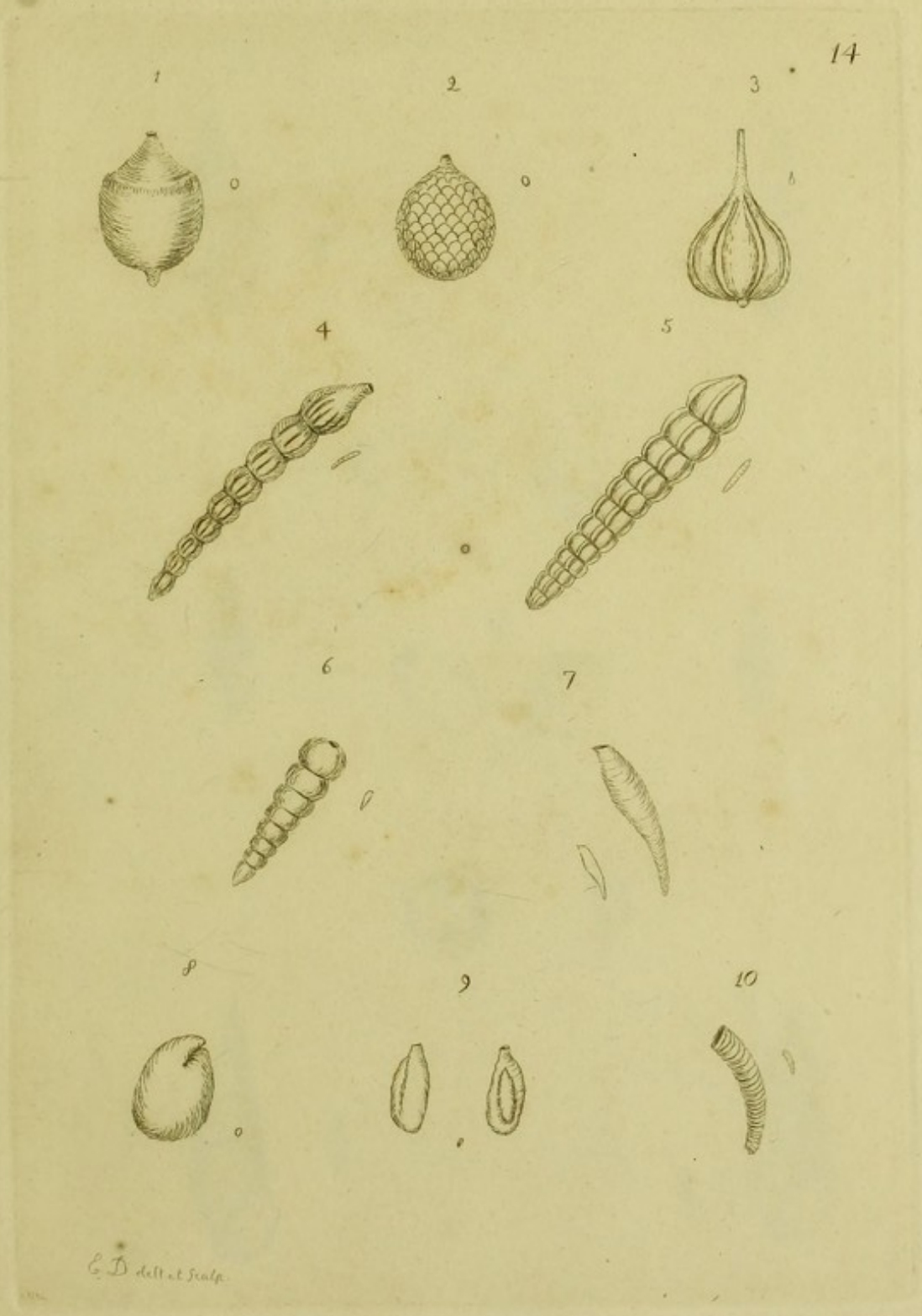
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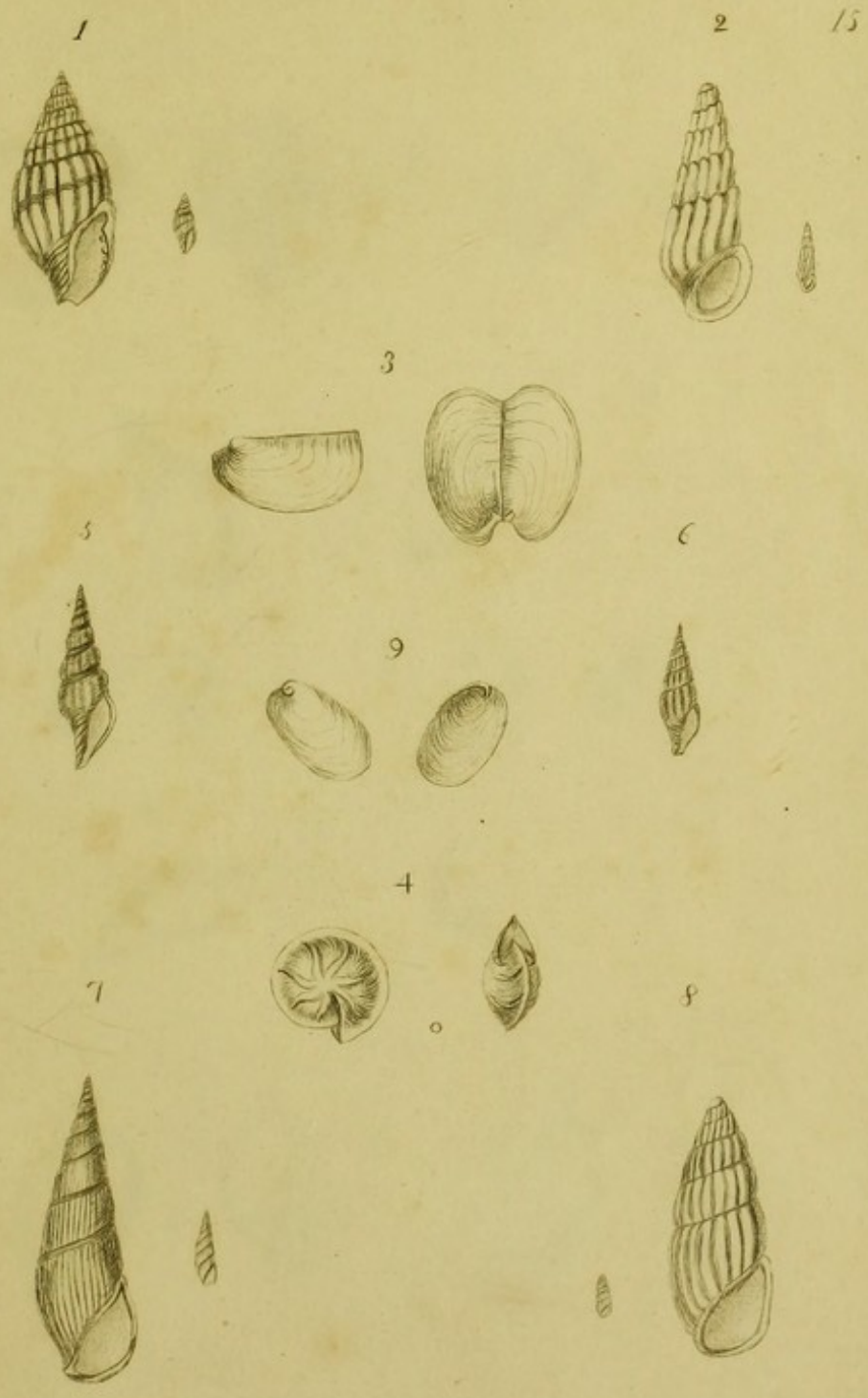
