

Division of Mollusks
Sectional Library

THE
NATURAL HISTORY
OF
BRITISH SHELLS,

164

Division of Mollusks
Sectional Library

INCLUDING

FIGURES AND DESCRIPTIONS

OF ALL THE

SPECIES HITHERTO DISCOVERED IN GREAT BRITAIN,

SYSTEMATICALLY ARRANGED

IN THE LINNEAN MANNER,

WITH

SCIENTIFIC AND GENERAL OBSERVATIONS ON EACH.

VOL. III.

By E. DONOVAN, F.L.S.

AUTHOR OF THE NATURAL HISTORIES OF
BRITISH BIRDS, INSECTS, &c. &c.

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THE HISTORY OF

THE UNITED STATES

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THE
NATURAL HISTORY
OF
BRITISH SHELLS.

PLATE LXXIII.

MYA MARGARITIFERA.

RIVER PEARL MUSCLE.

GENERIC CHARACTER.

Animal an Ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick strong broad tooth, not inserted into the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell oblong, thick, and covered with a coarse black epidermis, much decorticated or worn down about the beaks. A large notched conic tooth in one valve, and two small ones in the other.

PLATE LXXIII.

MYA MARGARITIFERA: testa ovata antèrius coarctata, cardinis dente primario conico, natibus decorticatis. *Linn. Fn. Suec.* 2130.—*Gmel. Linn. Syst. Nat.* 3219. *sp.* 4.

Mya nigrescens crassa & ponderosa margaritifera. *Margaritifera. Da Costa Br. Conch. p.* 225. *sp.* 53. *tab.* 15. *fig.* 3. 3.

Musculus niger omnium crassissima et ponderosissima testa. Conchæ longæ species. Gesn. & Aldrov. List. App. H. An. Angl. p. 11. *tit.* 31. *tab.* 1. *fig.* 1. & *App. H. An. Angl. in Goed. p.* 15. *tit.* 31. *tab.* 1. *fig.* 1.

Musculus niger omnium longe crassissimus. Conchæ longæ species. Gefn. & Aldr. Hist. Conch. tab. 149. *fig.* 4.

Musculi margaritiferi. Bede Hist. Ecclesiast. I. 1. c. 1.

Martin's West. Isles. p. 7. &c.

Pearl Muscles. Leigh Lancashire, p. 134.

Mytulus major margaritiferus. Wallis Northumb. p. 403. *No.* 42.

Mya margaritifera. Pearl. Penn. Br. Zool. No. 18. *tab.* 43. *fig.* 18.

“ This shell,” says Pennant, “ is noted for producing quantities of pearl. There have been regular fisheries for the sake of this precious article in several of our rivers. Sixteen have been found in one shell. They are the disease of the fish analogous to the stone in the human body. On being squeezed, they will eject the pearl, and often cast it spontaneously in the sand of the stream.

“ The Conway was noted for them in the days of Camden. A notion also prevails that Sir Richard Wynne, of Gwydir, chamber-

lain to Catherine queen to Charles II. presented her majesty with a pearl (taken in this river) which is to this day honoured with a place in the regal crown. They are called by the Welsh *Cregin Diluw*, or Deluge Shells, as if left there by the flood.

“ The *Irt*, in Cumberland, was also productive of them. The famous circumnavigator, Sir John Hawkins, had a patent for fishing that river. He had observed pearls plentiful in the straits of Magellan, and flattered himself with being enriched by procuring them within his own island.

“ In the last century, several of great size were gotten in the rivers in the county of Tyrone and Donegal, in Ireland. One weighed thirty-six *carats*, was valued at 40*l.* but being foul lost much of its worth. Other single pearls were sold for 4*l.* 10*s.* and even for 10*l.* The last was sold a second time to lady Glenlealy, who put it into a necklace, and refused 80*l.* for it from the duchess of Ormond.”

“ Suetonius reports, that Cæsar was induced to undertake his British expedition for the sake of our pearls; and that they were so large that it was necessary to use the hand to try the weight of a single one*. I imagine Cæsar only heard this by report; and that the crystalline balls in old leases, called mineral pearl, were mistaken for them †.”

“ We believe that Cæsar was disappointed of his hope: yet we are told that he brought home a buckler made with British pearl ‡, which

* *Sueton. Vit. Jul. Cæs. c. lxiv.*

† Woodward's Method of Fossils, 29. part 2.

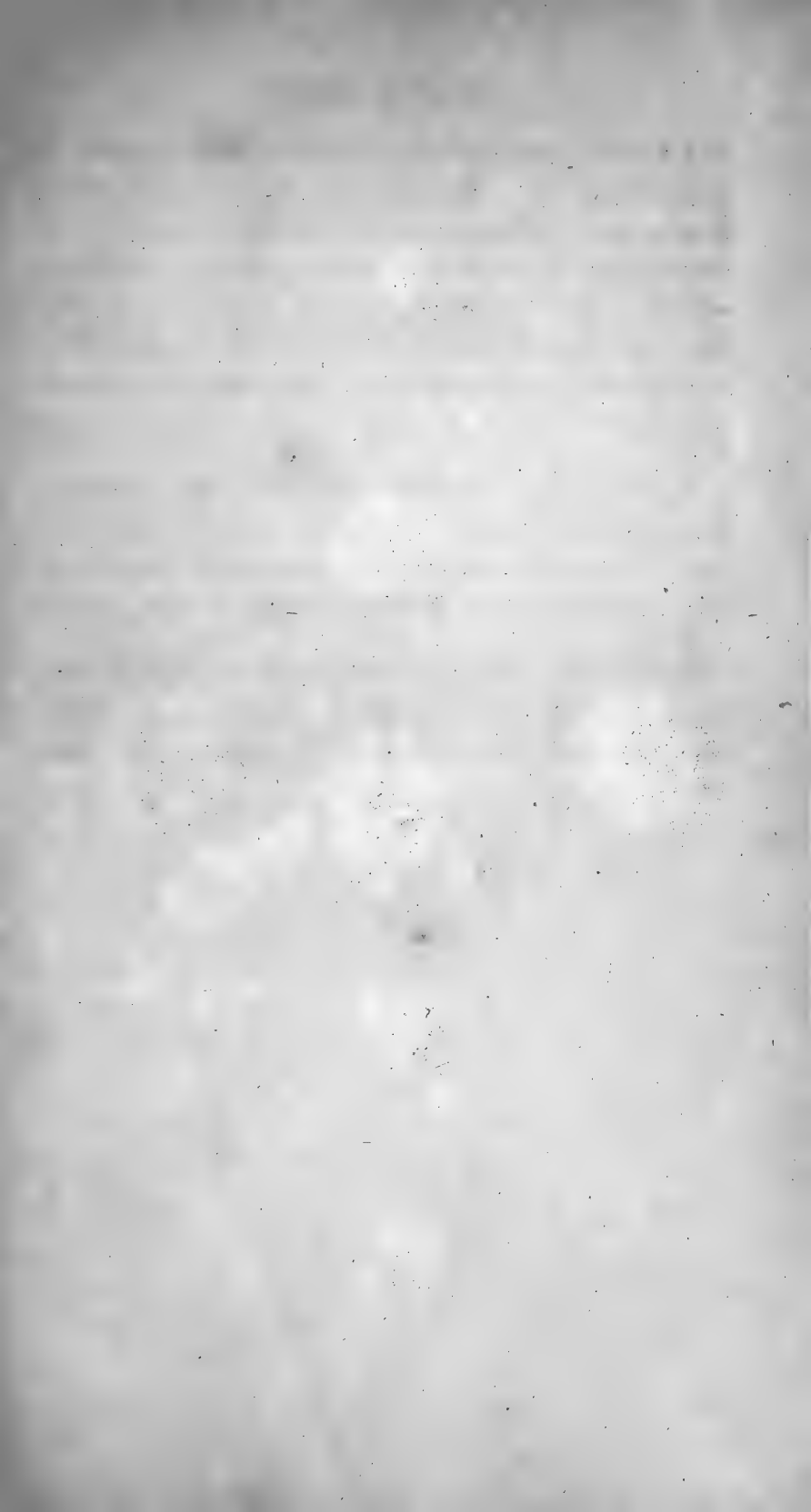
‡ *Plinii, lib. 9. c. 35. Tacit. Vit. Agricola.*

PLATE LXXIII.

he dedicated to, and hung up in the temple of Venus Genetrix. A proper offering to the goddess of beauty, who sprung from the sea. I cannot omit mentioning, that notwithstanding the classics honour our pearl with their notice, yet they report them to be small and ill coloured; an imputation that in general they are still liable to. Pliny says, “ that a red small kind was found about the Thracian Bosphorus, in a shell called Mya, but does not give it any mark to ascertain the species.”

The *Mya Margaritifera* is found only in great rivers, and chiefly in those of the northern parts of Great Britain. Da Costa mentions the Tees, Alne, North and South Tyne, Tweed, Dee, Don, &c. and adds, generally inhabits the deeper parts, as gulphs, whirlpools, &c.

The fishermen in the neighbourhood of the river Conway sometimes collect those shells, and extract the pearl, but as they are now become scarce, and the price inconsiderable, the fishery affords them little encouragement.



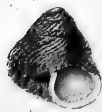
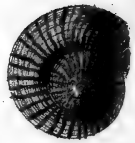
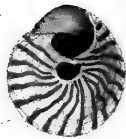


PLATE LXXIV.

TROCHUS CINERARIUS.

UMBILICAL TOP SHELL.

GENERIC CHARACTER.

Animal a slug. Shell spiral sub-conic.

SPECIFIC CHARACTER

AND

SYNONYMS.

Umbilicated or perforated at *the base*. Not very conic. Five whirls.—Colours various, generally greenish, radiated obliquely with red or brown.

TROCHUS CINERARIUS: testa oblique umbilicata, ovata, anfractibus rotundatis. *Linn. Syst. Nat. p. 1229. No. 590.*

Trochus planior umbilicatus, undatim ex fusco perbelle radiatus, UMBILICALIS *Da Costa. Br. Conch. p. 46. tab. 3. fig. 4. 4.*

Trochus planior undatim ex rubro late radiatus. *List. H. Conch. tab. 641. fig. 32.*

Umbilicated Top shell. *Dale Harwich. p. 381. No. 4.*

Trochus Umbilicaris: Umbilical. *Penn. Br. Zool. No. 106. tab. 80. fig. 106.*

A very common species on most of the British shores.

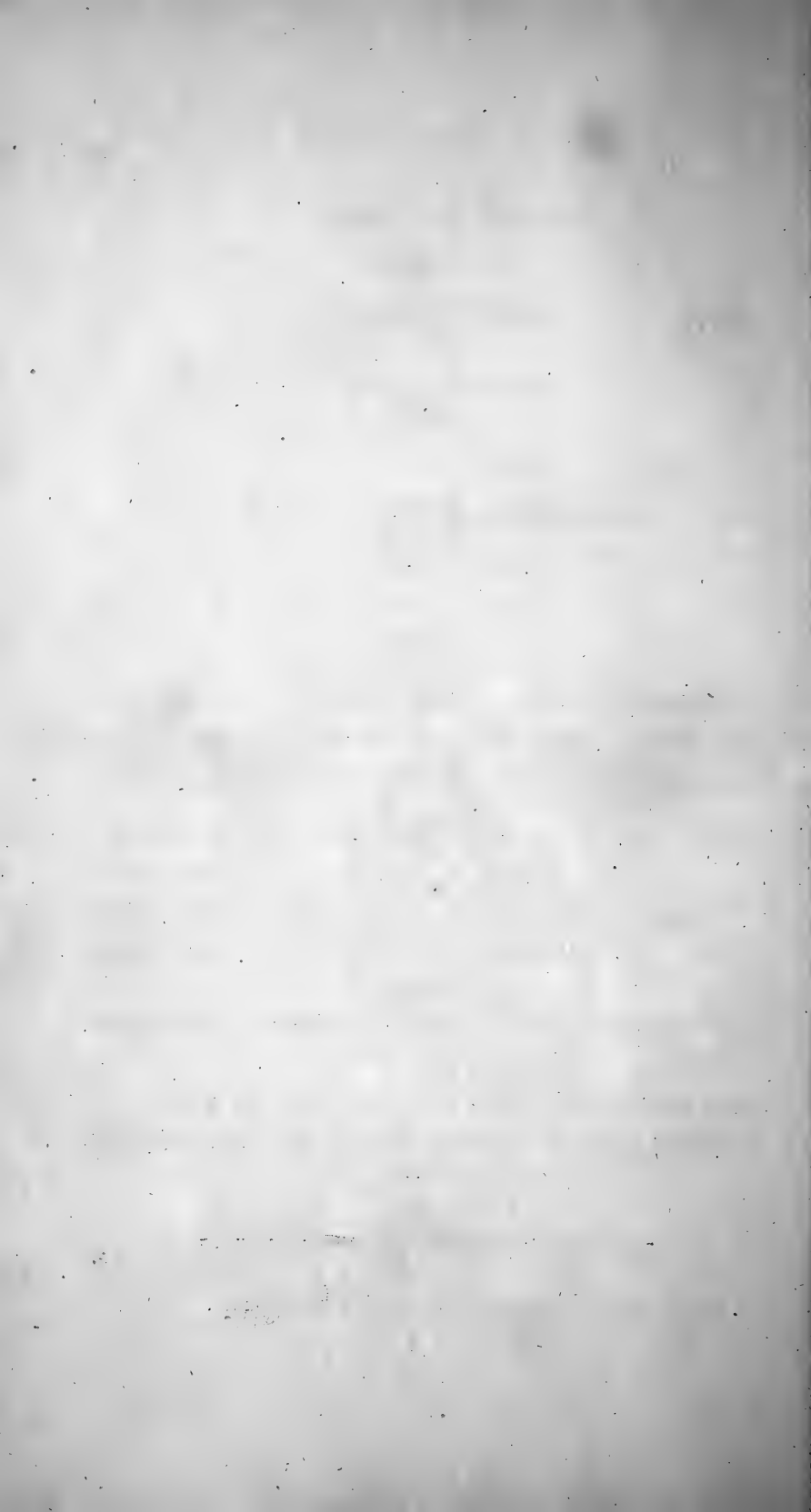




PLATE LXXV.

HELIX VORTEX.

COMMON WHIRL SHELL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell of five wreaths, horizontal. Somewhat convex on the upper side, under side flat, and carinated, or surrounded with a sharp edge.

HELIX VORTEX: testa carinata; supra concava, aperture ovali plana.

Linn. Syst. Nat. p. 1243. No. 667.

Cochlea testa plana fusca: supra concava, anfractibus quinque, margine acuto. *Linn. Fn. Suec. I. p. 374. No. 130.*

7. 11. No. 2172.

Cochlea exigua, subfusca, altera parte planior, sine limbo, quinque spirarum. *List. H. An. Angl. p. 145. tit. 28.*

tab. 2. fig. 28.

Cochlea exigua quinque orbium. *List. Conch. tab. 138. fig. 43.*

Planorbis polygirata minor. *Petiv. Gaz. tab. 92. fig. 6. 7.*

Morton Northampt. p. 417.

Helix vortex, Whirl. *Penn. Br. Zool. No. 124. tab. 83. fig. 124.*

PLATE LXXV.

Cochlea exigua plana sine limbo. Planorbis. Da Costa. Br. Conch.
p. 65. sp. 36. tab. 4. fig. 12.

A very common species of aquatic snail in stagnant waters and rivers. It is flat and thin, and has not a prominent border as in *Helix Limbata* of Da Costa, or *Helix Planorbis* of Pennant.





PLATE LXXVI.

BUCCINUM RETICULATUM.

RETICULATED WRY MOUTHED WHELK.

GENERIC CHARACTER.

Animal slug. Shell spiral, gibbous, aperture oval, ending in a short canal.

SPECIFIC CHARACTER

AND

SYNONYMS.

Oblong, reticulated, or furrowed transversely and longitudinally. Mouth beset with prominent teeth.

BUCCINUM RETICULATUM: testa ovato-oblonga transversim ftriata, longitudinaliter rugosa, apertura dentata.

Gmel. Linn. Syst. Nat. p. 3495. sp. 111.

Buccinum recurvirostrum cancellatum, columella sinuosa, labro dentato. Reticulatum. *Da Costa. Br. Conch. p. 131. tab. 7. fig. 10.*

Buccinum brevi rostrum cancellatum, dense sinuosum, labro dentato.

List. H. Conch. tab. 966. fig. 21.

Buccinum marinum cancellatum. Small latticed Whelke. *Petiv.*

Gaz. tab. 75. fig. 4.

PLATE LXXVI.

Dale Harw. p. 283. No. 7. & p. 285.

No. 3.

Smooth chequered Whelk. *Smith. Cork. p. 318.*

Very common on several of our sea coasts, especially on those of Essex, Kent, Sussex, &c. Also found in Wales and Ireland.

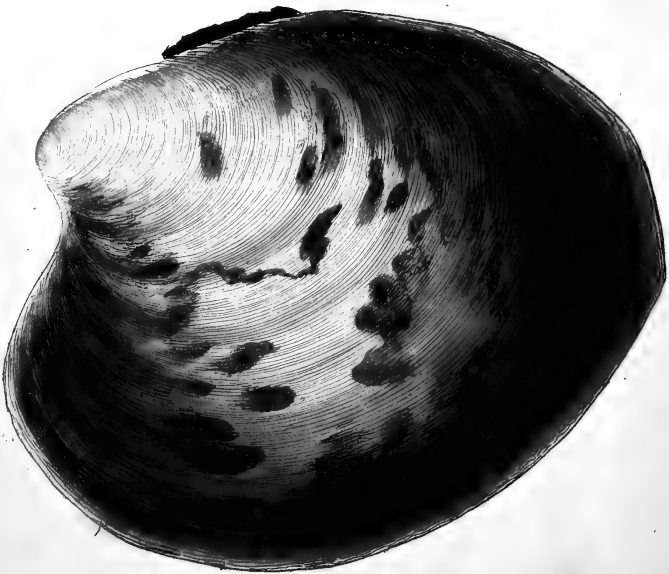
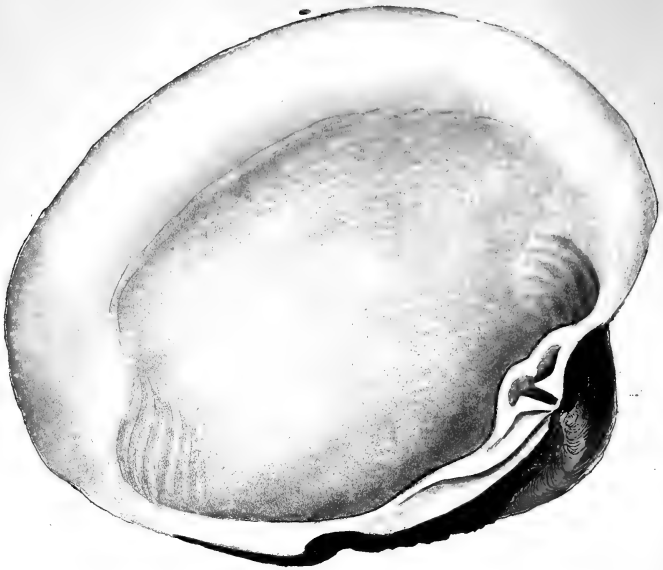


PLATE LXXVII.

