

PROVISIONAL AID TO THE STUDY OF THE TASMANIAN MOLLUSCA.

BY R. M. JOHNSTON, F.L.S.

The student of Conchology in Tasmania labours under many disadvantages, owing to the circumstance that the *descriptions* of the various species inhabiting our waters are scattered widely in various publications of Europe and America, while nearly half of the number of the principal *type species* are deposited in foreign museums, and are therefore inaccessible for purposes of reference to local students.

Before we can rest satisfied with the existing classification of many species there is much careful work to be done; for it is well known that the specific descriptions of the earlier distinguished collectors who accompanied expeditions to our seas, are often too meagre to satisfactorily distinguish or separate them from many allied distinct species subsequently discovered. Such accidental collections, too, very naturally contain many forms belonging to widely variable species, and the individuals, of necessity taken by them as types, do not always present the most suitable characters which would serve to distinguish the central type of a widely variable species, and hence the local observer, unable to refer to original types described, is often puzzled or uncertain in his determinations.

It would be well, therefore, to follow the example of New Zealand, in making up a duplicate collection of our shells as complete as possible, and thereafter submit one of them to a well-known European authority like Ed. Von Martins, who would critically examine and compare them with original types in European collections, and submit a critical report for the guidance of local workers. Such a course has already been adopted by New Zealand under the guidance of Professor Hutton, one of the ablest authorities, and certainly one of the most energetic naturalists in Australasia; an example which Tasmania would do well to follow. If Messrs. Legrand, Petterd and Beddome, who have so ably worked in this branch of science in Tasmania, and who possess the best local collections, were to engage in a work of this kind under the auspices of the Royal Society of Tasmania, I am satisfied that the very best results would be attained, and we would then prepare the way for the publication of a work on Tasmanian Mollusca that we could place thorough dependence upon.

It will be observed that although the whole of the 716

known species contained in the list prepared by me were described by over 75 distinct authors at different times and in various publications, yet the greater half (384) were described by five persons, and among these the Rev. J. E. Tenison-Woods alone described 212 species, or nearly a third of the whole. Following next in order to the work of this gifted naturalist last named (whose death, recently, is a loss which all Australasians most deeply deplore), come the names of Lamarck, Reeve, Sowerby, Petterd, Cox, Deshayes, Brazier, Quoy, A. Adams, Gray, Beddome and Angas, all of whom score double figures as regards the number of species described by them respectively.

My own contributions to local Conchology hitherto have been mainly confined to the Fossil Mollusca, although I have been enabled to give the results of long extended observations, and have added 9 new species to the list, in various papers contributed at different times to this Society. Taking the names of Tenison-Woods, Petterd, Cox, Brazier, and Beddome, as local workers, we have some reason to be proud of their accomplishments, for although later in the field, and only numbering 5 out of the 75 authors of species, they have between them described nearly half the number of all the known Tasmanian species.

The labours of the Rev. J. E. Tenison-Woods, F.L.S., etc., deserve special reference, for his writings in all branches of Australasian Natural History are so numerous and valuable that they form in themselves a considerable library. Apart from his many works published in the proceedings of kindred societies in Australia and New Zealand, his interesting volume published many years ago on the Geology of South Australia, and his fine work on the Fishes and Fisheries of New South Wales, he has contributed no less than 31 important communications to the Royal Society of Tasmania, four of which form the chief source of our information concerning the marine and fresh water shells of this Island.

Nor must we forget the labours of another local worker, who although not appearing among the authors of species, has perhaps done more for the science of Conchology in this island than any other single person. I refer to Mr. W. Legrand. This indefatigable naturalist may truly be regarded as the Pioneer of Conchology in Tasmania. He, assisted by Dr. Cox and Mr. Brazier, published the first really important work on Tasmanian Conchology in the year 1870 (Monograph of Tasmanian Land Shells), which afterwards formed the principal part of Mr. Petterd's later monograph on the same subject, published in the year 1878. Nor were Mr. Legrand's labours confined to the land shells. For many years he was the only person who possessed an extensive knowledge of our

local mollusca; and such was his enthusiasm and industry in the investigation of the Conchology of Australia generally, that Mr. Woods regarded his collection in the year 1875 to be the "finest in the southern hemisphere;" and writing in acknowledgment of the great services which he rendered to himself in the preparation for his census of Tasmanian shells, published in 1877, by generously placing at his disposal the whole of his fine collection, and by affording him the greater benefit of his vast store of local information, he refers to Mr. Legrand's monograph in the following terms:—"Within the last few years Mr. W. Legrand has published a monograph of all the (then) known land shells, accompanied with extensive notes on the habits, and very excellent figures of the newer species. What gave the work a greater value, was that it was for the most part privately printed by the author. The whole of the work being done by his own hand."