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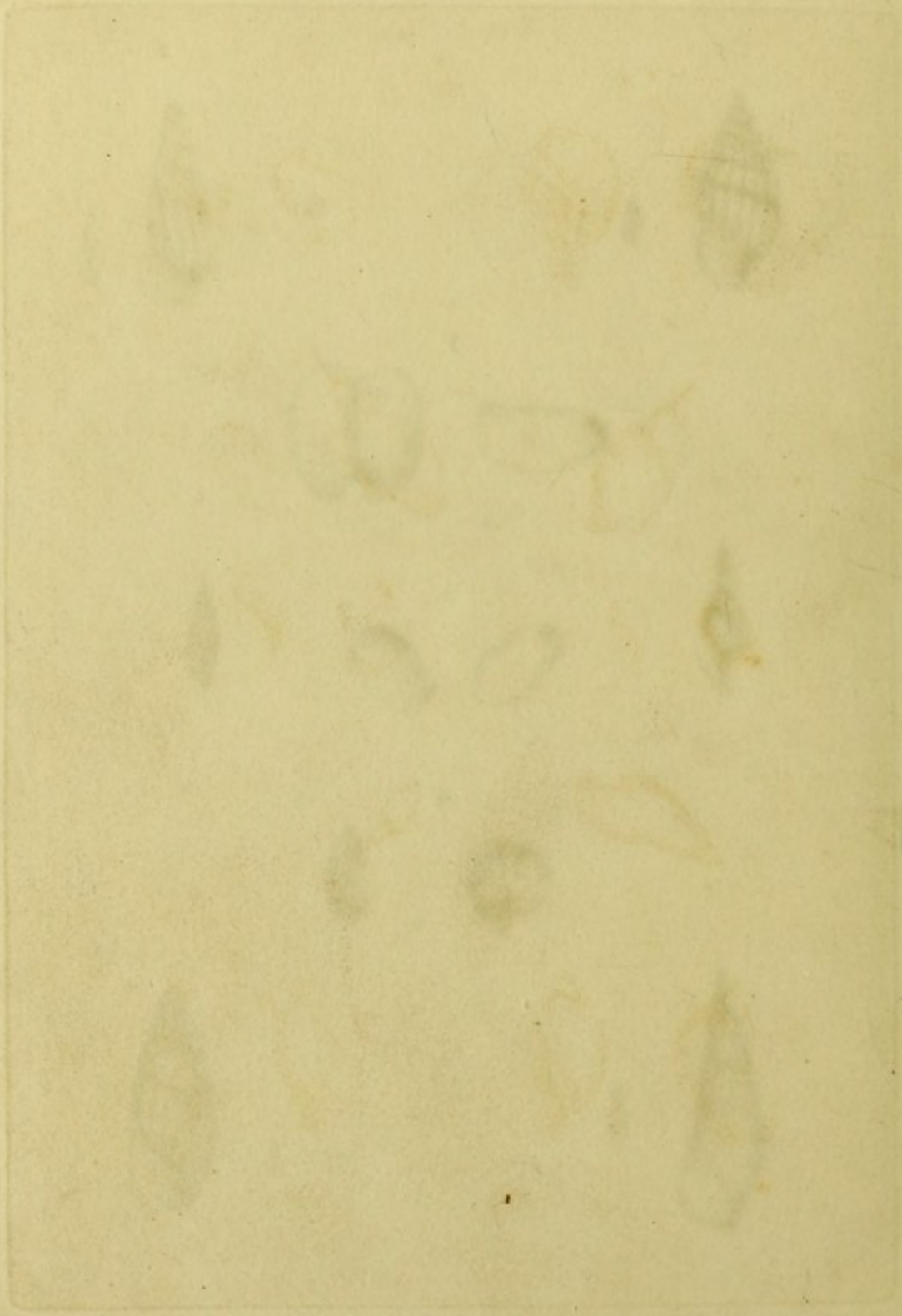

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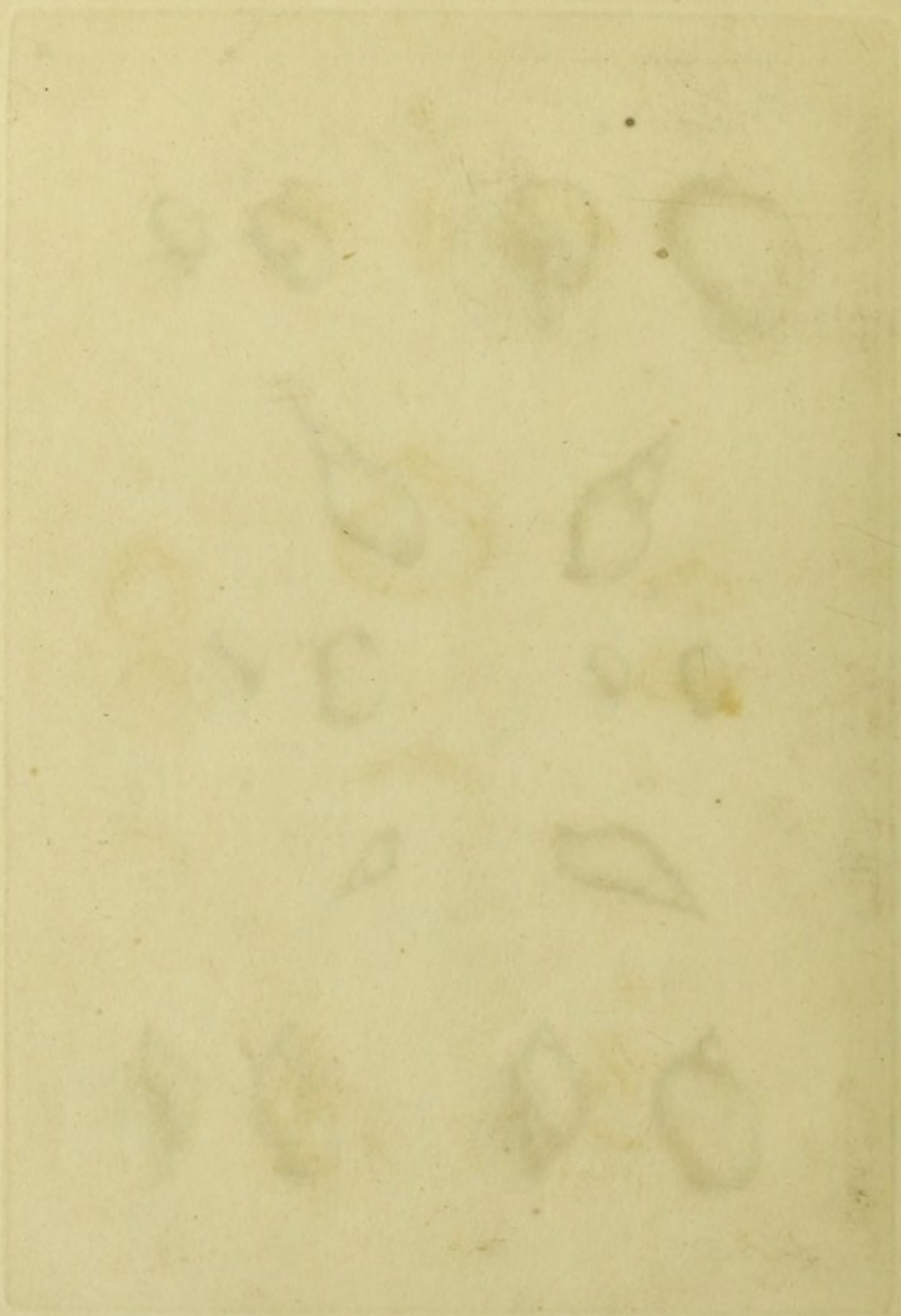