VENUS ISLANDICA.

THICK VENUS.

GENERIC CHARACTER.

Bivalve. Hinge furnished with three teeth; two near each other, the third divergent from the beaks.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell strong, thick, heavy, covered with epidermis; space in which the hinge is inserted gaping. Margin acute and entire. White within.

VENUS ISLANDICA: testa transversim striata rudi, nymphis hiantibus, ano nullo. *Gmel. Linn. Syst. Nat.* 3271. *sp.* 15.

Pectunculus major crassus, albo castaneus. Crassus, Du Costa Br. Conch. sp. 183. *tab.* 14. *fig.* 5.

Concha é maximis, admodum Crassa, rotunda, ex nigro rufescens. *List, H. An. Angl. p.* 170. *tit.* 22. *tab.* 4. *fig.* 22.

Pectunculus maximus, subfuscus, valde gravis. List. H. Conch. tab. 272. *fig.* 108.

Venus mercenaria. Commercial. *Penn. Br. Zool. No.* 47. *tab.* 53. *fig.* 47.

PLATE LXXVII.

Chama inæquilatera, lævis, crassa, subalbida. Gualt. 1. Conch. tab. 85. fig. B.

Da Costa notices a material error amongst the synonyms Linnæus has given with his description of *Venus Mercenaria*. The *Venus Mercenaria* of Linnæus is the shell called North American Clam, and of which the Wampum, or indian money, is made; this is not the species found on our coast and figured by Lister, p. 173. as Linnæus imagined, but a shell altogether distinct; the English species Lister notices, is the true *Venus Islandica* of the Linnæan *Systema Naturæ*.

This error has misled Pennant, who confounds the North American kind with our species, at least as a variety having a purple tinge within it. Gmelin was aware of this mistake, for in his edition of the *Systema Naturæ*, both the plates and descriptions of Pennant and Da Costa are referred to in the synonyms of *Venus Islandica*.

This shell is perfectly white when fine, and is thickly covered with a fibrous epidermis of a black, or brownish colour. Found on several of our coasts. Da Costa mentions Northumberland, Yorkshire, Lancashire, Dorsetshire, Caernarvonshire, and other shores of Wales. Aberdeenshire, and the islands of Orkney, &c, in Scotland.

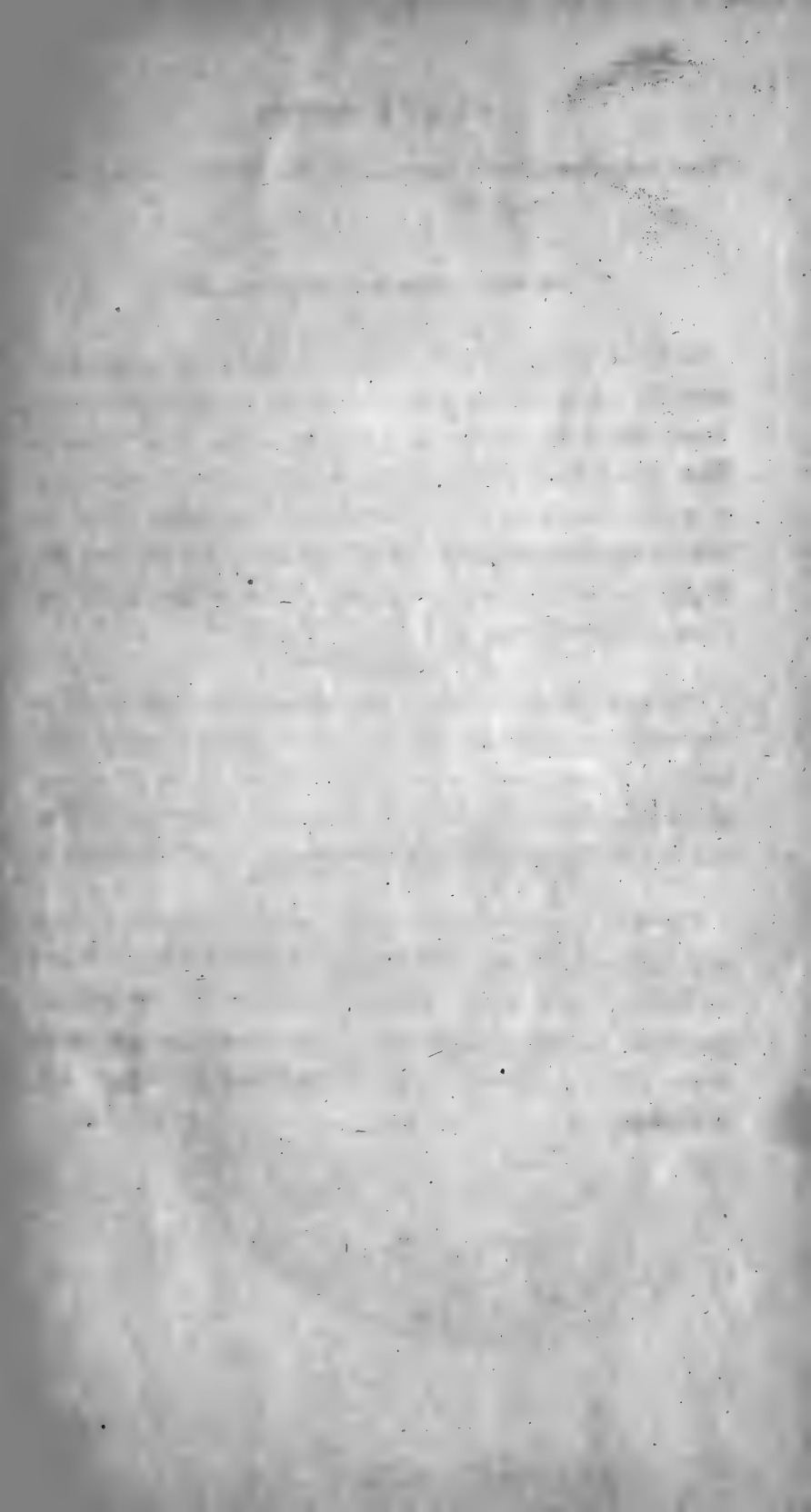




PLATE LXXVIII.

ARCA CAUDATA.

TAILED ARK SHELL.

GENERIC CHARACTER.

Animal Tethys. Shell bivalve equivalve. Teeth of the hinge numerous, inserted between each other.

SPECIFIC CHARACTER.

Oblong oval, one end rotundated, the other produced or lengthened out, angulated, and truncated at the end.

ARCA CAUDATA: testa oblongo ovali antérieur rotundata posterius elongata angulata, apice subtruncata.



Very rare, and not hitherto described as a British species. Found on the Kentish coast.

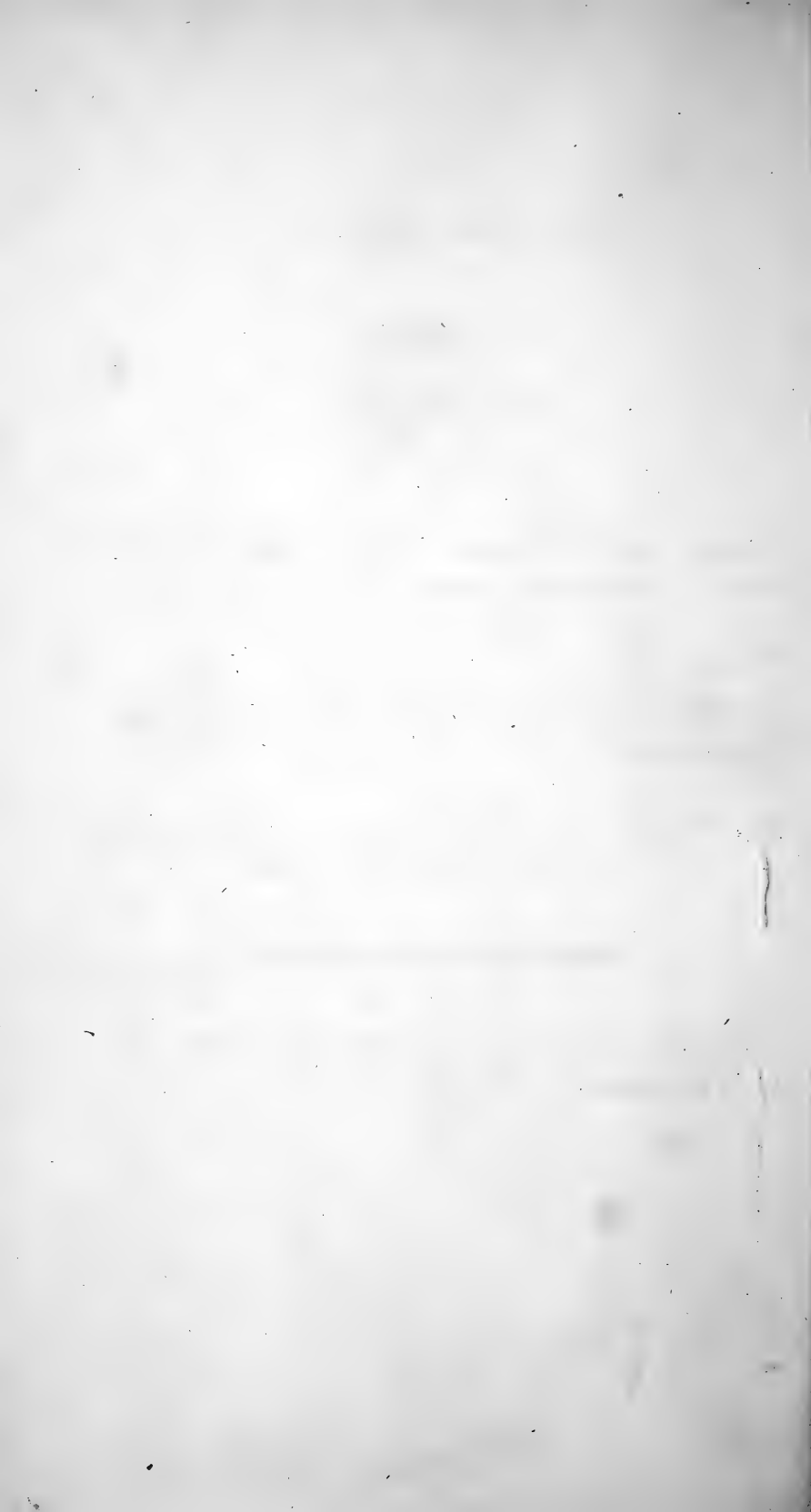






PLATE LXXIX.

BULLA RESILIENS.

ELASTIC BULLA.

GENERIC CHARACTER.

Animal Limax. Shell rather convoluted at one end, sub-oval.
Aperture oblong.

Shell oval, pellucid, elastic. Spire somewhat depressed and canaliculated, or grooved along the margin.

BULLA RESILIENS: ovalis, pellucida, vi resiliendi prædita, spira, subdepressa anfractibus canaliculatus.

This interesting species of *Bulla*, which has lately been found in Devonshire, and considered as a new discovery, was first introduced to the notice of English Conchologists by the Rev. Mr. Cordiner. He discovered them some years ago on the shores of Bamff, and sent them, with several others, disposed in a grotto work, as a present to the late Duchess of Portland. Since that time they have been found at Lymington, in Hampshire, by

PLATE LXXIX.

Mr. Keate; and lastly, during the summer months of 1800, was taken in a moat near Portsmouth, by J. Laskey, Esq. of Crediton, who favoured us with some particulars respecting the animal inhabiting it. In a young state, he says, 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. It seems to prefer little pools, or still waters within reach of the tide, to more exposed situations.

In general the specimens that have been found at Portsmouth are very small, the shell from which the upper figure is copied far exceeding the others in size. This species, though very thin and brittle, is yet so elastic as to bear much compression without injury, and in this respect differs from every other British species of *Bulla* already known. Amongst the foreign kinds are several elastic kinds; and this very species is found of a much larger size in the Mediterranean Sea.—Independent of its elasticity, the convoluted apex is a material character of this shell, considered as a British species.



*



*

PLATE LXXX.

TURBO MUSCORUM.

CYLINDRIC, OR MOSS WREATH SHELL.

GENERIC CHARACTER.

Animal Limax. Univalve, spiral or of a taper form. Aperture somewhat compressed, orbicular, entire.

SPECIFIC CHARACTER.

Cylindric, pellucid, six spires, separated by a strong furrow, obtuse at the tip. Mouth oval.

TURBO MUSCORUM: testa ovata obtusa pellucida: anfractibus senis secundis, aperture edentula. *Gmel. Linn. Syst. Nat. p. 3611. sp. 94.*

Cochlea testa subpellucida, spiris sex dextrorsis, subcylindracea obtusa, *Linn. Faun. Suec. I. p. 372. No. 1301. 2. No. 2173.*

Turbo minimus mucrone obtuso, sive vere cylindraceus. *Cylindraceus, tab. 5. fig. 16.*

Buccinum exiguum subflavum, mucrone obtuso, sive cylindraceum. *List. H. An. Angl. p. 121. tit. 6. tab. 2. fig. 6.*

Buccinulum minimum ovale. *Petiv. Gaz. tab. 35. fig. 6.*
Morton, Northampt. p. 415.

Turbo Muscorum. *Pen. Br. Zool. No. 118. tab. 82. fig. 118?*

PLATE LXXX.

Linnæus and Da Costa have described this species with six spires ; Pennant mentions only four ; and we have remarked, that those with four spires are more numerous than the others.

It is a small shell, rarely exceeding the size of the smallest figures in the annexed plate ; is very transparent, smooth and glossy, but under the magnifier exhibits many longitudinal streaks.

This shell inhabits mosses on old walls, thatches, trees, &c. It has been found by Da Costa in Middlesex and Surry ; by Petiver on the sandy banks of the Thames, at Kingston, in the latter county. Dr. Lister, in plenty at Estrope, in Lincolnshire. Morton, in great plenty in the ground near Morsley Wood, in Northamptonshire ; and received also by Da Costa, from Leeswood, in Flintshire.



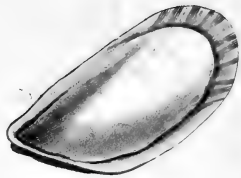


PLATE LXXXI.

MYTILUS PELLUCIDUS.

PELLUCID MUSCLE.

GENERIC CHARACTER.

The hinge toothless and consists of a longitudinal furrow.

SPECIFIC CHARACTER

AND

SYNONYMS.

Oblong, very pellucid, rayed longitudinally with purple.

MYTILUS PELLUCIDUS: oblonga pellucida longitudinaliter violaceo-radiata.

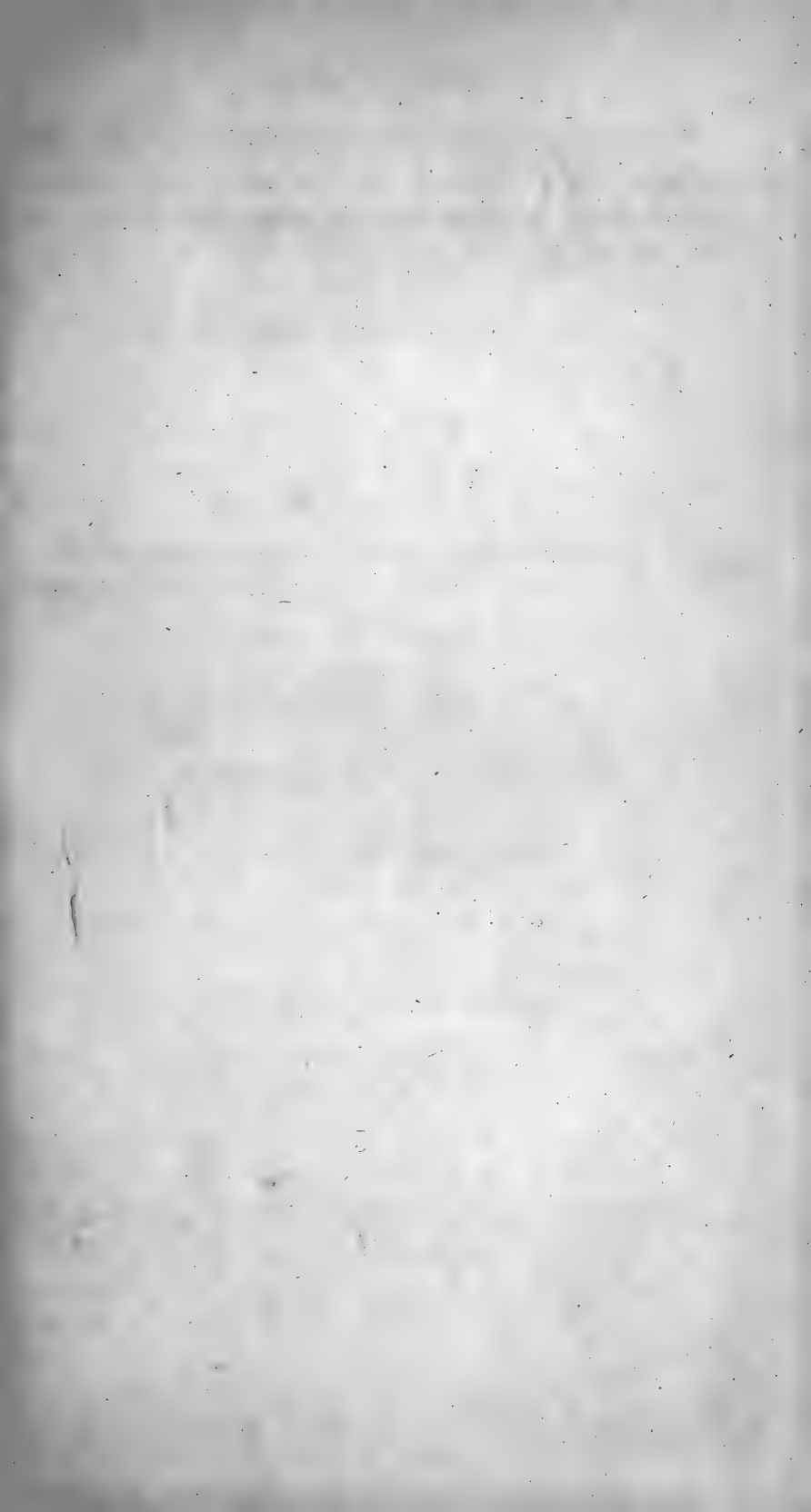
MYTILUS PELLUCIDUS. *Penn. Brit. Zool. 4. p. 112. sp. 75.*



This is one of the new species of *Mytilus* discovered by Pennant on the coast of Anglesea, where he says, it is "found sometimes in oyster-beds, and sometimes in trawling over slutchy bottoms." We dredged up a specimen of it in the straits of Menai, but it was rather less of an oblong form than that described and figured by Pennant; and another similar to it was also found on the Flintshire shores:—both Pennant's specimen and ours are figured in the annexed plate.

PLATE LXXXI.

We have lately received a very analogous species, if not a mere variety of it from Portsmouth; but those were evidently of foreign growth, having been gathered from the bottom of the William Tell prize ship, soon after its arrival from Malta.