Next in order of time to Mr. Legrand comes Mr. Petterd. Mr. W. F. Petterd, C.M.Z.S., is a native of Hobart, Tasmania, whose name will ever stand a credit to the land of his birth. Almost self-taught in natural history, he has by natural talent accomplished more and better work than many of the European Naturalists, who have had the advantages of immediate reference to the stored and classified collections of the world's great observers. Mr. Petterd is undoubtedly the "Tam Edwards" of Tasmania. His love for natural history as a youth fortunately attracted the notice of our veteran Conchologist, Mr. Legrand, to whom Mr. Petterd, with many others—myself among the number—owe a lasting debt of gratitude for the kindly help and encouragement always readily bestowed.

Mr. Petterd's keen perception, bright intelligence, and taxidermical skill, combined with a rare facility for depicting the objects which interested his attention by artistic drawings, soon gave him a wide and thorough command of the principal forms of local natural history in Tasmania. Nor were his observations and collections of natural objects confined to his native country. He travelled as an observer widely over Australia, from Cape Howe to the Gulf of Carpentaria, and was one of the early pioneer explorers of New Guinea and the Islands of the Pacific. His splendid collections made in all these regions have largely increased our store of knowledge and have enriched the principal Museums of Europe, Australia and America. As a Conchologist he is best known by his fine "Monograph of the Land Shells of Tasmania," read before this society and published in the year 1879. This work has deservedly obtained for him the widest reputation. His contributions on Conchology to the Royal Society of Tasmania since that time have greatly extended our knowledge,

and he is now, I believe, engaged upon an elaborate treatise on the shells of Tasmania, which will in the future be the standard work of reference to Tasmanian students.

The labours of Lieut. C. E. Beddome have also added largely to our knowledge, and his contributions respecting new forms (17 species), brought to light by his extensive dredging investigations, come very close to those of Mr. Petterd. Mr. Beddome has also contributed several interesting papers to this Society on Conchology, and he is now the possessor of one of the finest collections in Australasia. He prepared a splendid classified collection of our shells for the Fisheries Exhibition held in London in the year 1887, for which he was awarded First Prize and a Gold Medal.

Nor must we forget in this place the valuable work of the Rev. H. D. Atkinson, of Circular Head. This gentleman has for many years been a most enthusiastic collector. Some of the most interesting forms contained in the Rev. J. E. Tenison-Woods' "Census," were brought to light by Mr. Atkinson, who was the first person in Tasmania who extended his researches into the deeper waters by means of the dredge. At the time Mr. Woods was preparing his "Census," Mr. Atkinson was the only person in Tasmania who sought for novelties in this way.

The labours of Mr. B. Dyer, of Hobart, Mr. R. Gunn, and Mr. A. Simson, of Launceston, as collectors, are also worthy of special notice in this place.

Since the appearance of the Rev. J. E. Tenison-Woods' Catalogue of Tasmanian Shells, valuable critical emendations have been made by Prof. Tate and Mr. John Brazier, and these have been availed of by me in the preparation of the Classified List attached to this paper. These gentlemen have also largely contributed in the extension of our knowledge of the Mollusca. Mr. Brazier's contributions to our knowledge of the land and fresh water shells are especially extensive.

In the following pages I have given a fairly comprehensive account of the bibliography of the subject, and for the convenience of local students who are not in possession of works of reference, I have added a part devoted to the description of the various families, mainly based upon the late G. W. Tryon's splendid work on "Structural and Systematic Conchology," (April, 1884.) To afford additional facilities to such students, I have also prepared an artificial key to the classes, families, and genera, which I hope will prove to be of service. In the preparation of this key, I have been greatly aided by a similar key prepared by Prof. Hutton for his excellent work on the Conchology of New Zealand, (Manual of the New Zealand Mollusca,) published in the year 1880.

In conclusion, I may add that this contribution can only be

considered merely as a provisional aid to students of Tasmanian Conchology; but it is hoped it may serve a useful purpose until such time as a more complete work makes its appearance. No doubt it is possible I have failed to notice recent minor contributions which may have appeared in foreign publications, and in the compilation from so many sources, I may have allowed some errors to creep in, but I think these are few and unimportant, and will not materially interfere with its general usefulness.

ARTIFICIAL KEY TO THE FAMILIES.

I. MARINE UNIVALVES.

GASTEROPODA.

(1.) Shell regularly spiral.