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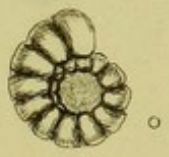

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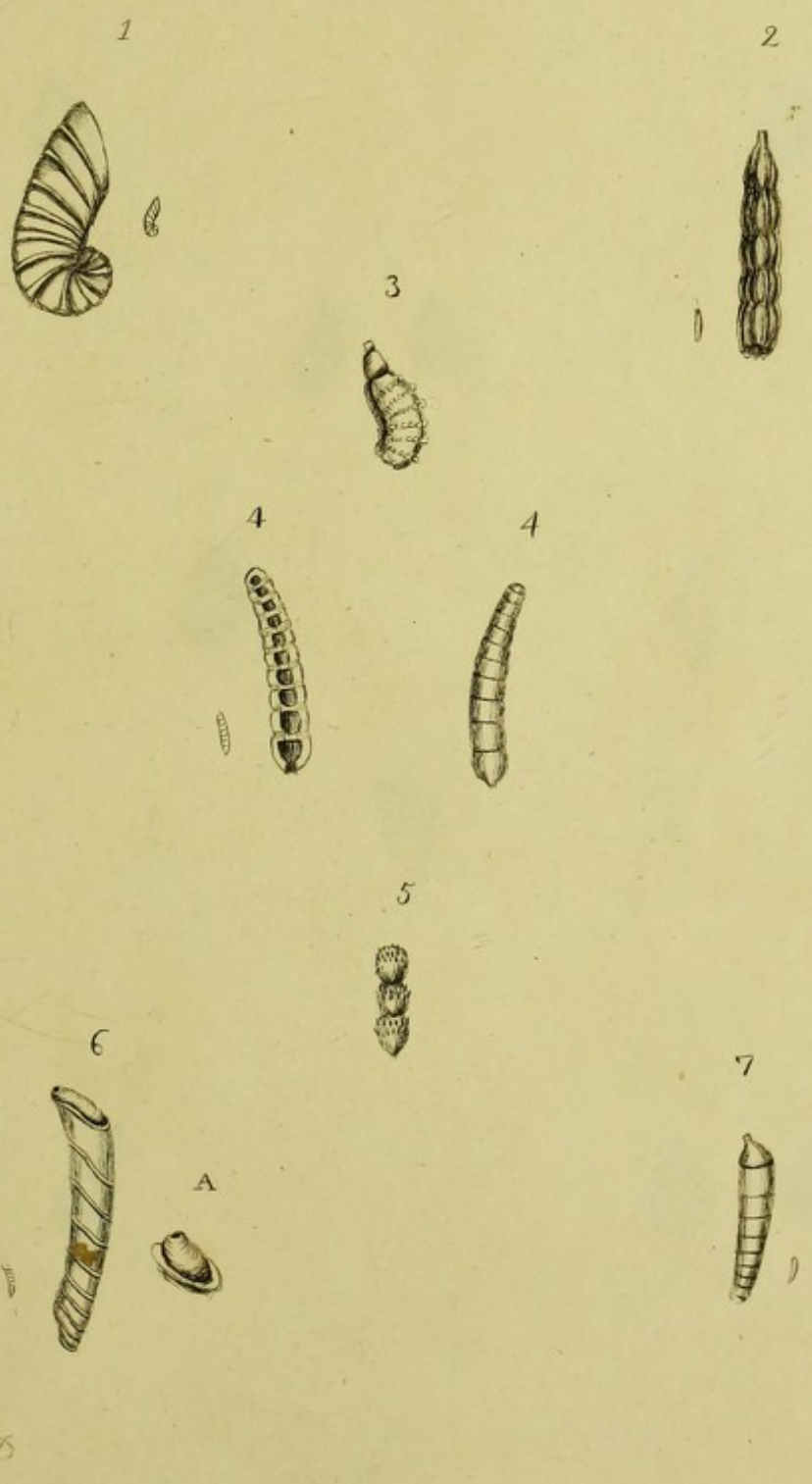
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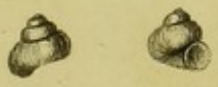