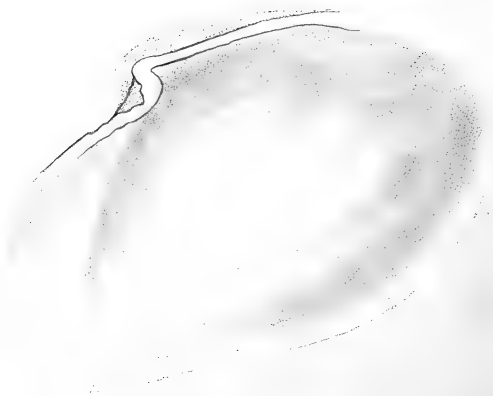
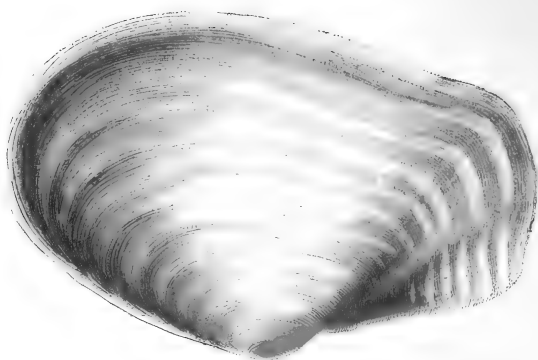


PLATE LXXXII.

MYA DECLIVIS.

SLOPING MYA, OR GAPER.

GENERIC CHARACTER.

Animal an Ascidia. Shell bivalve gaping at one end. The hinge for the most part furnished with a thick, strong, and broad tooth, not inserted into the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell somewhat oval, posterior end obliquely angulated. Tooth of the hinge thick and scarcely prominent.

MYA DECLIVIS: testa subovali, postice oblique subangulata. Cardinis dente crasso vix prominente.

MYA DECLIVIS with a brittle, half transparent shell, with a hinge slightly prominent; less gaping than the *truncata*; near the open end sloping downwards. *Penn. Br. Zool. Vol. 4. p. 79. sp. 15.*

PLATE LXXXII.

Pennant informs us that this species is frequent about the Hebrides; and that the fish is eaten by the gentry. We cannot question his authority in this respect, but must observe, it is uncommonly rare in cabinets of British Shells, and has not even been noticed, we believe, by any other Author.—Pennant has not figured it.

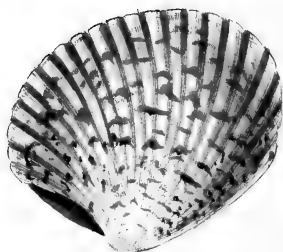
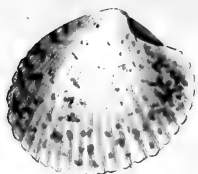


PLATE LXXXIII.

VENUS GRANULATA.

SPECKLED VENUS.

GENERIC CHARACTER.

Bivalve. Hinge furnished with three teeth; two near each other, and the third divergent from the beaks.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell rotund, sulcated longitudinally and decussated with transverse striæ; margins crenulated. Outside whitish, variegated with livid and purple spots. Inside violet.

VENUS GRANULATA: testa rotundata decussatim striata antèrius et margine crenulato violacea. *Gmel. Linn. Syst. Nat. p. 3277. sp. 33.*

Venus marica. *Born. Mus. Cæs. vind. test, t. 4. f. 5. 6.*

Born has figured and described this shell as *Venus Marica*, and to distinguish it from a Linnæan species of the same name some con-

PLATE LXXXIII.

chologists have denominated it *Venus Marica spuria*. It is the *Venus granulata* of Gmelin, who refers to Born's figure in the synonyms.

Gmelin describes another shell under the name of *Venus Violacea*; which nearly agrees with *V. granulata*, *V. VIOLACEA*: testa intus violacea: striis perpendicularibus squamosis, margine denticulato. *Gmel. Syst. Nat. p. 3288. sp. 94.* This shell is figured in *Lister's Conch. t. 338. f. 175.* and is destitute of those external marks and specklings we have invariably observed on specimens of *Venus granulata*.

V. granulata is very rare on our coast. The smallest shell in the annexed plate was found in Cornwall. The large specimen is probably an old shell of this species.



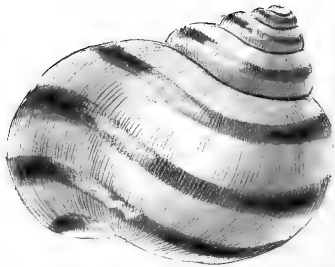
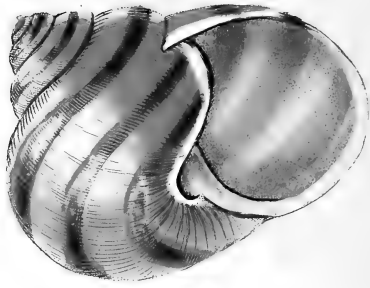


PLATE LXXXIV.

HELIX POMATIA.

ITALIAN OR EXOTIC SNAIL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell globose, with five spires, and umbilicated; whitish fasciated with brown. Mouth rather roundish.

HELIX POMATIA: testa umbilicata subovata obtusa decolore, apertura subrotundo-lunata. *Gmel. Linn. Syst. Nat. p. 3627. sp. 47. Fn. Suec. 1283.*

Cochlea magna cinereo rufescens, fasciata, leviter umbilicata. POMATIA. *Da Costa. Br. Conch. p. 67. sp. 38. tab. 4. fig. 14. 14.*

Cochlea cinerea, maxima, edulis, cujus os operculo crasso velut Gypseo per hyemem clauditur. Pomatia. *Gesn. de Aquat. pp. 644. 255.*

Cochlea cinereo rufescens, fasciata, leviter umbilicata. Pomatia Gesneri. *List. H. Conch. tab. 48. fig. 46.*

PLATE LXXXIV.

Cochlea pomatia edulis Gesneri. *List. Exercit. Anat.* 1. p. 162.
tab. 1.

Cochlea alba major cum suo operculo. *Merret Pin.* p. 207.
Morton Northampt. p. 415.

Rutty Dublin. p. 379.

Helix Pomatia, Exotic. *Penn. Br. Zool. No.* 128. tab. 84, fig. 128.

Pomatia. *Argenville Conch.* I. tab. 32. fig. 1. p. 383. II. p. 338.
tab., 28. fig. 1. p. 81. tab. 9. fig. 4.

Helix testa imperforata globosa rufescente, fasciis obsoletis. *Mul.*
Zool. dan. prodr. 2901. *Hist. verm.* 2. p. 43. n.
243.

Cochlea testa ovata quinque spirarum, pomatia dicta. *Linn. Fn.*
Suec. 1. p. 369. No. 1293. II. No. 2183.

Martin berl. Mag. 2. p. 530. tab. 1. fig. 1. et. 3.
tab. 2. fig. 13.

Schroet. Erdconch. p. 145. n. 14. 15. tab. 1. fig.
10.

Knorr Vergn. 1. tab. 21. fig. 32.

Pennant has named this species of Helix with some propriety the Exotic Snail, for, though it is found at this time in vast abundance in several parts of the country, it is not an indigenous kind. By whom it was first introduced is uncertain; Pennant mentions Sir Kenelm Digby, and Da Costa speaks of Charles Howard, Esq. of the Arundel family. Its history, as related by Da Costa, is so very interesting, that we shall give it in the words of its author:—

“ It is the largest species of land snail in England, and is found in hedges and woods. It closes its shell carefully against winter, with a

PLATE LXXXIV.

white thick cover or operculum, dull and like plaister, and in the closed state it remains till the beginning of April, or warm weather, at which time it loosens the border of the cover, and the animal creeps out of the shell for its necessary occasions. Dr. Lister informs us he kept one in his bosom about the beginning of March, when the animal, feeling the warmth, in a few hours disengaged its cover, and crept out.

“ The animal being large, fleshy, and not of an unpleasant taste, has been used for food in ancient times: it was a favourite dish with the Romans, who had their cochlearia, or snail stews, wherein they bred and fattened them. Pliny tells us, that the first inventor of this luxury was a Fulvius Harpinus, a little before the civil wars between Cæsar and Pompey. Varro has handed down to us a description of the stews, and manner of making them: He says, open places were chose, surrounded by water, that the snails might not abandon them, and care was taken that the places were not much exposed to the sun, or to the dews. The artificial stews were generally made under rocks or eminences, whose bottoms were watered by lakes or rivers; and if a natural dew or moisture was not found, they formed an artificial one, by bringing a pipe to it bored full of holes, like a watering pot, by which the place was continually sprinkled or moistened. The snails required little attention or food, for as they crawled they found it on the floor or area, and on the walls or sides, if not hindered by the surrounding water. They were fed with bran and sodden lees of wines, or like substances, and a few laurel leaves were thrown on it.

“ Pliny tells us there were many sorts, as the Whitish from Umbria, the large sort from Dalmatia, and the African, &c. This par-

PLATE LXXXIV.

ticular kind seems to be that he mentions, 1. 8. c. 39. They propagate very much, and their spawn is very minute.

“ Varro is scarcely to be credited, when he says, some would grow so large, that their shells held ten quarts.

“ They were also fed and fattened in large pots or pans, stuck full of holes to let in the air, and lined with bran and sodden lees, or vegetables.

“ They are yet used as food in several parts of Europe, more especially during Lent, and are preserved in stews or *escargotoires*, now a large place boarded in, and the floor covered with herbs, wherein they nestle and feed.

“ In Italy, in many places, they are sold in the markets, and are called *Bavoli*, *Martinacci* and *Gallinelle*; in many provinces of France, as Narbonne, Franche Comté, &c. and even in Paris. They boil them, says Lister, in river water, and seasoning them with salt, pepper, and oil, make a hearty repast.

“ This is not indigenous, or originally a native of these kingdoms, but a naturalized species, that has throve so well, as now to be found in very great quantities. It was first imported to us from Italy about the middle of last century, by a *scavoir vivre*, or epicure, as an article of food. Mr. Aubrey informs us, it was a Charles Howard, Esq. of the Arundel family, who, on that account, scattered and dispersed those snails all over the downs, and in the woods, &c. at Albury, an ancient seat of that noble family, near Ashted, Boxhill, Dorking, and Ebbisham, or Epsom, in Surrey, where they have thriven so much that all that part of the county, even to the confines of Sussex,

PLATE LXXXIV.

abounds with them ; insomuch that they are a nuisance, and far surpass in number the common, or any other species of English snails.

The Epicures, or *scavoir vivre*, of those days, followed this luxurious folly, and the snails were scattered or dispersed throughout the kingdom, but not with equal success ; neither have records transmitted to posterity the fame of those worthies equal to the Roman Fulvius Harpinus, except of two, the one Sir Kenelm Digby, who dispersed them about Gothurst the seat of that family (now of the Wrights) near Newport Pagnel, in Buckinghamshire, where probably they did not thrive much, as they were not frequent thereabout : the other worthy was a lord Hatton, recorded by Mr. Morton, who scattered them in the coppices at his seat at Kirby, in Northamptonshire, where they did not succeed.

“ Dr. Lister found them about Puckeridge and *Ware*, in Hertfordshire ; and observes, they are abundant in the Southern parts, but are not found in the northern parts of this island.

“ In Surry, as before mentioned, they abound ; in several other counties they are not uncommon, as in Oxfordshire, especially about Woodstock and Bladen ; in Gloucestershire, in Chedworth parish, and about Frog Mill, in Dorsetshire, &c. but I have never heard that they are yet met with in any of the northern counties.”

Introduction

The purpose of this study is to investigate the effects of various factors on the performance of a system. The study is organized as follows:

Chapter 2: Literature Review

Chapter 3: Methodology

Chapter 4: Results and Discussion

Chapter 5: Conclusion

Chapter 6: References

Chapter 7: Appendix

Chapter 8: Bibliography

Chapter 9: Index

Chapter 10: Glossary

Chapter 11: Acknowledgements

Chapter 12: About the Author



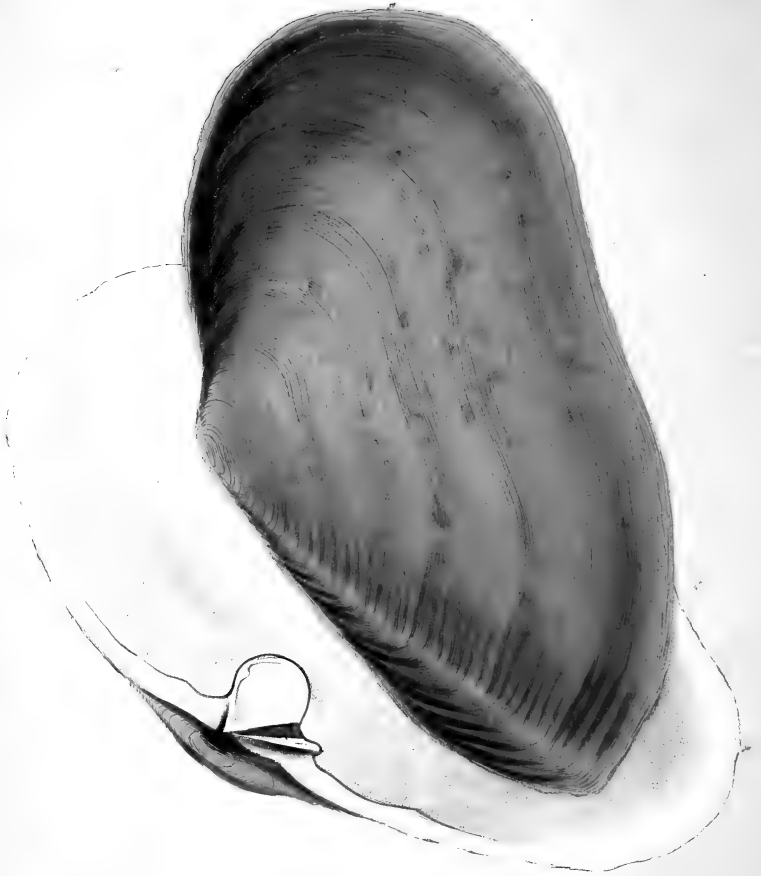


PLATE LXXXV.

MYA ARENARIA.

SAND GAPER.

GENERIC CHARACTER.

Animal an Ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick, strong, broad tooth, not inserted in the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell rather ovated, one end rounded, the other narrow and gaping. Hinge, in one valve a hollow cavity, near which a broad, erect, rounded tooth of the opposite valve is received.

MYA ARENARIA: testa ovata posterius rotundata, cardinis dente antorsum porrecto rotundato denticuloque laterali.
Lin. Faun. Suec. 2127.—*Gmel. Linn. Syst.* p. 3218. 303. *sp.* 2.

Mya Arenaria. Sand. *Penn. Br. Zool.* p. 79. *T.* 42. 16.

Chamæ media ovata fusca. *Arenaria.* *Da Costa. Br. Conch.* p. 232. *sp.* 56.

MYA ARENARIA. *Bast. opusc. subs.* 2. p. 69. *t.* 7. *fig.* 1-3.

PLATE LXXXV.

This species is similar in its external appearance to the *Mactra Lutraria*; yet it may be immediately distinguished from that shell by the singular structure of the hinge. The large, erect, plate-like tooth common to the *Mya* genus, is particularly characteristic in this species.

Da Costa received it from the Isle of Wight, near Newport, and from Bigbury-Bay, near Faversham; but observes, it is not a common shell.

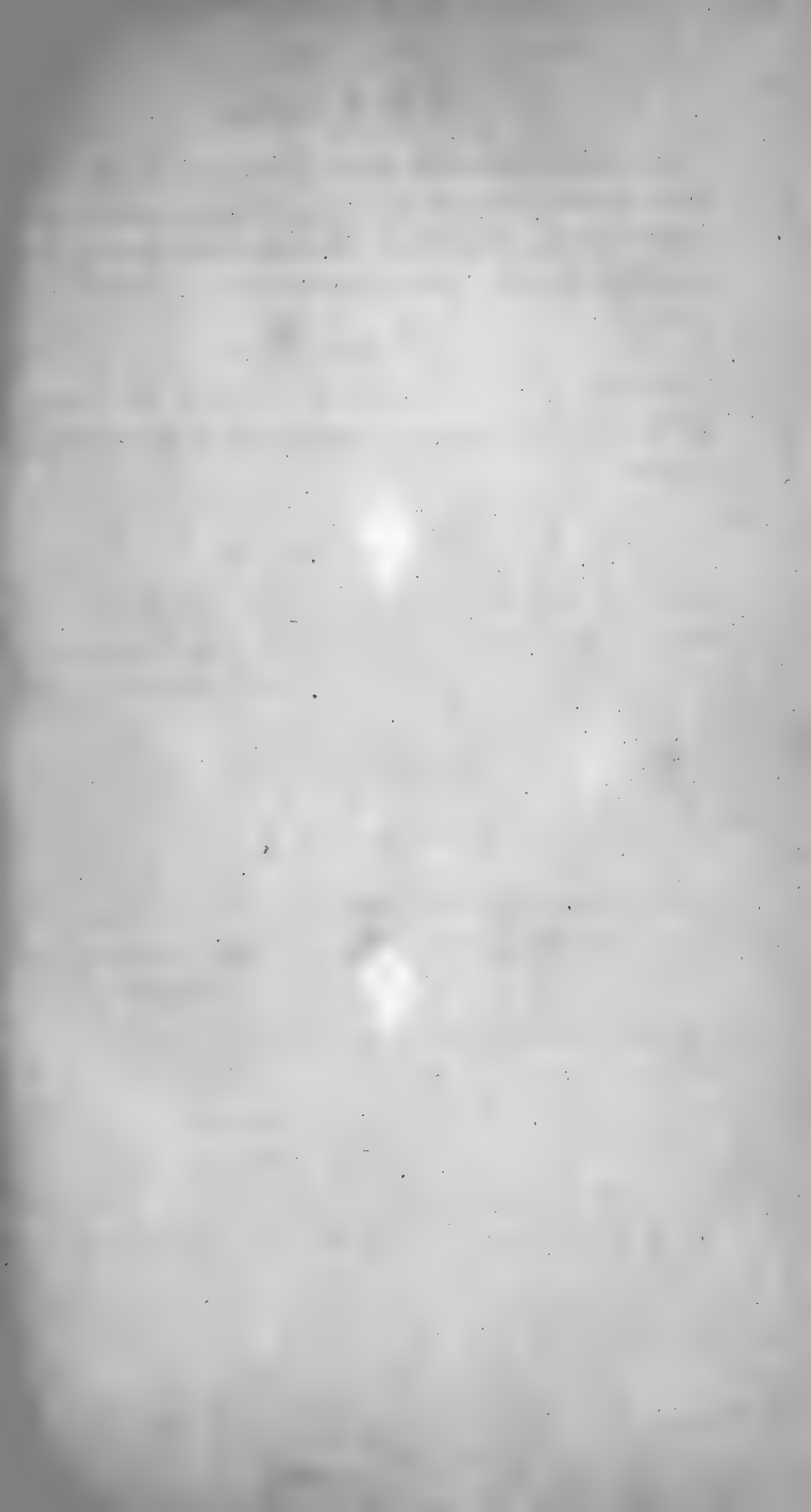




PLATE LXXXVI.

MUREX DECOLLATUS.

SHORTENED MUREX, OR ROCK SHELL.