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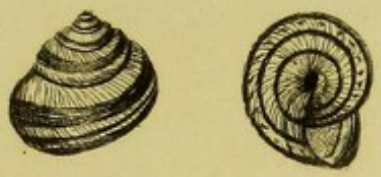

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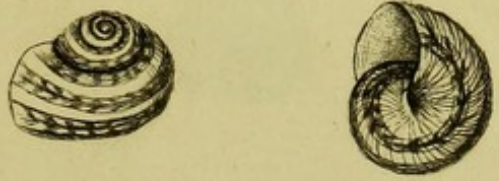

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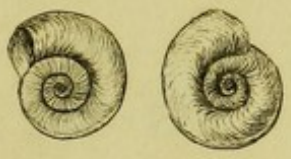

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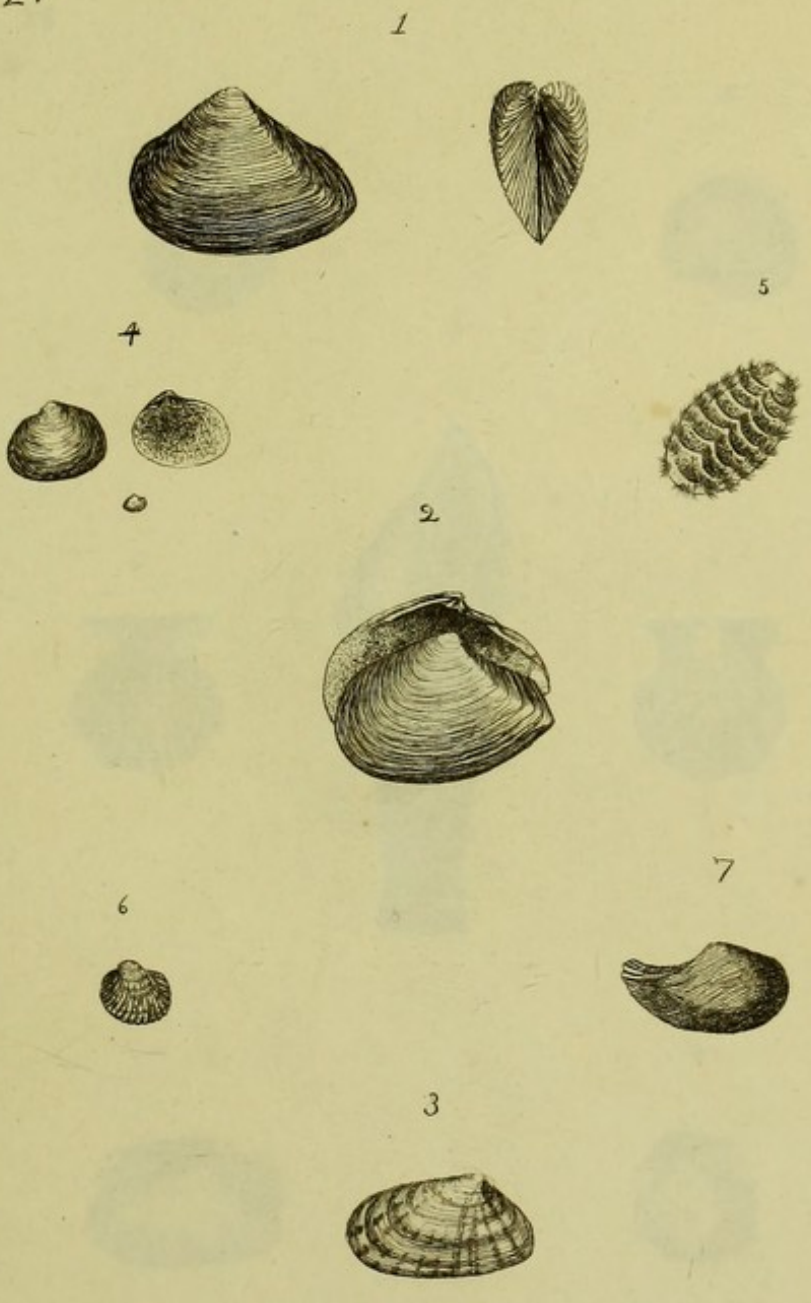

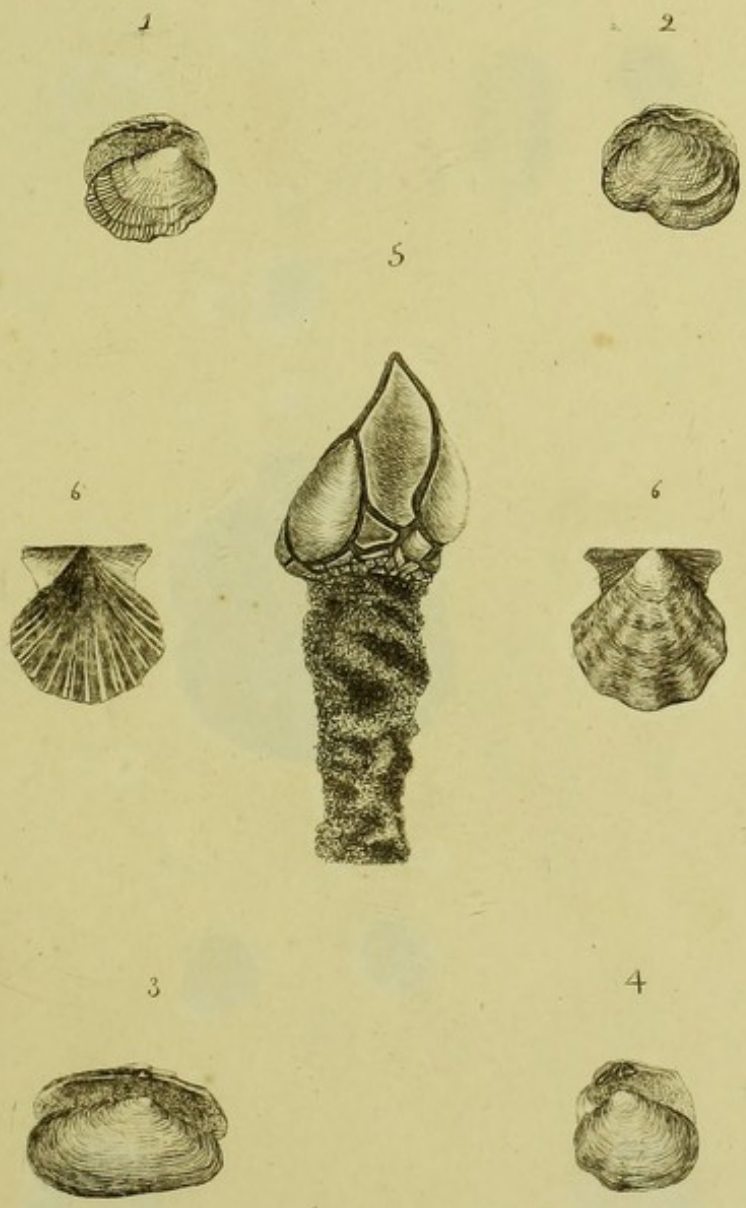
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