GENERIC CHARACTER.

Spiral, rough, the aperture ending in a strait, and somewhat produced gutter or canaliculation.

SPECIFIC CHARACTER.

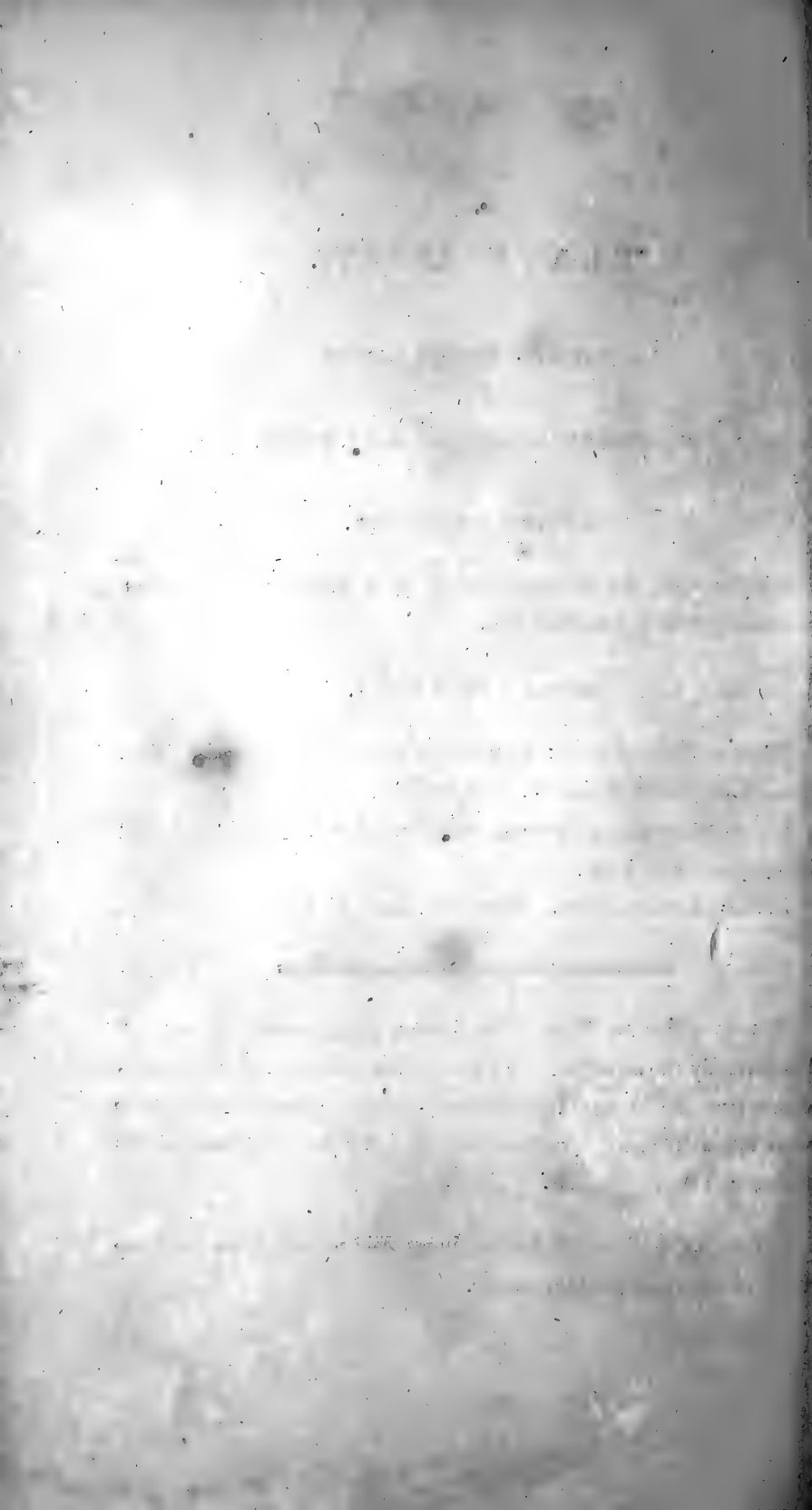
MUREX DECOLLATUS: testa ventricosa lævi, patulo-subcaudata, spira in capitulum desinente.

Somewhat ventricose, smooth, mouth produced. Spire terminated in a capitulum or knob.

MUREX DECOLLATUS. *Penn. Br. Zool. T. 4. p. 125. sp. 102.*

Pennant offers his *Murex Decollatus* as a species with doubts. It has certainly the appearance of a shell much mutilated, or of extraordinary growth; but as all the specimens we have examined exhibit the same appearance, we have ventured to assign it a new character, and rank it as a distinct species.

It is a rare shell on the British shores, said to have been found on those of Cornwall and Devonshire.



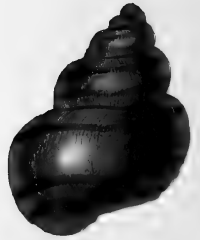


PLATE LXXXVII.

HELIX VIVIPARA.

VIVIPAROUS SNAIL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell suboval, obtuse, spires ventricose or swelled, umbilicated. Olive, girdled with three brown lines.

HELIX VIVIPARA: testa imperforata subovata obtusa cornea: cingulis fuscatis, apertura suborbiculari *Fn. Su.* 2185.—*Gmel. Linn. Syst. Nat. p. 3646. sp. 105.*

Cochlea testa oblongiuscula obtusa anfractibus teretibus, lineis tribus lividis. *Fn. Suec. I. p. 375. No. 1312.*

Cochlea maxima fusca sive nigricans, fasciata. *List. H. An. Angl. p. 133. tit. 18. tab. 2. fig. 18.*

Cochlea fasciata ore ad amussim rotundo. *Phil. Trans. No. 105. fig. 17.*—**Cochlea maxima viridescens fasciata vivipara.** *List. Exercit. Anat. 2. p. 17. tab. 2.*

C. vivipara fasciata fluviatilis. *List. H. Conch. tab. 126. fig. 26.*—**C. vivipara altera nostras testa tenuiori fluvii** Cham. *Ib. Mant. tab. 1055. fig. C.*

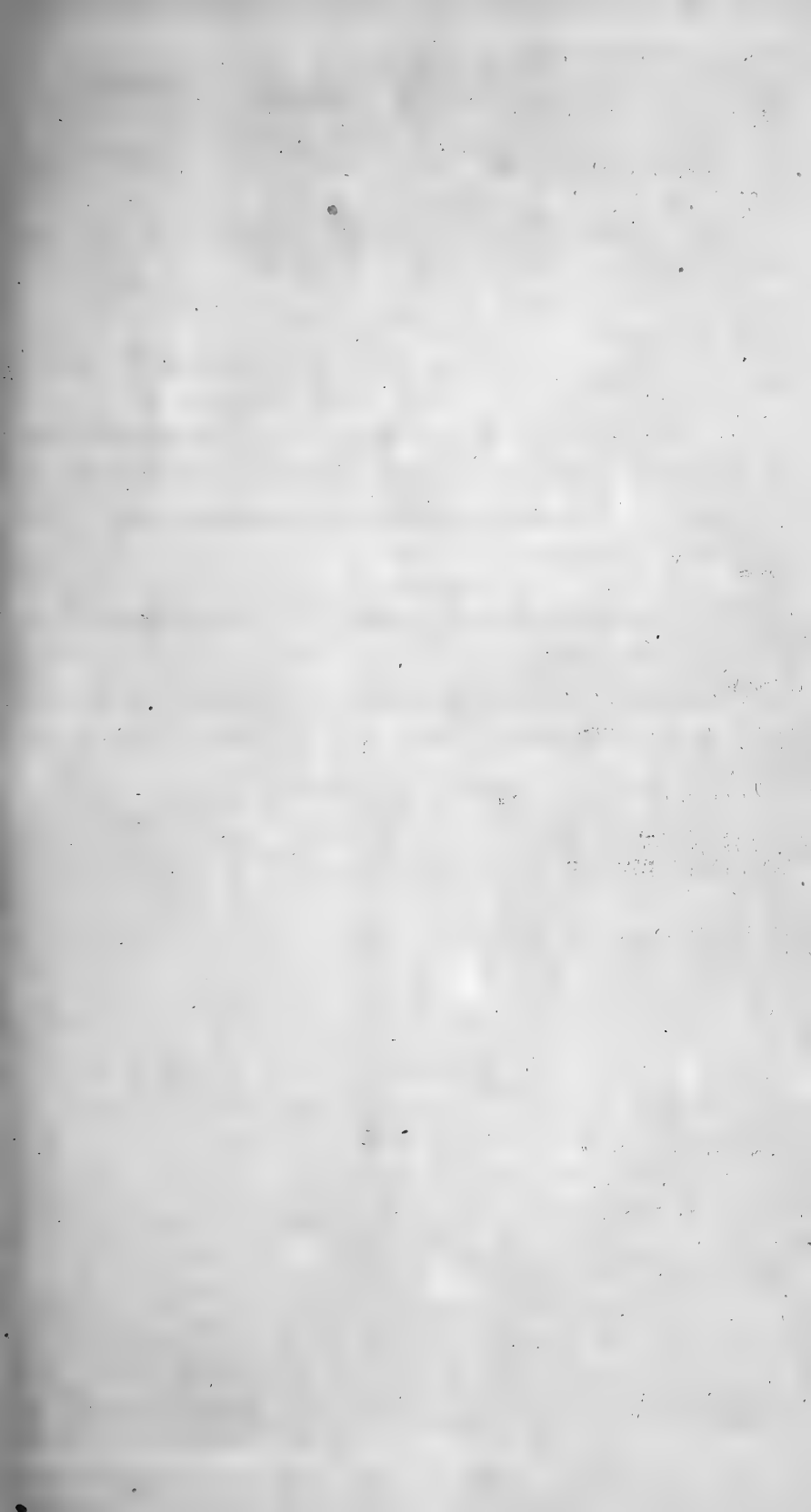
PLATE LXXXVII.

Helix vivipara, viviparous. *Penn. Br. Zool. No. 132. tab. 84.*
fig. 132.

Cochlea fusco viridescens trifasciata. Vivipara. *Da Costa. Br.*
Conch. p. 81. sp. 44.

This kind is found in abundance in all rivers and stagnant waters. The river kind seems to vary in some respects from the other; the shells are more opake, and the colours are brighter than in those which inhabit the stagnant water.

The animal has a head not unlike that of a Bull, from which circumstance the Swedes, according to Linnæus, call it the Bull-head, and some French authors, *limaçon à tete de bæuf*, for the same reason. It feeds on Duck Weed.





2



3



PLATE LXXXVIII.

BULLA HYDATIS.

PINNACE DIPPER, OR BUBBLE SHELL.

GENERIC CHARACTER.

Animal Limax. Shell rather convoluted at one end, sub-oval.
Aperture oblong.

SPECIFIC CHARACTER

AND

SYNONYMS.

Oblong-oval, fragile, pellucid, finely striated longitudinally, base deeply umbilicated.

BULLA HYDATIS: testa rotundata pellucida longitudinaliter substriata: vertice umbilicato. *Linn. Syst. Nat. p. 1183. No. 377.*—*Gmel. Linn. Syst. Nat. 3424. sp. 9.*

Nux Marina umbilicata, minutissime per longitudinem striata, subrotunda, ore admodum patulo, tenuis, fragilis candida. *Gualt. 1. Conch. tab. 13. fig. D. D. Chemn. 9. t. 118. f. 1019.*

Bulles d'eau blanches, papyracées. Tonnes à bouche entiere. *D'Avila Cab. p. 207. No. 389.*

Bulla Ovalis, fragilis et pellucida. Naviacula. *Da Costa Br. Conch. p. 28. sp. 15.—Tab. 1. fig. 10.*

PLATE LXXXVIII.

Da Costa observes, that all the shells he had seen of this species were fished up at, or near, Weymouth in Dorsetshire; and concludes, that it is rare in our seas, having never heard of it on any other British coast. We believe with Da Costa, it is local; though it probably inhabits other parts of our coasts.

We have been lately favoured with several shells of the *Bulla* genus from Portsmouth, which some Conchologists have thought a new species, and named *Citrina*; they do not, certainly, differ specifically from the shell in Da Costa's collection, which he calls *Bulla Naviacula*, (*Hydatis* of Linnæus) as will appear evident from the specimens figured in the annexed plate.

Fig. 1.—*Bulla Naviacula* (*Hydatis* Linn.)—Fig. 2, a specimen from Portsmouth of a paler colour than Da Costa's shell.—Fig. 3, 4. old shells found on the mud and clay of the shore.



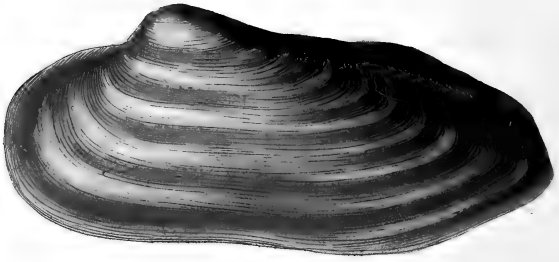
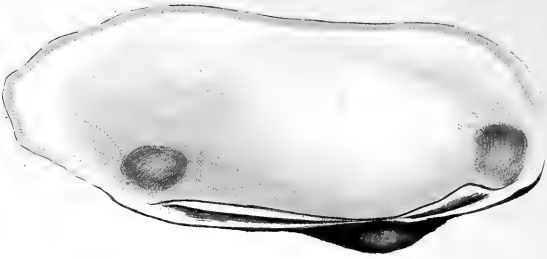


PLATE LXXXIX.

MYA OVALIS.

OVAL GAPER.

GENERIC CHARACTER.

Animal ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick, strong, broad tooth, not inserted in the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell rather an oblong oval, with a large longitudinal crenulated tooth in one valve, and two in the other.

MYA OVALIS: testa oblongo-ovali cardinis dente primario crenulato longitudinali: alterius duplicato.

Musculus angustior, ex flavo viri descens, validus, umbonibus acutis, valvarum cardinibus velut pinnis donatis, sinuosis.

List. Angl. t. 2. f. 30.

Long thick horse Muscle. *Petiv. Gaz. tab. 93. fig. 9*

Mya pictorum. *Penn. Br. Zool. 43. fig. 17.*

PLATE LXXXIX.

Mya minor ex flavo viridescens. PICTORUM *Da Costa. Br. Conch.*
p. 228. tab. 14. fig. 4. 4.

Pennant and Da Costa have erroneously given this as the *Mya pictorum* of Linnæus, from which it differs in several respects. The *Mya pictorum* is much more ovate, or egg-shaped, as Linnæus expresses it, and thinner than the present shell, which is of a lengthened, or rather oblong form, and remarkably thick, though semi-transparent. In adopting a new specific name that of *oblonga* would have been preferred, had it not been pre-engaged by *Gmelin* to a totally distinct species.

This species is common in rivers and fresh waters, and sometimes produce little pearls.



x

PLATE XC.

TURBO LACTEUS.

SMALL TURBO.

GENERIC CHARACTER,

Animal Limax. Shell univalve, spiral, or of a taper form. Aperture somewhat compressed, orbicular, entire.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell taper, with many longitudinal, elevated striæ, or ridges.

TURBO LACTEUS: testa turrata: striis longitudinalibus elevatis confertis. *Linn. Syst. Nat. p.* 1238. *No.* 634.

Turbo parvus interdum lacteus, interdum violaceus aut fuscus, costis longitudinalibus confertus. Parvus. *Da Costa. Br. Conch. p.* 104. *sp.* 61.

Found on the coasts of Cornwall, Devonshire, and Guernsey.—
This is a minute and scarce British species; the smallest figures in the annexed plate denote the natural size.

PLATE XC.

Some specimens are pure white, others beautifully tinged with purple; and the most perfect white and brown. The mouth is round, surrounded on the outside by a thick prominent border. It has no umbilicus. The shell consists of five spires, gradually tapering to an acute point; and separated by a depression. The longitudinal ribs are thick and prominent.

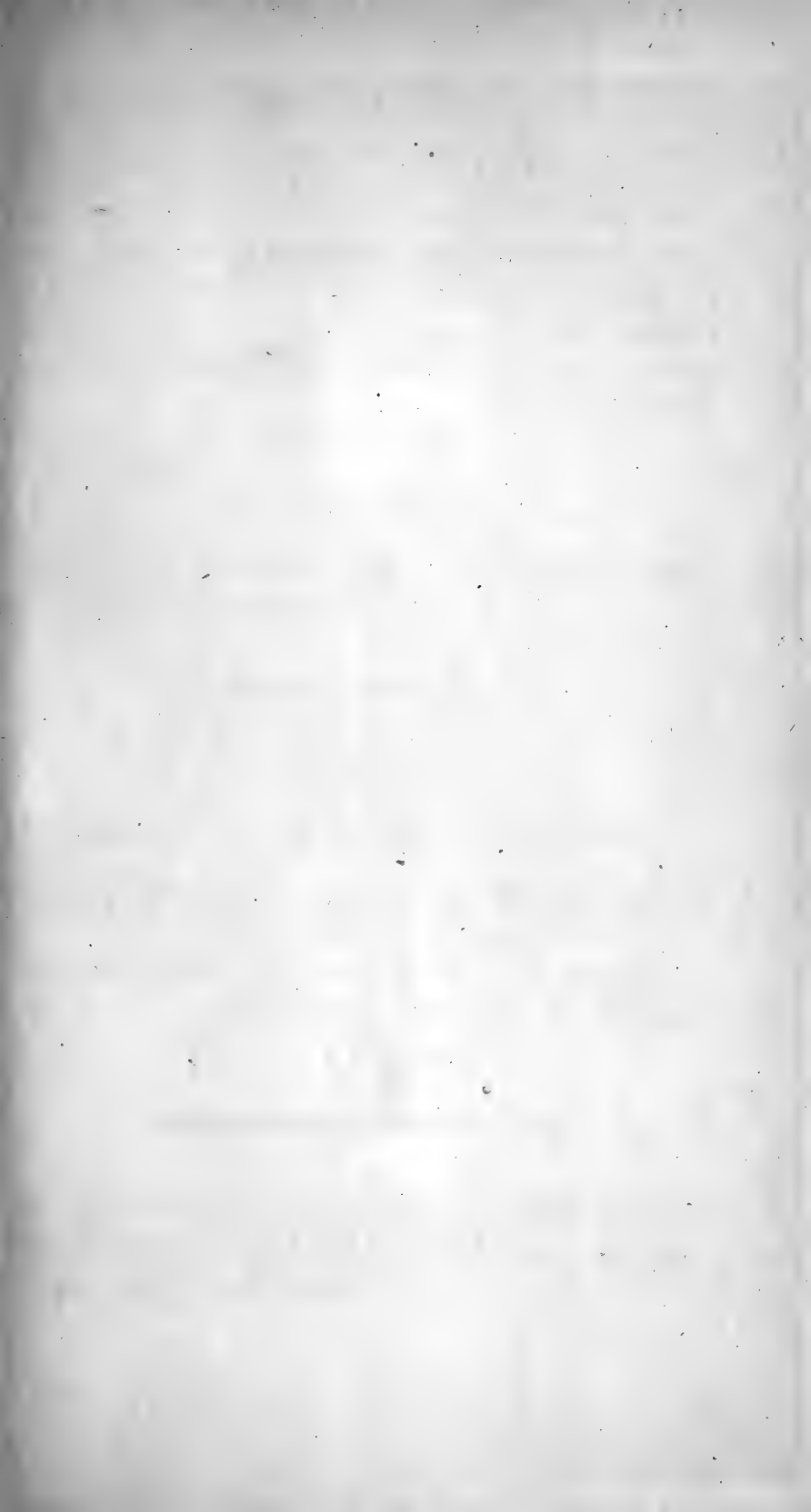




PLATE XCI.

MUREX COSTATUS

RIBBED MUREX.

GENERIC CHARACTER.

Spiral, rough. The aperture ending in a strait and somewhat produced gutter or canaliculation.

SPECIFIC CHARACTER

AND

SYNONYMS.

Oblong, spires six, tapering, with eight longitudinal ribs.

Buccinum canaliculatum parvum, anfractibus costis longitudinalibus distinctis. Costatum. *Da Costa. Tab. 8. fig. 4.*

MUREX COSTATUS. Ribbed. *Penn. Br. Zool. No. 100. tab. 79. fig. 1. 4.*

This elegant little shell was first discovered by Mr. Pennant, on the coast of Anglesea, and described under the name of *Murex Costatus*. In retaining this name it will be proper to observe, that *Gmelin*, in his edition of the *Systema Naturæ*, has another shell

PLATE XCI.

under the same name, a ribbed and cancellated species found in a fossil state, in *Champagne*, altogether distinct from this shell.

Da Costa received this species from the coasts of Cornwall and Devonshire. Pennant says it inhabits Norway. The smallest figures denote the natural size.



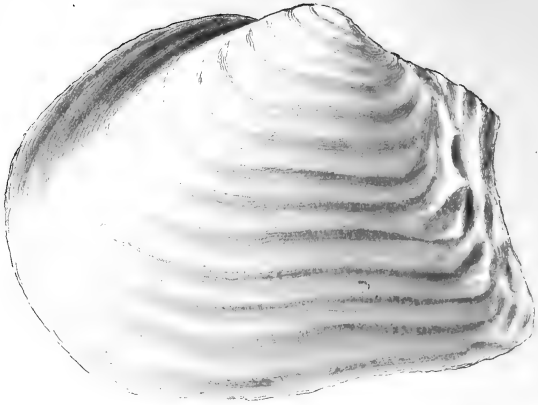


PLATE XCH.

MYA TRUNCTATA.

TRUNCATED GAPER.

GENERIC CHARACTER.

Animal an ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick, strong, broad tooth, not inserted into the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell roundish, one end truncated or abrupt. Tooth projecting and obtuse.

MYA TRUNCTATA: testa ovata posterius truncata, cardinis dente antrorsum porrecto obtussissimo. *Linn. à. Gmel. Syst. Nat. T. I. fig. 6. p. 3217.*

Concha lævis, altera tantum parte clusilis, apophysi admodum prominente lataque prædita. *List. H. An. Angl. p. 191. tit. 36. tab. 5. fig. 36.*

PLATE XCII.

Mya truncata, abrupt. *Penn. Br. Zool.* 4. 14. *tab.* 41. *fig.* 14.

Chama subrotunda fusca rugosa, exaltera parte truncata. TRUNC-
TATA. *Da Costa. Br. Conch.* p. 233. *sp.* 57.

Common on many of the British shores.

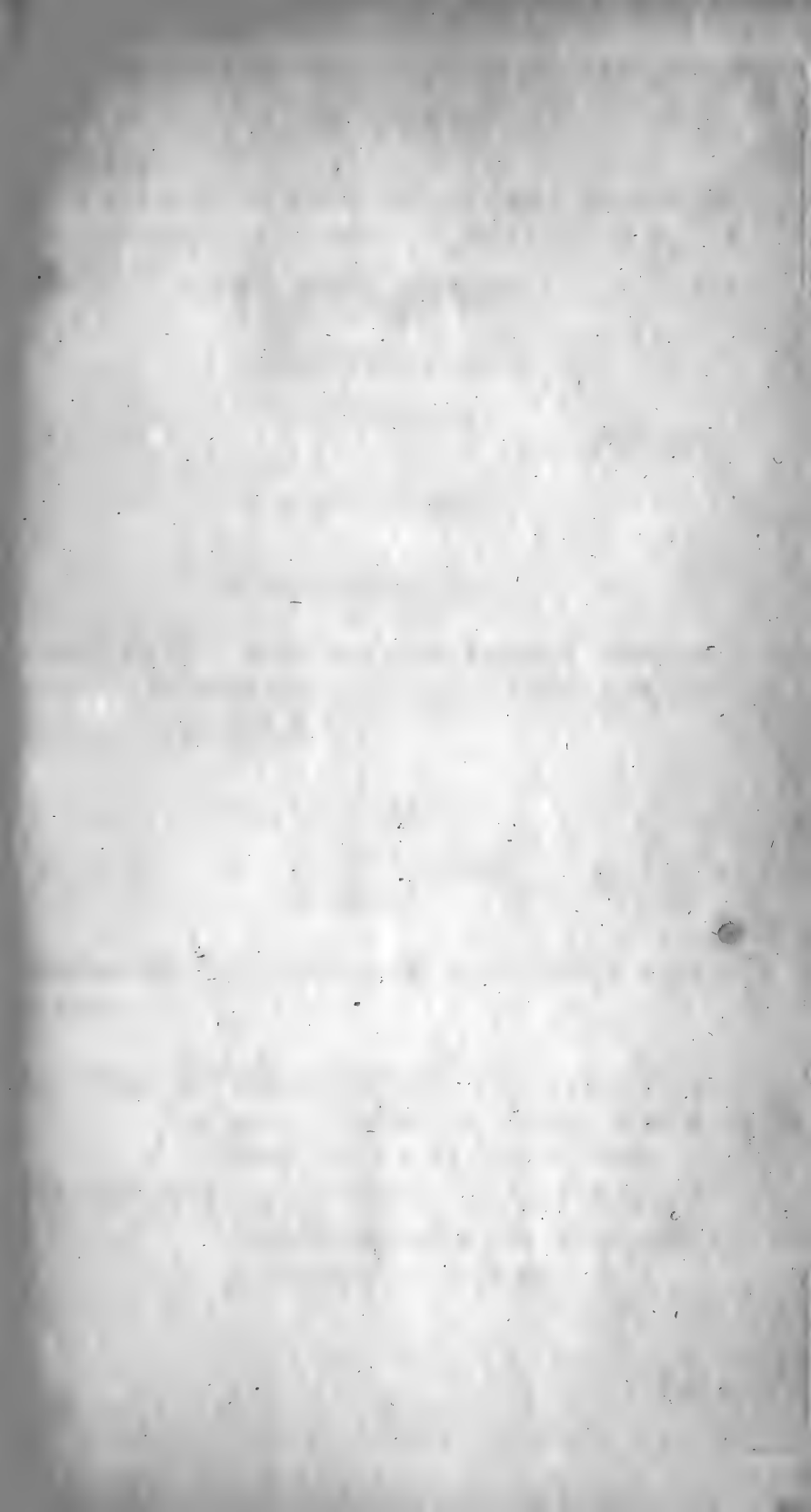




PLATE XCIII.

HELIX TENTACULATA.

KERNEL, OR OLIVE WATER SNAIL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell without umbilicus, sub-conic, five spires. Aperture rather oval.

HELIX TENTACULATA: testa imperforata ovata obtusa impura, aperture subovata. *Linn. Syst. Nat. p. 1249. n. 707.*

Cochlea parva pellucida, operculo testaceo cochleatoque clausa. *List. H. Conch. tab. 132. fig. 32.*

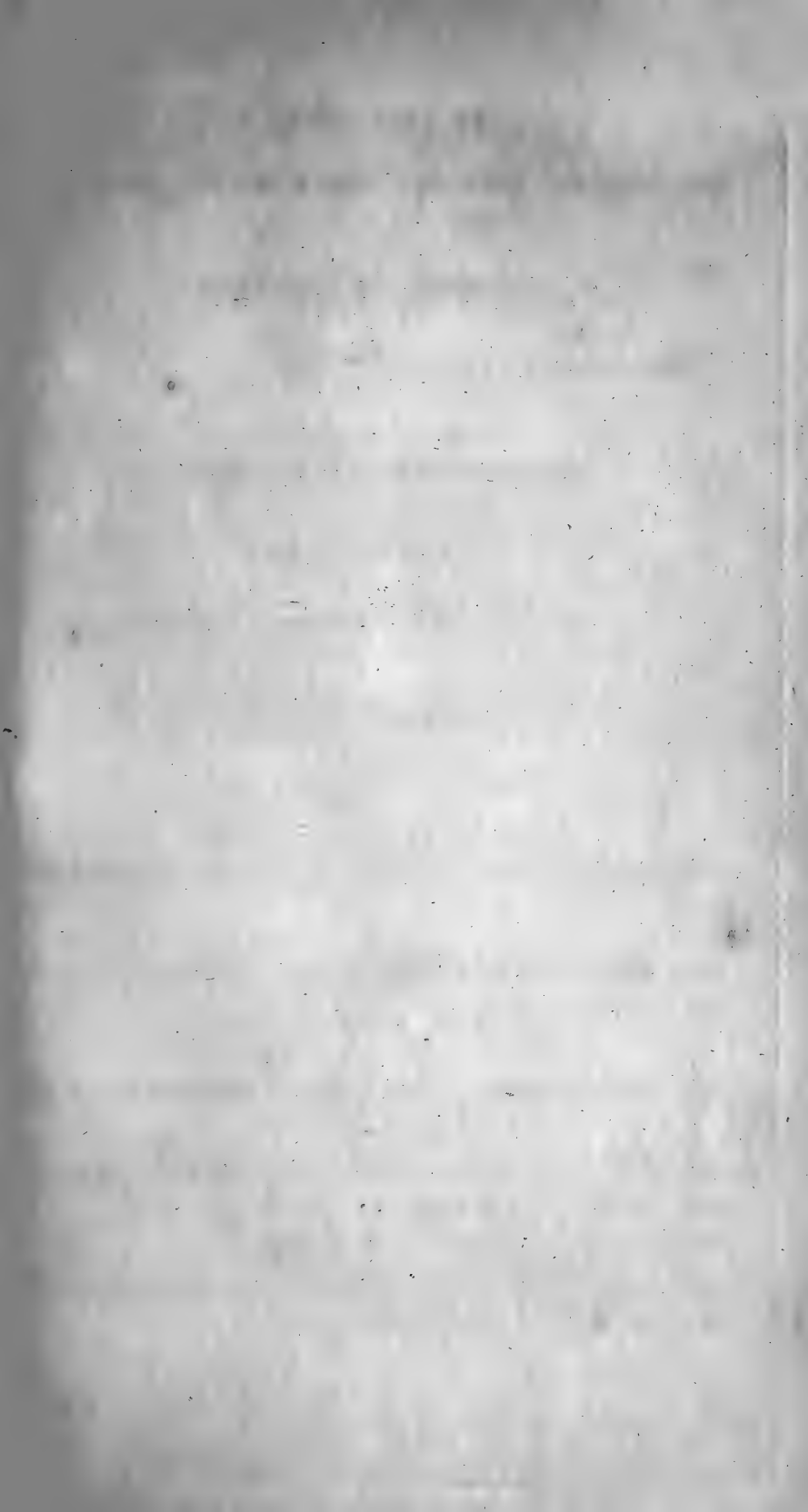
Cochleola oblonga fluviatilis, common small river snail. *Petiv. Gaz. tab. 18. fig. 8.*—Small fresh water turbo with five wreaths. *Wallis Northumb. p. 370.*

Turbo imperforatus parvus subrufus, lævis, quinque spirarum. Nucleus. *Da Costa. Br. Conch. p. 91. sp. 50.*

PLATE XXIII.

Helix tentaculata. Penn. Brit. Zool. 4. No. 140, tab. 86. fig. 140.

Inhabits most rivers and stagnant waters.





x



PLATE XCIV.

STROMBUS COSTATUS.

RIBBED STROMBUS.

GENERIC CHARACTER.

Animal a slug. Shell univalve, spiral. Aperture dilated, lip expanding, produced into a groove.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell small, brown, taper, spires swelled, and wrought with prominent longitudinal ribs.

Strombiformis parvus fuscis, anfractibus costis elatis longitudinalibus insignitis.

COSTATUS. Da Costa. Br. Conch. p. 118. sp. 71.

Da Costa, who is the only author that describes this curious shell, says it is found on the coasts of Cornwall.

STATE OF

NEW YORK

IN SENATE

1892

REPORT OF THE

COMMISSIONERS OF THE

LAND OFFICE

IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE

ON APRIL 15, 1891, CONCERNING THE

LANDS BELONGING TO THE STATE

AND THE PROCEEDINGS THEREON

FOR THE YEAR ENDING DECEMBER 31, 1891

ALBANY:

1892.



PLATE XCV.

SERPULA VERMICULARIS.

COMMON SERPULA.

GENERIC CHARACTER.

Animal a terebella, or whimble worm. Shell tubular, adheres to other bodies, as shells, stones, &c.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell round, cylindrical, or scarcely tapering, curved and wrinkled.

SERPULA VERMICULARIS: testa tereti subulata curvata rugosa.

Lin. Syst. Nat. a Gmel. T. I. fig. 4. p. 3743.

—Dentalium testa cylindræa inæquali flexuosa contorta. *Lin. Fn. Sv. I. p. 380. No. 1328.*

Tubuli in quibus vermes. Worm Shells. *Merret, Pin. p. 194.*

SERPULA VERMICULARIS. Worm. *Penn. Brit. Zool. No. 157.*

tab. 91. fig. 159.

Serpulæ vermicularis, common. Da Costa Br. Conch. p. 18. sp. 9.

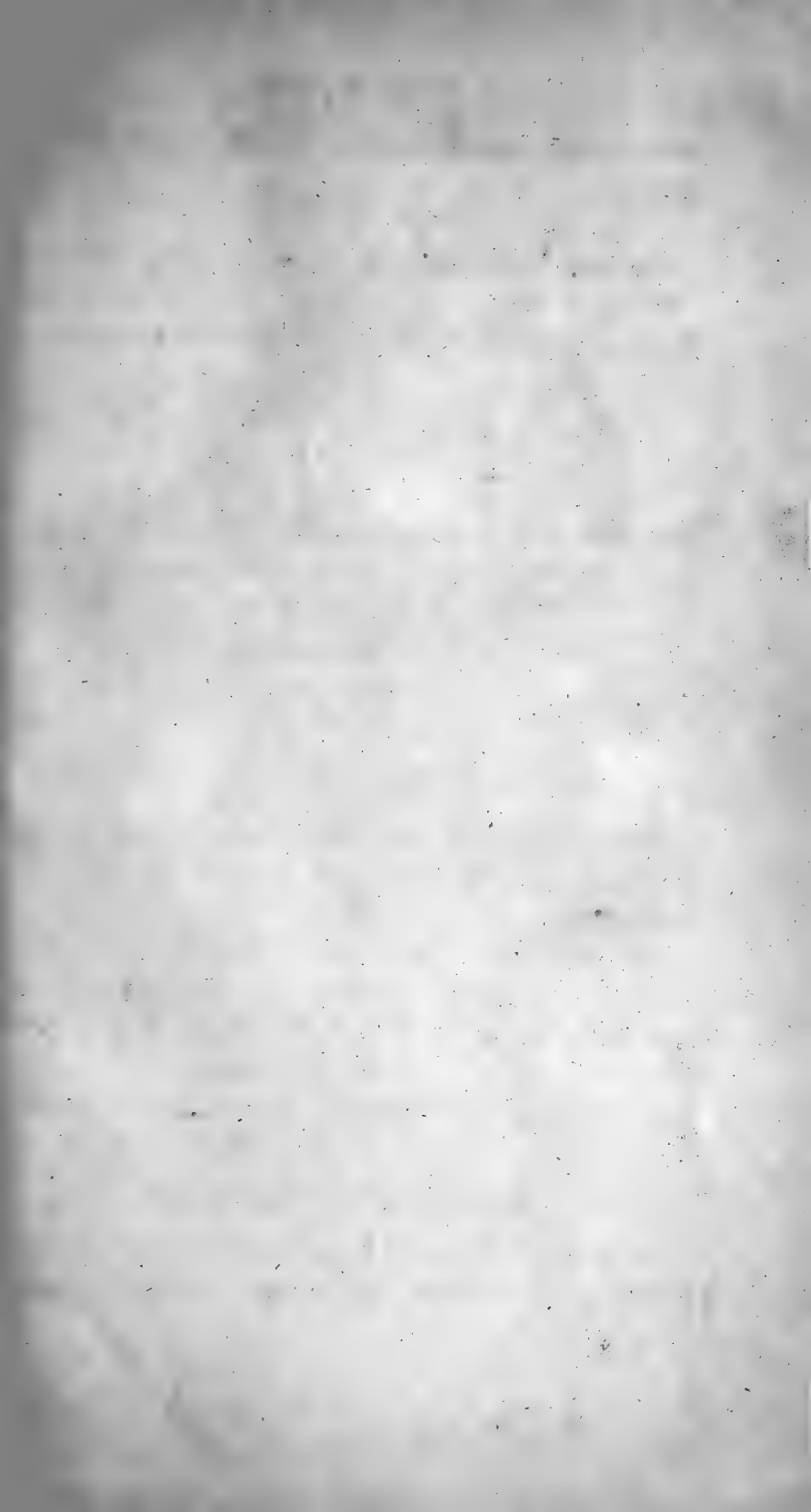
—*Tab. 2. fig. 5.*

These shells are extremely frequent on all the British coasts, either in groupes attached to stones, shells and marine exuvia, or in single

PLATE XCV.

detached shells, assuming sometimes the appearance of a turbinated univalve.

The colour is in general white: an elegant variety, deeply tinged with red, as represented in the annexed plate, was dredged up at Brighton, and communicated by Mr. P. Munn, of Bond-street.



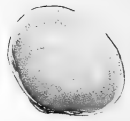
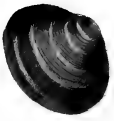


PLATE XCVI.

TELLINA CORNEA.

HORNY TELLEN.

GENERIC CHARACTER.

The hinge usually furnished with three teeth; shell generally sloping on one side.

SPECIFIC CHARACTER

AND

SYNONYMS.

Subglobose, glabrous, horn colour, with a transverse furrow.