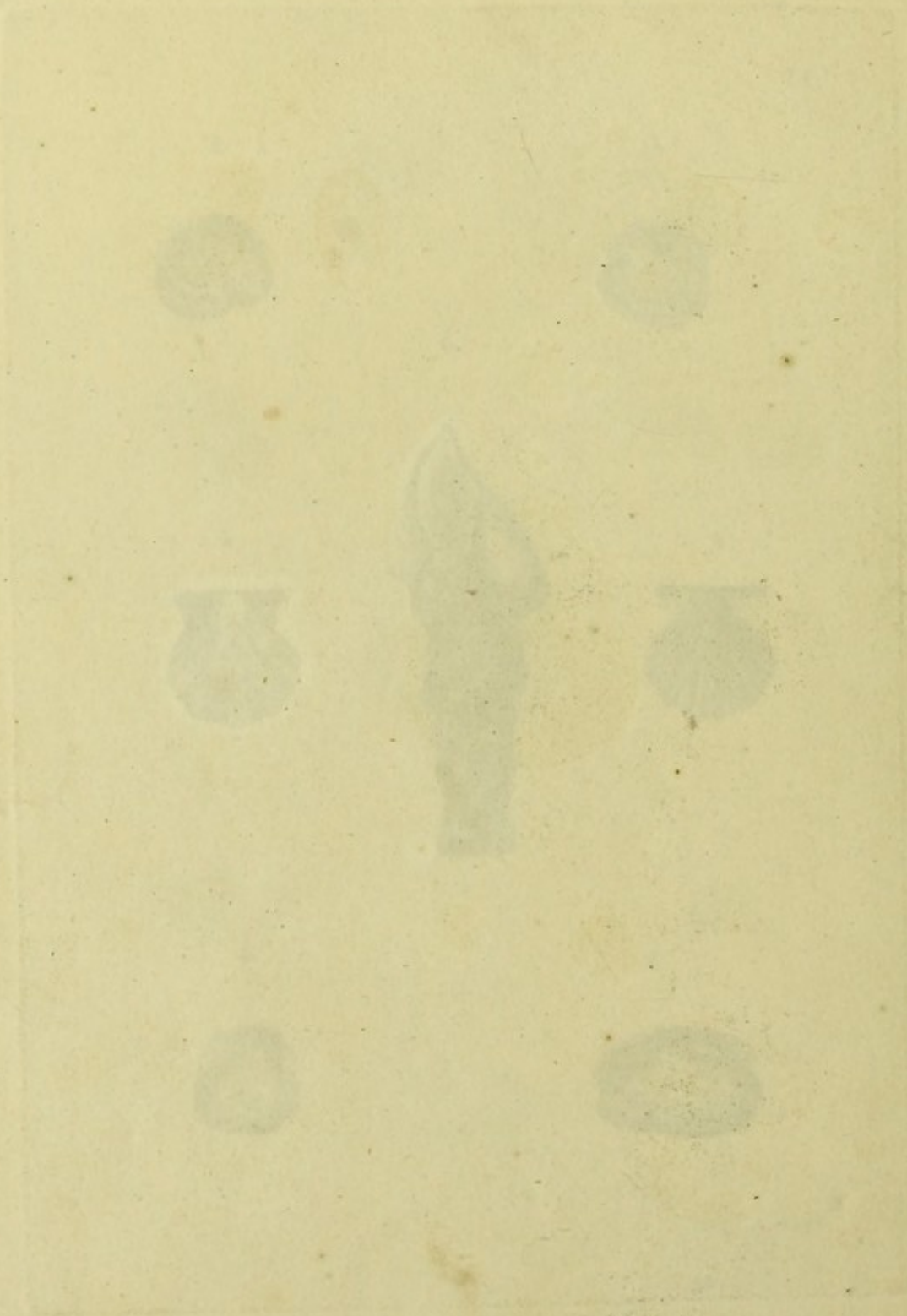

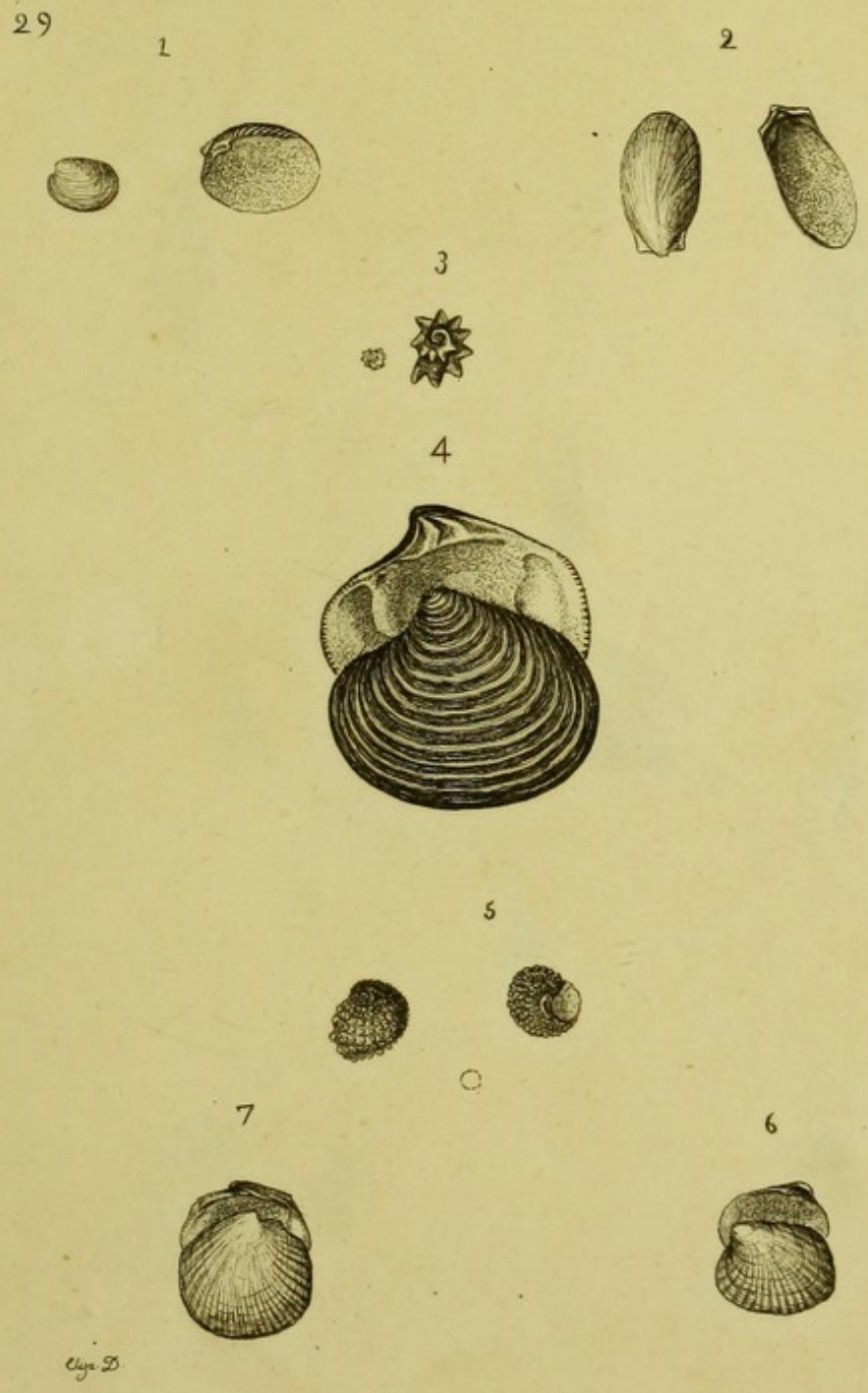
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Elya D.