TELLINA CORNEA: concha testa subglobosa glabra cornei coloris: sulco transversali. *Lin.*

Musculus exiguus, pisi magnitudine, rotundus subflavus, ipsis valvarum oris albidis. *List. H. An. Angl. p. 150. tit. 31. tab. 2. fig. 31.*

Pectunculus fluviatilis nostras nuciformis. *Petro. Mus. p. 86. No. 831.*

Musculus fluviatilis, æquilaterus, lævis rotundus, pisiformis, ex rubro flavescens, ipsis valvarum oris albidis. *Gualt. I. Conch. tab. 7. fig. C.*

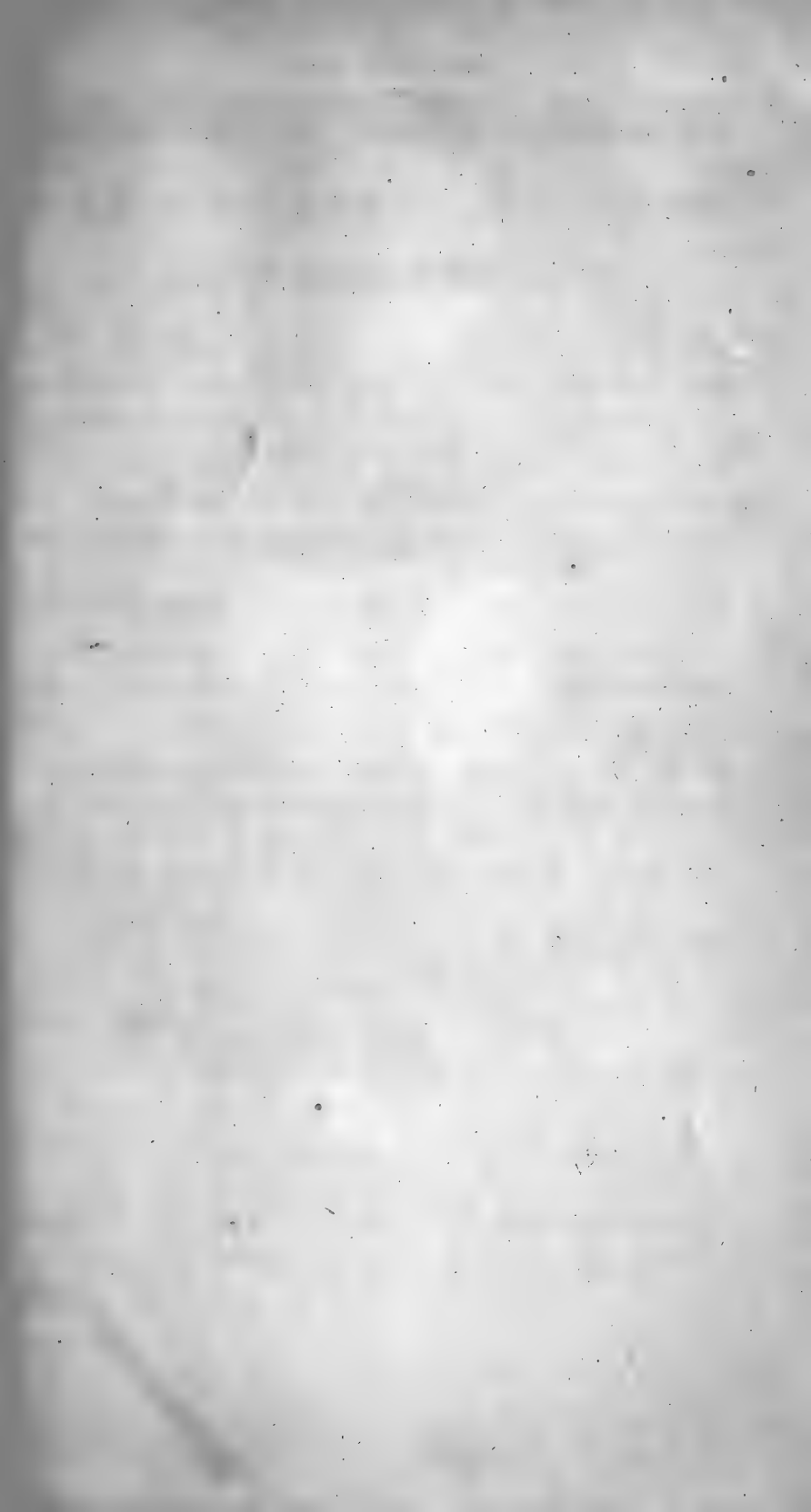
PLATE XCVI.

C. Parvum globosum viride-fuscum. Nux. *Da Costa Br. Conch.*
173.

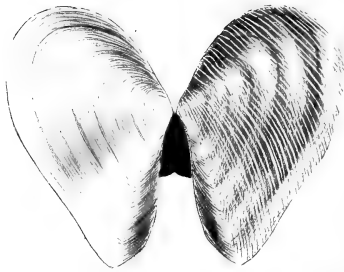
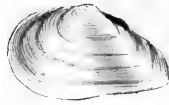
Tellina Cornea. Horny. *Penn. Br. Zool. No. 36. tab. 49. fig. 39.*

Da Costa observes, that Linnæus has placed this shell very improperly in the *Tellina* genus, as it does not agree with his own definition of that genus, and remarks that its habit, shape, convexity, &c. brings it nearer to the *Cardium* than any other kind.—It still remains a *Tellina* in the last edition of the *Systema Naturæ* by Gmelin, and we are not disposed in the present instance to deviate from that authority.

This, and the *Tellina rivalis* described by Dr. Maton, in the Linnæan Transactions, are very analogous, though evidently two distinct species, as we have before noticed in our description of the latter, Plate 62.—*Tellina Cornea*, according to Geoffroy, is a viviparous animal, and is found in great plenty in most rivers and stagnant waters.



1



2



1

PLATE XCVII.

TELLINA FABULA.

SEMI-STRIATED TELLEN.

GENERIC CHARACTER.

The hinge usually furnished with three teeth. Shell generally sloping on one side.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell ovate, compressed, inflected, or rather produced at one end. One valve smooth, the other marked with numerous oblique reflected striæ.

TELLINA FABULA: testa ovata compressa inflexa antèrius subrostrata: valva altera lævi, altera oblique substriata: striis reflexis.—*Gronov. Zooph. tab. 13. fig. 9.*
Gmel. Linn. Syst. Nat. T. I. p. 6. p. 3239.
sp. 61.

We discovered this very unusual species on the sands opposite to Caldy Island, about two miles beyond Tenby, Pembrokeshire. It is

PLATE XCVII.

noticed by Gronovius and Gmelin as a Norwegian and Mediterranean shell, and is said to have been found on the coast of Dorsetshire, by the late Dr. Pultney; but has never been before described as a British species.

The smallest figures represent the natural size.



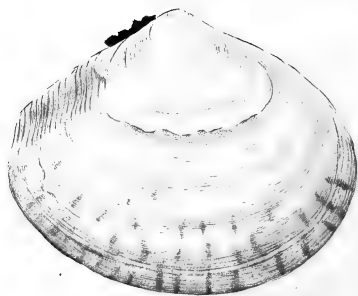
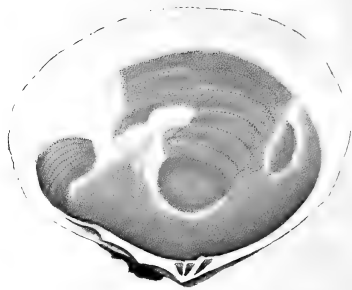


PLATE XCVIII.

TELLINA FAUSTA.

GENERIC CHARACTER.

The hinge usually furnished with three teeth. Shell generally sloping on one side.

SPECIFIC CHARACTER.

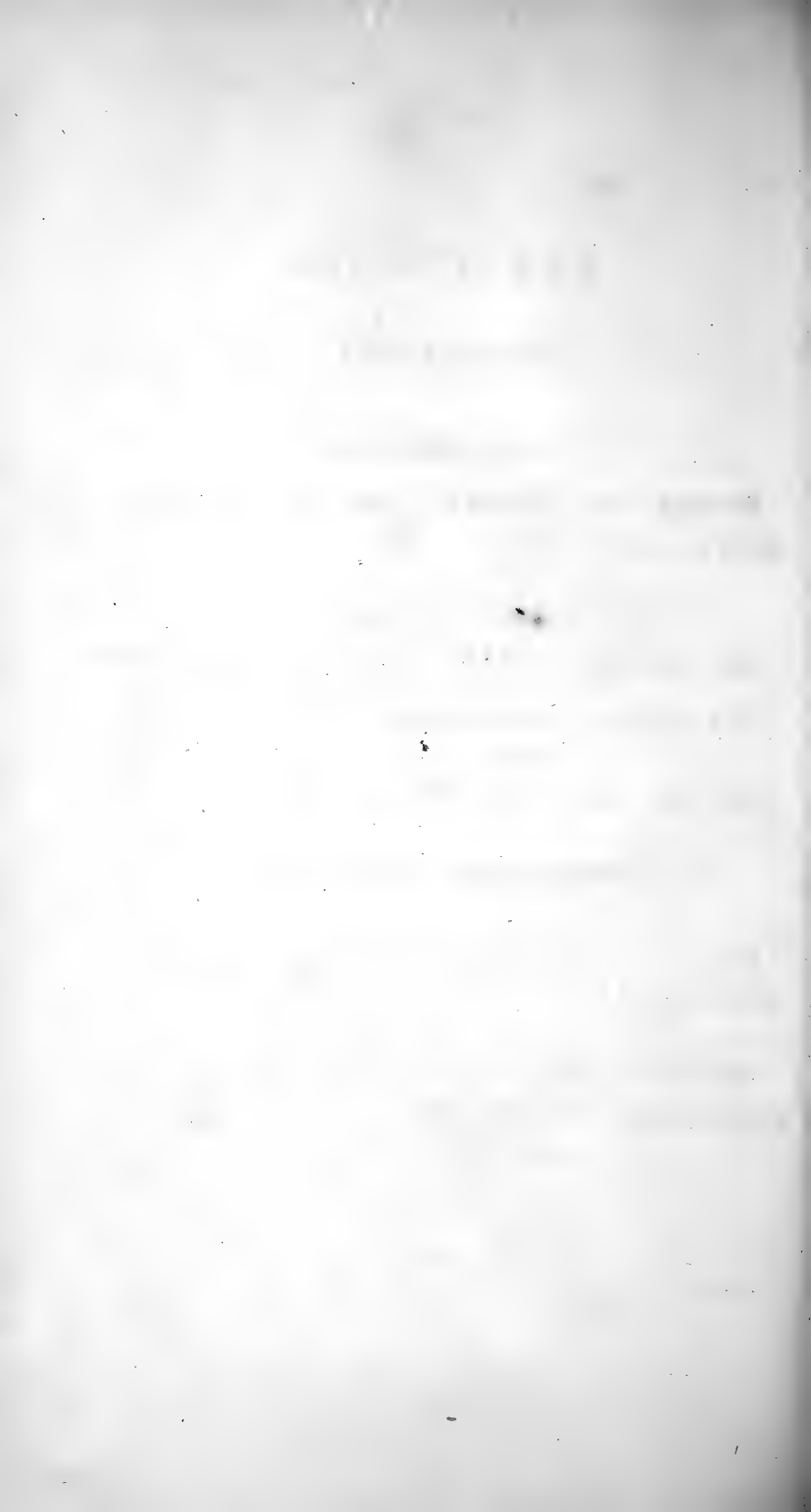
Somewhat triangular with many obsolete minute transverse striæ.

TELLINA FAUSTA: testa subtriangulari, striis transversis minutissimis obsoletis.

Tellina fausta. *Soland. Ms.*—*List. Conch. t. 388. f. 235.*

An extremely scarce British species, and not mentioned by either Penant, or Da Costa.

This shell is generally of a pale cream colour on the outside, and beautifully tinged with yellow within.



1



2



1



PLATE XCIX.

HELIX CONTORTA.

THICK RIVER CHEESE SHELL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell thick, umbilicated, flattish. Aperture narrow and crescent-shaped.

HELIX CONTORTA: testa subumbilicata plana utrinque æquali: apertura lineari arcuata. *Gmel. Linn. Syst. Nat. p. 3624.*

Planorbis minima crassa Tiney many-circled, thick, river cheese shell. *Petiv. Gaz. tab. 92. fig. 8.*

Planorbis minima crassa, utrinque umbilicata, anfractibus subdepressis. *Crassa. Da Costa Br. Conch. p. 66. sp. 37. Tab. 4. fig. 11.*

PLATE XCIX.

This aquatic snail is rather scarce ; it has been lately found in the Thames, near Greenwich. Petiver says his were found in the rivulets about Peterborough House, Westminster.

Da Costa mistook this for the *Helix complanata* of Linnæus ; it is evidently the *Helix contorta* of that author, who very minutely describes it in the *Fauna Suecica*.

My dear Mother
I received your kind letter
of the 10th and was glad to
hear from you. I am well
at present and hope these
few lines will find you the
same.

I have not much news
to write at present. I am
still in the same place
and doing the same work.
I have not seen any of
my friends lately.

I have not much news
to write at present. I am
still in the same place
and doing the same work.
I have not seen any of
my friends lately.

I have not much news
to write at present. I am
still in the same place
and doing the same work.
I have not seen any of
my friends lately.

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my friends lately.

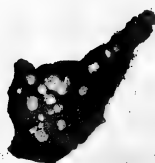


PLATE C.

SERPULA GRANULATA.

GENERIC CHARACTER.

Animal a terebella, or whimble worm. Shell tubular, adheres to other bodies, as shells, stones, &c.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell roundish, spiral, glomerate: three elevated ridges on the upper side.

SERPULA GRANULATA: testa tereti spirali glomerata; latere superiore sulcis tribus elevatis. *Gmel. Syst. T. I. p. 6. p. 3741. sp. 9.*

This singular species has not been before noticed as an English Shell. We found it intermixed with *Lepas Intertexta* on the shell of the common Lobster. Linnæus says it is found in the North Seas in large masses, adhering to stones, and shells.

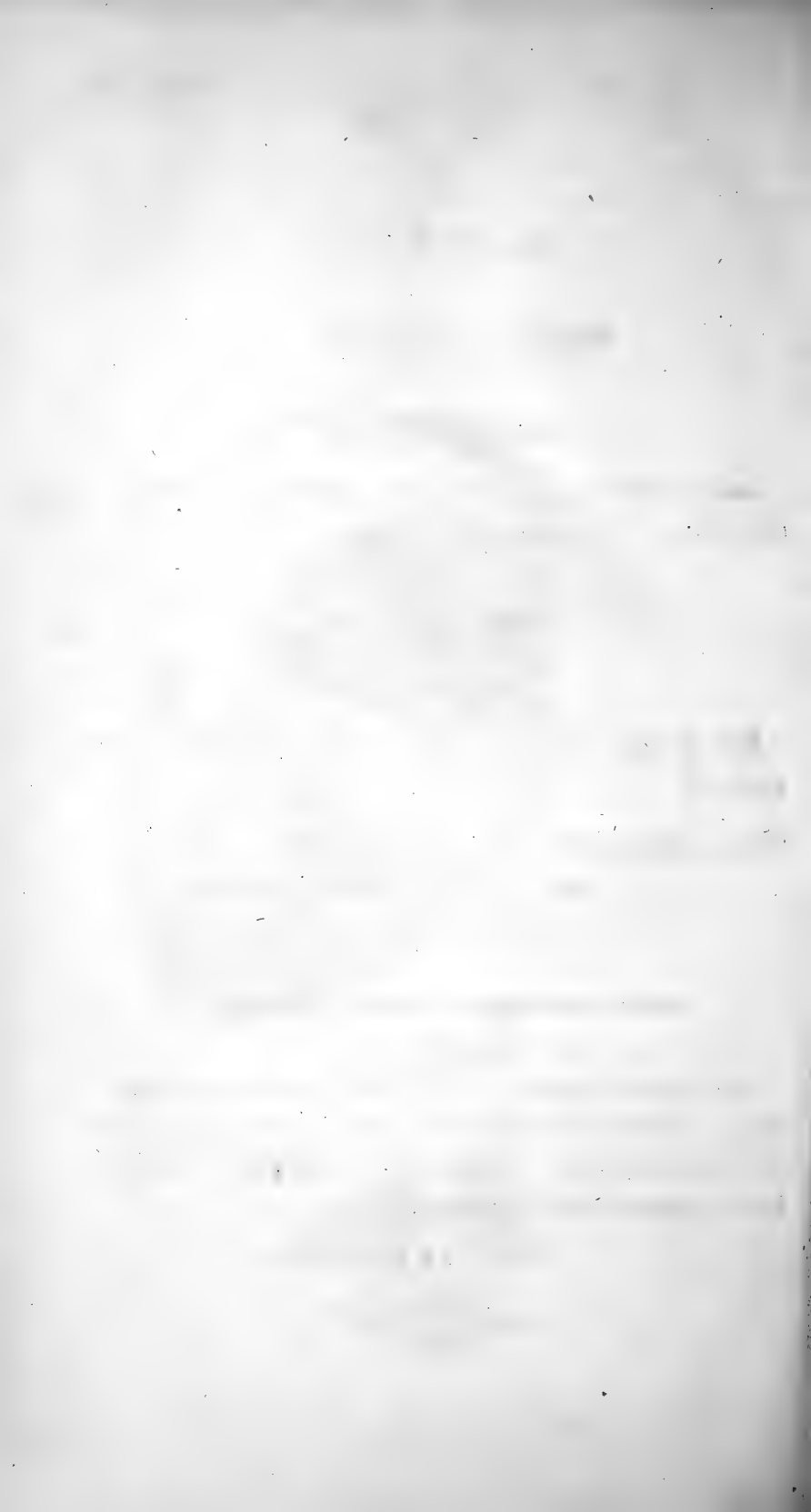






PLATE CI.

MYA DEPRESSA.

DEPRESSED MYA.

GENERIC CHARACTER.

Animal an ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick, strong, and broad tooth, not inserted into the opposite valve.

SPECIFIC CHARACTER.

Somewhat ovate, anterior part rather wedge-shaped and sloping : a slight depression across the middle ; posterior part roundish, gaping. Teeth at the hinge crenulated.

MYA DEPRESSA : testa subovata, antice sub-cuneiformi declivi, medio depressa, postice rotundata hiante, cardinis dente crenulato.

After comparing the numerous kinds of fresh water Myæ found in different parts of the kingdom, the conchologist will perhaps be surprized at the small number we shall venture to admit as distinct species. The varieties of those Shells seem endless, and it may be

PLATE CI.

doubted whether they are not in general indebted to age, accident, or the peculiar qualities of the waters they inhabit, for those variations in general appearance that have been too frequently mistaken for characteristic differences of species.

As the *Myæ* will fall under consideration more fully hereafter, we shall for the present confine our remarks to the shell before us, and its very analogous kind, the *Mya ovata* of Dr. Solander.

This has been considered by some as a mere variety of *ovata*, and we confess our opinion is still wavering in assigning it a name and character as a new species. The *Mya ovata* has been lately found in the river Froome in Somersetshire, and likewise in the New River near London. What are usually deemed its varieties are numerous, but none of them can, we believe, be considered as distinct species, except the present, which is certainly the most remote of any, if it is really a variety of that species. The *Mya ovata*, in all its gradations, seems somewhat more ventricose and ovate in its contour, than this Shell; and though the variations of the latter are considerable, we have generally observed a slight depression, across the middle, which causes the narrowest end to be rather flattened throughout, and it is also rather more cuneiform or wedge-shaped at this end than *Mya ovata*: to this we might perhaps add, with some propriety, that the gaping beyond the hinge at the broadest end, is wider than in *Mya ovata*.

Whether this difference is actually sufficient to form a distinct specific character, and whether it is constant in other shells of this kind, still remains in some degree of uncertainty. Both this and the *Mya ovata* inhabit the same waters, for we have seen several specimens from the

PLATE CL.

river Froome, where it is known the *Mya ovata* is also found; and as to colour, it is no criterion: both kinds are greenish, radiated with yellow, and are more or less vivid in different shells: they are seldom higher in colour than the specimen we have figured; some are more of an olive colour, and others are deeply tinged with brown.

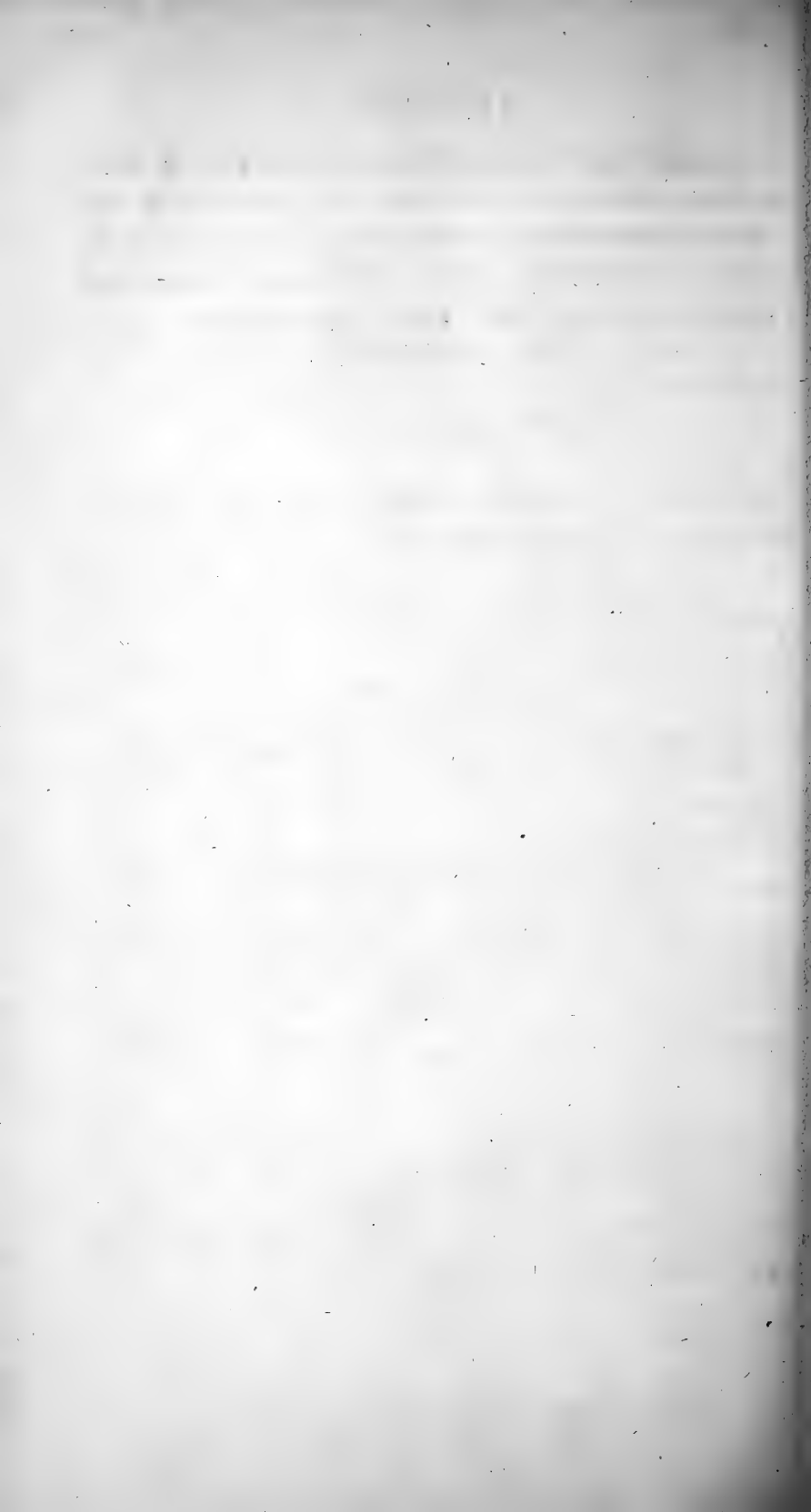




PLATE CII.

TURBO FONTINALIS.

GENERIC CHARACTER.

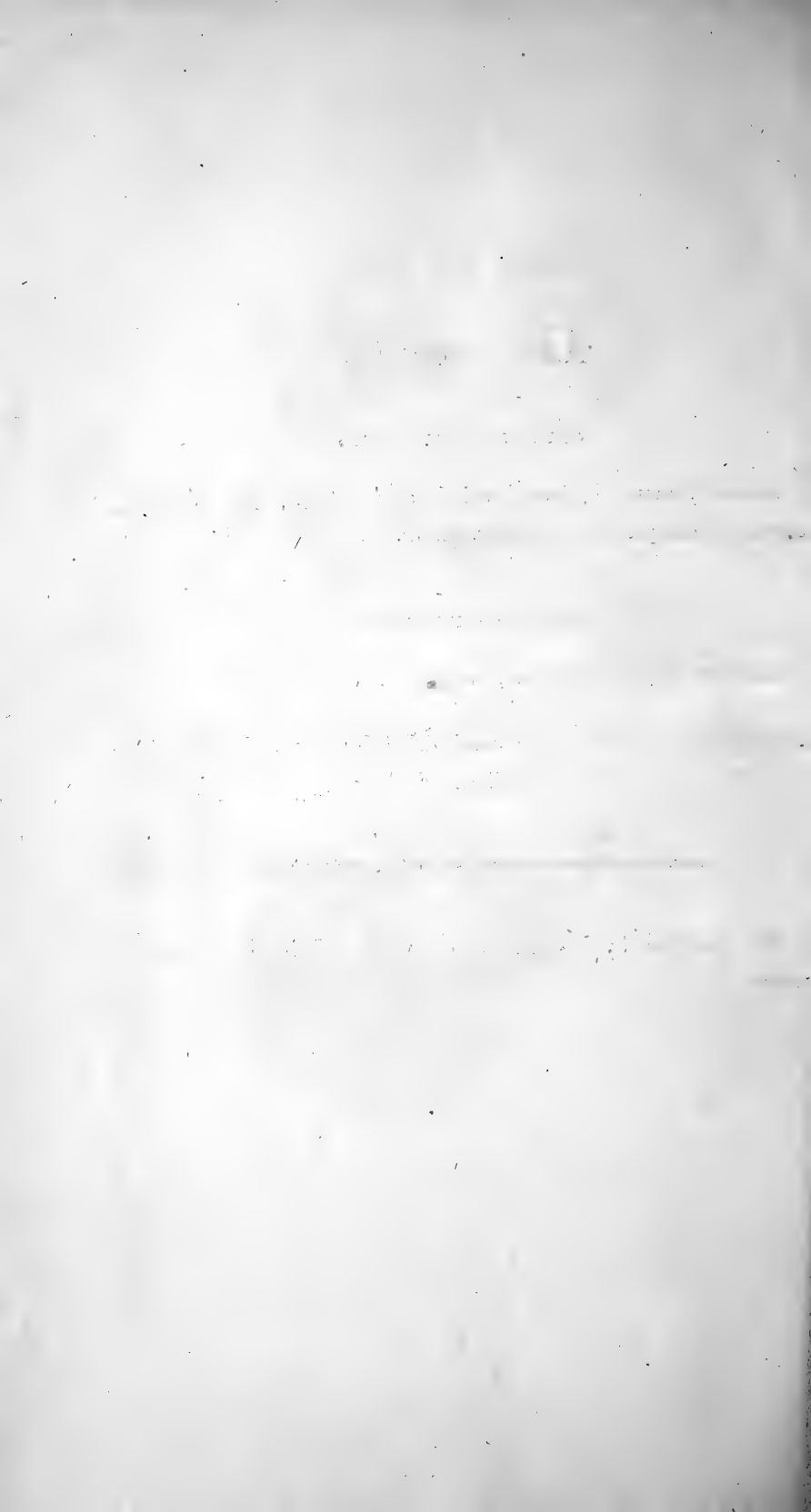
Animal Limax. Univalve, spiral, or of a taper form. Aperture somewhat compressed, orbicular, entire.

SPECIFIC CHARACTER.

Shell umbilicated, subconic, wreaths ventricose, smooth.

TURBO FONTINALIS: testa umbilicata subconica anfractibus ventricosis lævibus.

Not described by Pennant or Da Costa. Lives in clear fresh waters.



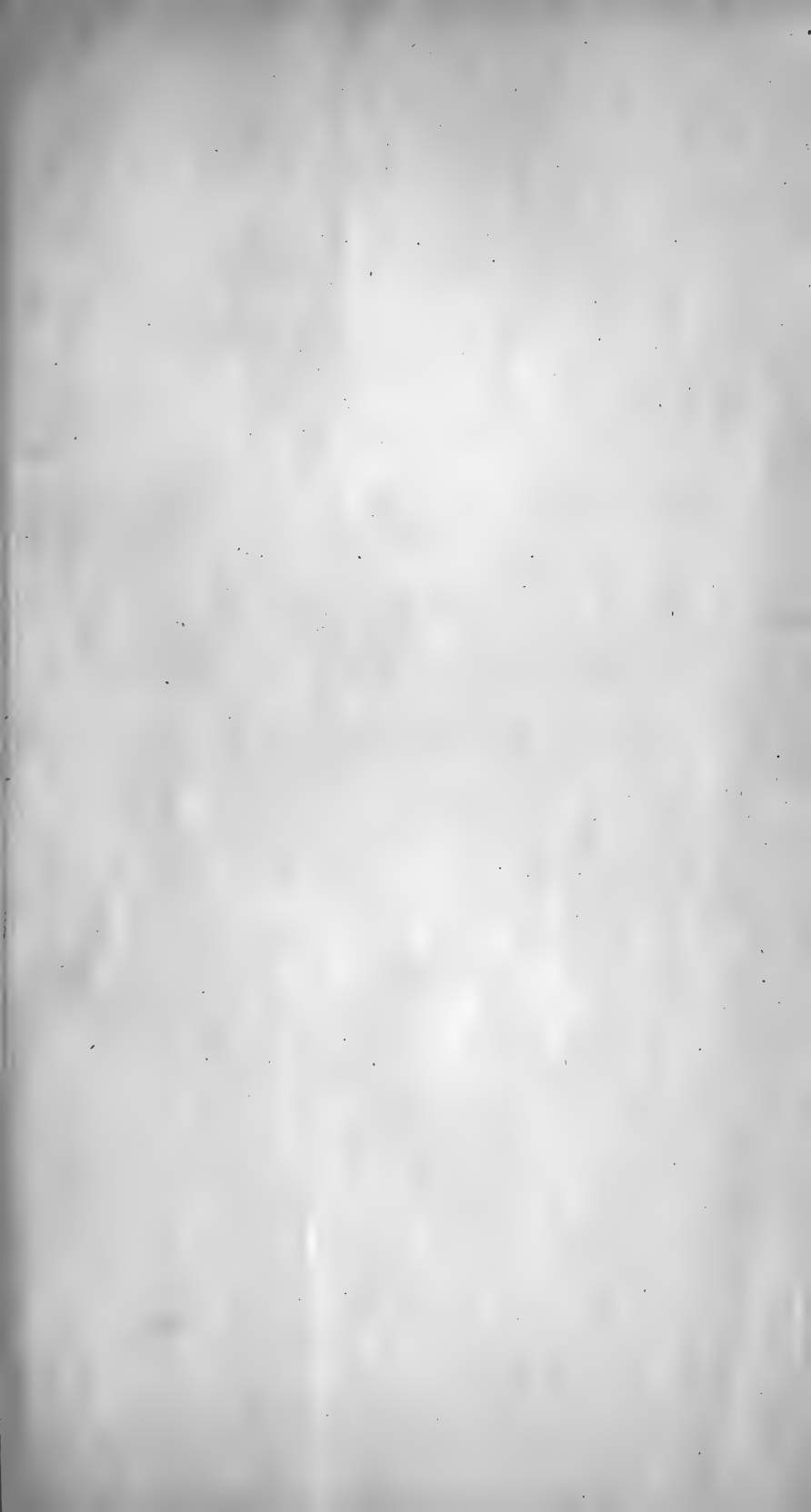




PLATE . CHH.

TELLINA RIGIDA.

FLAT AND RIDGED TELLEN.

GENERIC CHARACTER.

The hinge usually furnished with three teeth. Shell generally sloping on one side.

SPECIFIC CHARACTER

AND

SYNONYMS.

Somewhat depressed, subrotund, thick, with numerous transverse thread-like ridges, and a still deeper longitudinal depression near the posterior end.

TELLINA RIGIDA : testa subdepressa subrotunda crassa transversim confertissime striata, postice longitudinaliter magis depressa.

Tellina crassa. *Penn. Br. Zool. p. 87. sp. 23?*

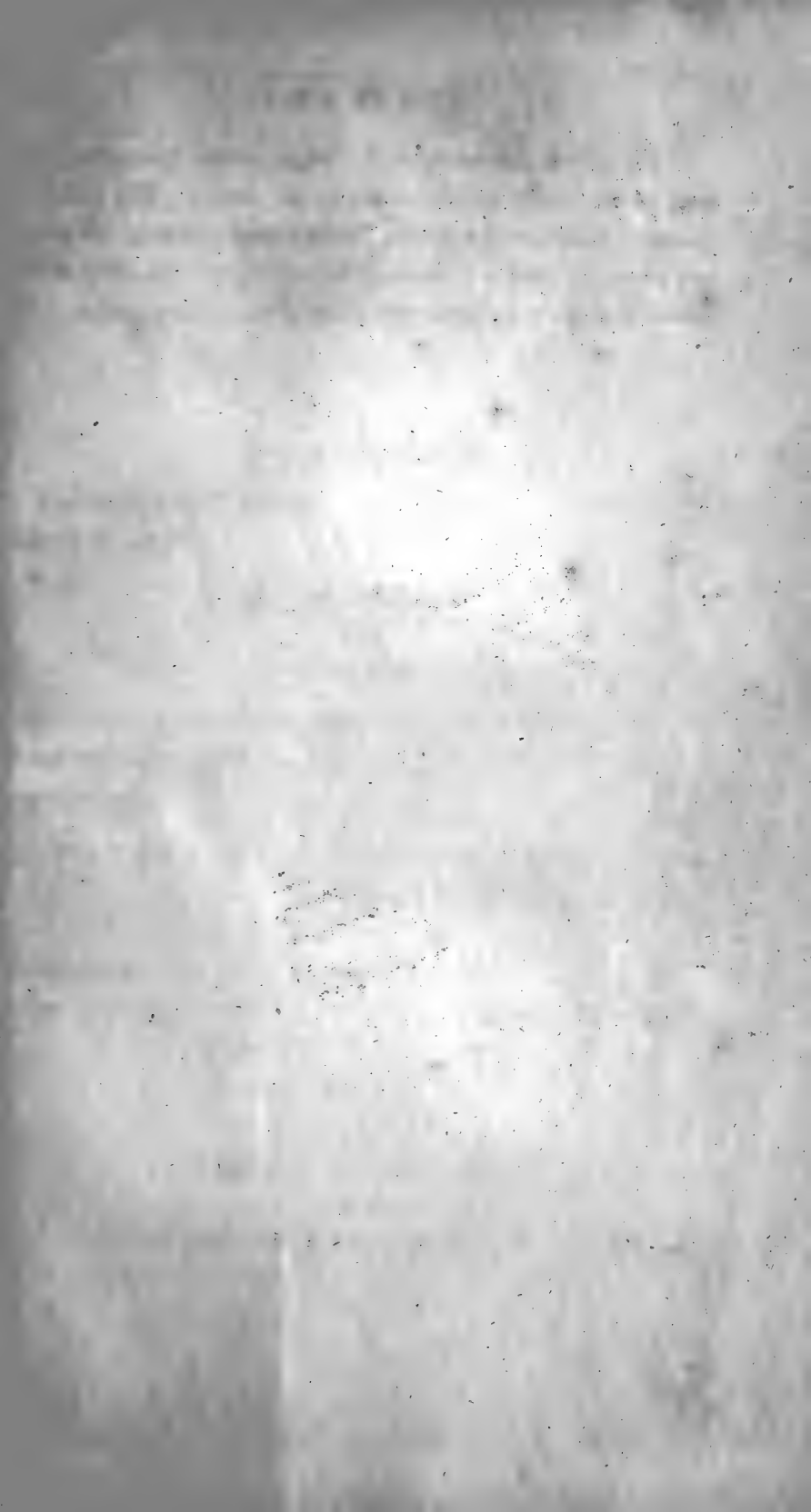
Pectunculus depressior subrotundus, dense et transversim strigatus.

Depressior. *Da Costa Br. Conch. p. 194. sp. 30. Tab. 13. fig. 4.*

Da Costa, who appears to be the only author that describes this shell, says he received it from the coast of Cornwall.

PLATE CIII.

This is a thick and heavy shell, though rather transparent; the sides nearly similar, and the beaks almost central. The colour is generally white, with a tinge of yellow on the outside, and some specimens are beautifully radiated with pale pink; the inside is remarkably glossy and finely tinged with yellow, red and orange.



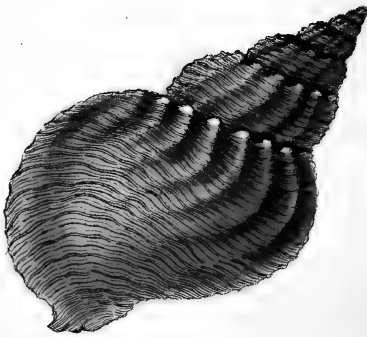


PLATE CIV.

BUCCINUM UNDATUM.

WAVED, OR COMMON WHELKE.

GENERIC CHARACTER.

Aperture oval, ending in a short canal.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell oblong, coarse, transversely striated, with many curved angles.

BUCCINUM UNDATUM : testa oblonga rudi transversim striata ; anfractibus curvato-multangulis. *Gmel. Linn. Syst. Nat. T. 3. p. 3492. sp. 93.—Faun. Suec. 2263.*

Buccinum crassum rufescens, striatum et undatum. *List. H. An. Angl. p. 156. tit. 2. tab. 3. fig. 2.—Et Bucc. tenue, læve, striatum et undatum. Id. p. 157. tit. 3. tab. 3. fig. 3.—Bucc. brevi rostrum tenuiter striatum, pluribus undatis sinibus distinctum. List. H. Conch. tab. 962. fig. 14.—Et Bucc. brevi rostrum magnum, tenue, leviter striatum. Id. tab. 962. fig. 15. 15. a—Id. Exerc. Anat. Alt. p. 68.*

PLATE CIV.

Rough, and our most common whelke. *Dale Harw. p. 382.*

No. 3. 4.

Buccinum undatum, waved, *Penn. Brit. Zool. No. 90. pl. 73.*

Buccinum striatum, striated. *Penn. Br. Zool. No. 91. pl. 74.*

Buccinum canaliculatum medium vulgare rufescens striatum, pluribus costis undatis distinctum. *Vulgare Da Costa. Br. Conch. p. 122. sp. 73. tab. 6. fig. 6. 6.*

This is the common Whelke of English conchologists, and is sometimes brought to the markets as an article of food. The brown ones are this common sort, for as Linnæus observes, those that are brown fasciated with white or blue are scarce; the former of those varieties is figured in the annexed plate.

Lister, Pennant and other authors have considered the striated variety of this Shell as a distinct species; it is certainly destitute of those prominent ribs or knobs which is so conspicuous in this Shell in general, but the transitions from the striated kind to those with knobs is so gradual and easy to be traced that we must coincide with Linnæus and Da Costa who admit them barely as varieties.



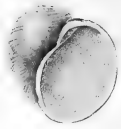


PLATE CV.

HELIX LÆVIGATA.

SMOOTH SNAIL.

GENERIC CHARACTER.

Aperture of the mouth contracted and lunulated.

SPECIFIC CHARACTER

AND

SYNONYMS.

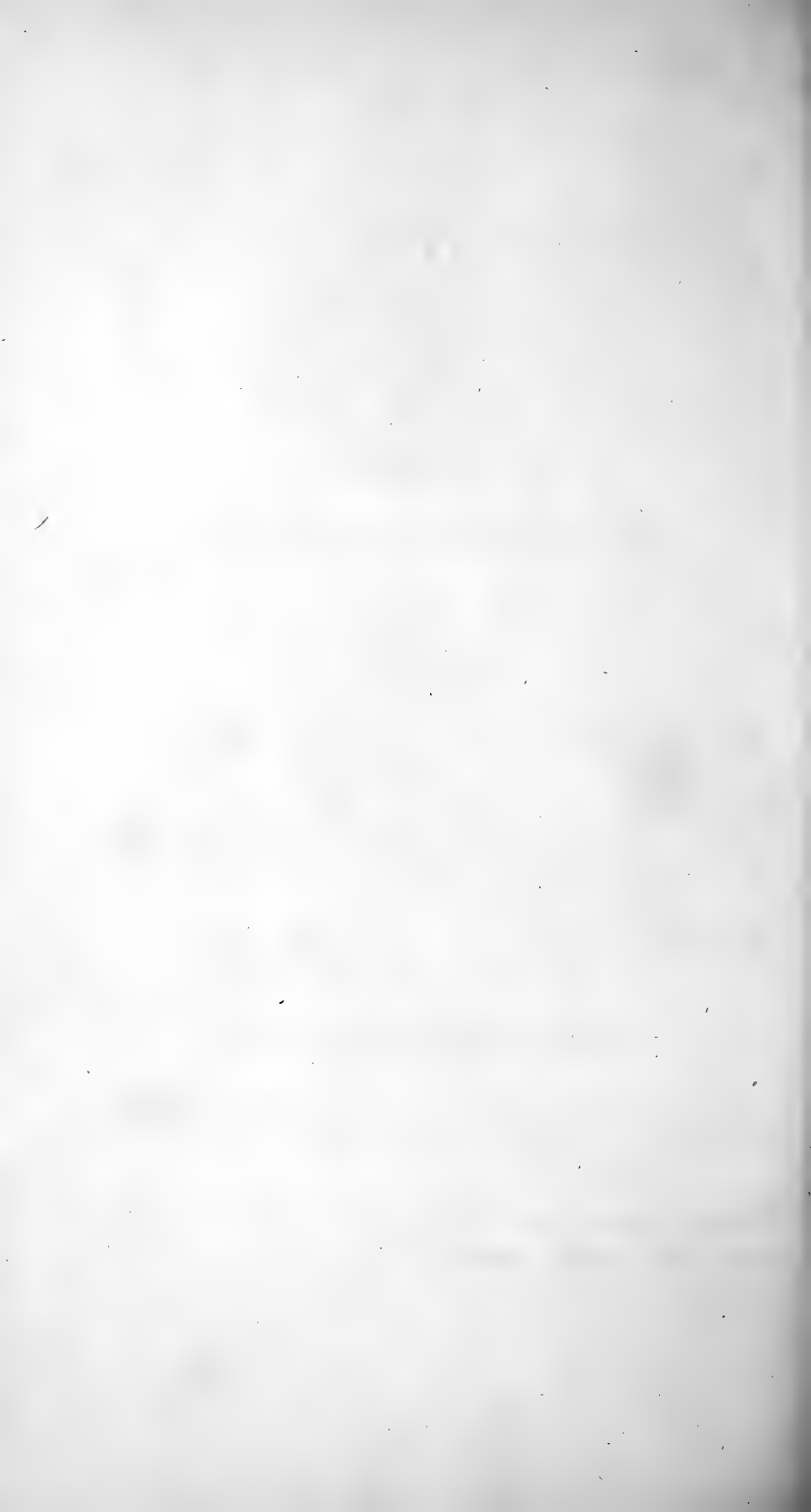
Imperforate, pellucid, roundish, of two wreaths: the first very large, the second small, obtuse, and placed laterally.

HELIX LÆVIGATA: testa imperforata obovata obtusissima pellucida lævissima. *Gmel. Linn. Syst. Nat. T. I. p. 6. p. 3663. sp. 148.*

Helix lævigata. Smoothed. *Penn. Br. Zool. T. 4. t. 86. f. 139. Testa M. rar. f. 17. Chemn. f. 1590. 9.*

A rare Shell, found on the Kentish coast, and on the beach at Studland, Dorsetshire. Communicated by the Rev. T. Rackett.

Pennant considers this as a fresh water Shell, saying it inhabits ponds. Gmelin is silent respecting its habitation.





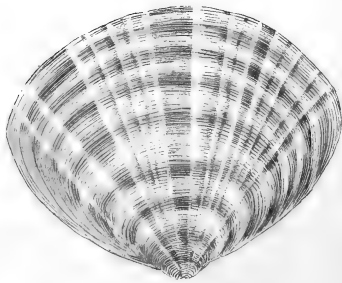
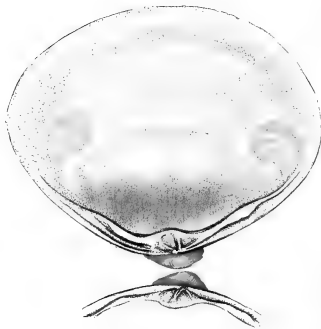
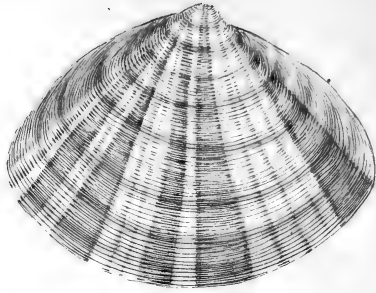


PLATE CVI.

MACTRA STULTORUM.

RAYED MACTRA.

GENERIC CHARACTER.

Animal a Tethys. Bivalve, sides unequal. Middle tooth complicated, with a little groove on each side; lateral teeth remote.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell semi-transparent, smooth, with faint radiations; within purplish.

MACTRA STULTORUM: testa subdiaphana lævi obsolete radiata, intus purpurascente, vulva gibba. *Gmel. Syst. Nat. T. 1. p. 6. p. 3258. sp. 11.*

Pectunculus triquetrus ex flavo radiatus. *List. H. Conch. tab. 251. fig. 85.*

Mactra stultorum, Simpleton. *Penn. Br. Zool. No. 42. tab. 52. fig. 42.*

Trigonella tenuis admodum concava ferrugineo-cinerea radiata. Radiata. *Da Costa Br. Conch. p. 196. sp. 32.— Tab. 12. fig. 3. 3.*

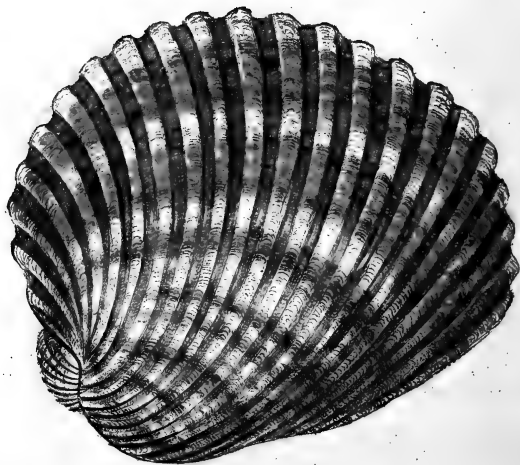
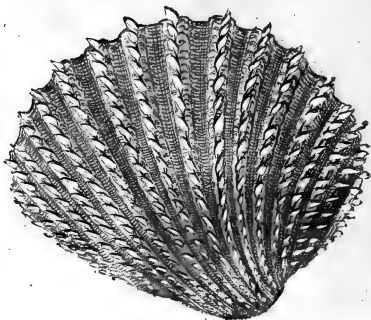
PLATE CVI.

This Shell, we observed in plenty, on the sandy shores of South Wales, and particularly on those of Pembrokeshire. It is also found on the western coasts ; at Highlake in Cheshire, near Liverpool ; at the mouth of the river Mersey ; and on the coast of Aberdeenshire and other shores of Scotland.

The general colour of the outside is a kind of milky white, delicately radiated with brown ; within, the young shells are tinged with reddish brown, the old ones with violet.



1



2

PLATE CVII.

FIG. I.

CARDIUM ECHINATUM.

THORNY COCKLE.

GENERIC CHARACTER.

Two teeth near the beak ; and another remote one, on each side of the Shell.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell somewhat heart shaped, ribs prominent with a carinated ridge beset with spines along the middle.

CARDIUM ECHINATUM: testa subcordata sulcata : costis carinatis aculeatis. *Linn. Gmel. Syst. Nat. T. I. p. 6. p. 3247. sp. 8.*

Pectunculus orbicularis fuscus, striis mediis muricatis. *List. H. Conch. tab. 324. fig. 161.*

Cardium Echinatum. *Penn. Brit. Zool. No. 38.*

Cardium orbiculare, costis circiter viginti echinatis, spinis hamatis. Echinatum. *Da Costa Brit. Conch. p. 176. Tab. 14. fig. 2.*

PLATE CVII.

Dead and worn Shells of this species are found on several of the British coasts in plenty.

It is an elegant shell though the colours are in general obscure: within it is white, without of a pale brown sometimes marked with transverse bands of rust colour.

FIG. II.

CARDIUM TUBERCULATUM.

TUBERCULATED COCKLE.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell somewhat heart-shaped, ribs obtuse, knotty, transversely striated.

CARDIUM TUBERCULATUM: testa subcordata: sulcis obtusis nodosis transversim striatis. *Linn. Gmel. Syst. T. I. p. 6. p. 3248. sp. 11.*

Gmelin mentions several varieties of this species. It has been sometimes considered as the *Cardium rusticum*.

Found on the coast of Dorsetshire, is scarce, and not before described as a British Shell.

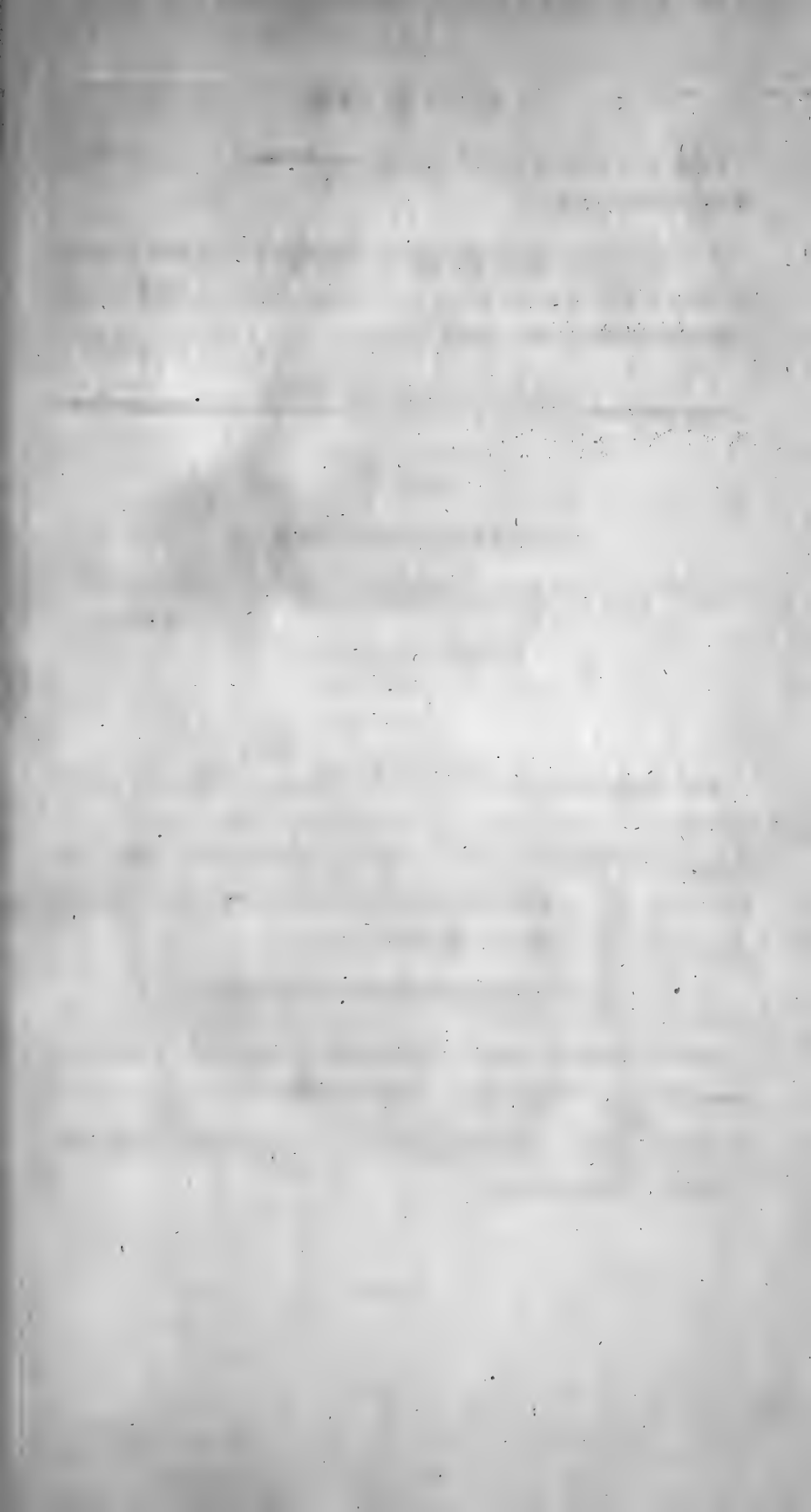




PLATE CVIII.

MYA DUBIA.

DUBIOUS MYA.

GENERIC CHARACTER.

Animal an ascidia. Shell bivalve, gaping at one end. The hinge for the most part furnished with a thick, strong, broad tooth, not inserted in the opposite valve.

SPECIFIC CHARACTER

AND

SYNONYMS.

Shell fragile, brown, bottom widely gaping; rudiment of a tooth in one valve only.

MYA DUBIA : testa fragili fusca subtus valde hiantē valva una edentula altera rudimento dentis.

Mya dubia. *Penn. Br. Zool.* p. 82. 19.

Pennant, who seems to be the only author that describes this shell, says it has the rudiment of a tooth within one shell; with an oval

PLATE CVIII,

and large hiatus opposite the hinge. Shells brown and brittle, size of a Pistachia nut. Length of a Horsebean, and found near Weymouth.

This Shell is rare, Pennant notes his from the Portland cabinet.

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I N D E X.

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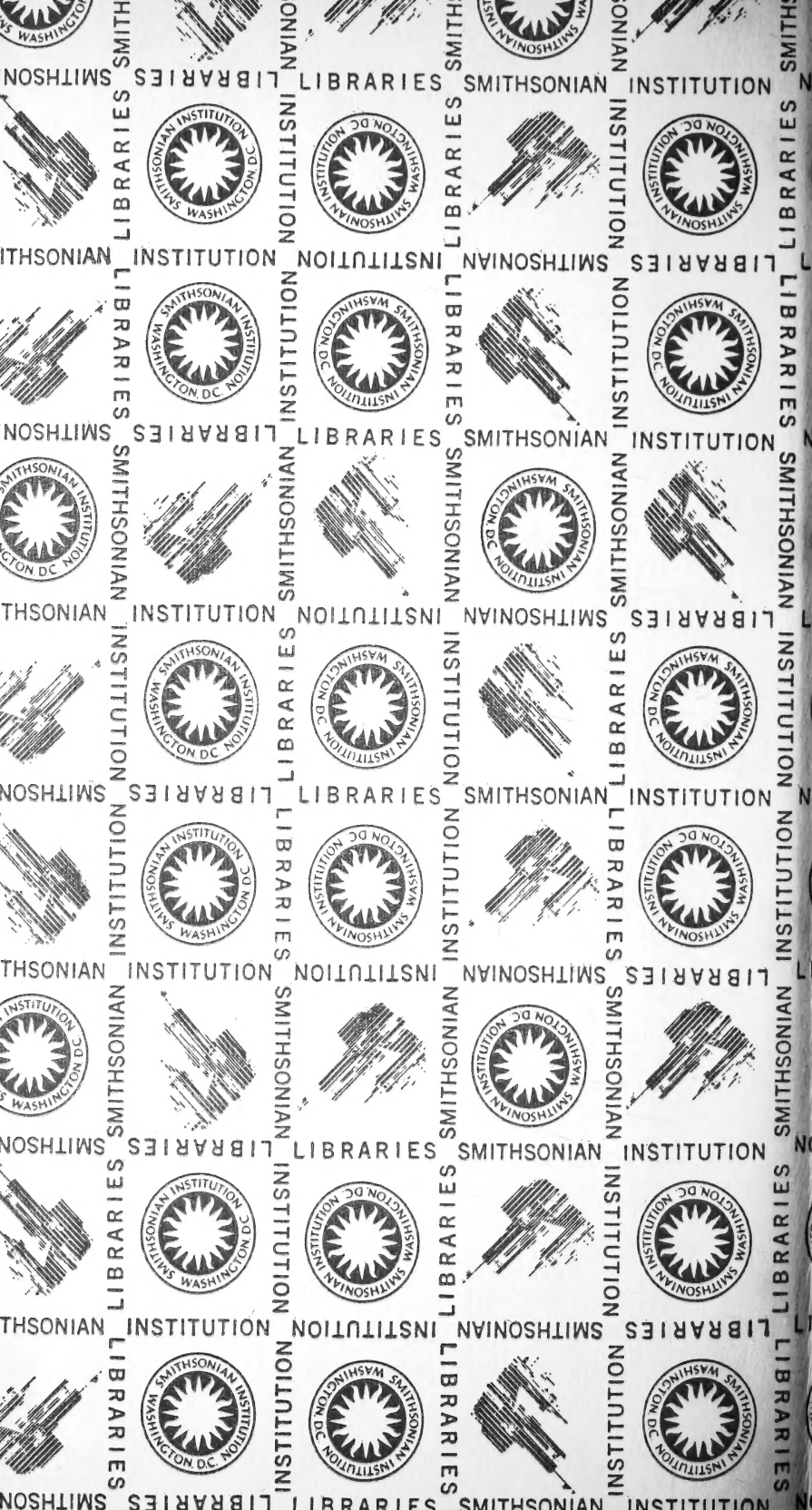
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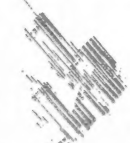
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