(a.) *Shell fusiform, tapering to each end, moderately large.*

- | | |
|---|---------------------|
| Large anterior canal, short, recurved,
varices not more than 5 | Tritonidæ, viii. |
| Canal straight, short, varices three or more | Muricidæ, vii. |
| Canal usually straightish and long, no
varix | Fusidæ, ix. |
| Shell notched in front, ovately fusiform | Buccinidæ, x. |
| Shell with columella plaited, polished
aperture, nearly as long as the
shell, narrow | Volutidæ, xii. |
| Columella plaited, aperture small,
narrow, not exceeding half the
length of shell | Mitridæ, xiii. |
| Columella plaited, aperture oblong, whorls
cancellated, last one inflated | Cancellaridæ, xvii. |
| Shell small, inner and outer lip crenu-
lated interiorly | Columbellidæ, xvi. |
| Shell small, somewhat ventricose and
rugose, inner lip with a posterior
shining callosity, or blunt denti-
form plait, anterior canal short,
reflected truncate | Nassidæ, xi. |

(b.) *Shell convolute, the aperture nearly as long as the shell.*

- | | |
|--|---------------------|
| *Spire moderate. | |
| Spire and columella lip covered with
enamel, shining | Olividæ, xv. |
| Small, columella plaited, outer lip
thickened in middle | Marginellidæ, xiv. |
| Small, columella plaited, aperture,
rounded in front | Tornatellidæ, liii. |

Small, columella plaited or toothed, spire short	Auriculidæ, lxiv.
**Spire very short.	
Aperture with a recurved canal	Cassididæ, xxii.
Shell inversely conical	Conidæ, xx.
*** Spire none.	
Oval, aperture narrow	Cypræidæ, xxi.
Shell cylindrical, small	Cylichnidæ, liv.
Small, white, pellucid, last whorl expanded	Philinidæ, lii.
Moderate or large, inflated	Bullidæ, lv.
Like <i>Bullidæ</i> , shell thin, <i>flexible</i>	Lophocercidæ, lvi.
(c.) <i>Shell turreted, elongate or subulate.</i>	
Outer lip indented near the suture, canal long and straight	Pleurotomidæ, xix.
Shell elongated, polished, richly coloured, shelly operculum	Phasianellidæ, xliii.
Whorls ribbed, sutures deep	Scalaridæ, xxvi.
Aperture channeled in front, subulate	Cerithiidæ, xxxiv.
Aperture with an oblique notch in front	Terebridæ, xviii.
Shell awl-shaped, spirally striate, aperture rounded	Turritellidæ, xxviii.
Very small, milk white, polished	Eulimidæ, xxx.
Very small, slender, many whorled, whorls plaited	Turbonillidæ, xxxi.
Very small, aperture ovate, columella truncate	Planaxidæ, xxxiii.
Very minute, elongate, whorls flattish, covered with brownish epidermis	Rissoeliidæ, xxxv.
Very small, aperture entire, often umbilicated, columella smooth	Part Rissoidæ, xxxvi.
(d.) <i>Shell globular or turbinated.</i>	
Polished, aperture semi-circular	Naticidæ, xxiii.
Aperture semi-circular, columella flat	Neritidæ, xl.
Shell thin, blue	Ianthinidæ, xxvii.
Aperture rounded, not pearly inside	Littorinidæ, xxxii.
Aperture rounded, pearly inside, operculum horny	
Like Trochidæ, but with shelly operculum	Trochidæ, xlv.
(e.) <i>Shell conical, with a flat base.</i>	Turbinidæ, xlv.
Shell not pearly inside, umbilicated	Solariidæ, xxv.
Shell not pearly inside, not umbilicated	Littorinidæ, xxxii.
Shell pearly inside, lip without slit	Trochidæ, xlv.
Shell pearly inside, lip perforated, or with a slit	Pleurotomariidæ, xlvii.
Base with a half cup shaped shelf or plate, apex sub-central	Calyptræidæ, xxiv.

- Shell depressed, lenticular Rotellidæ, xlii.
 (f.) *Shell oval shaped.*
 Interior with a shelly process Calytræidæ, xxiv.
 (g.) *Shell depressed or ear shaped.*
 Shell depressedly turbinate, umbilicated Liotiidæ, xli.
 Shell ear shaped, thin, fragile, pellucid Naticidæ, xxiii.
 Shell ear shaped, nacreous not perforated Stomatellidæ
 Shell ear shaped, nacreous perforated
 with holes Haliotidæ, xlviii.
 (2.) *Shell irregularly spiral.*
 Aperture rounded, entire, or with a
 longitudinal slit Vermetidæ, xxix.
 (3.) *Shell flat or simply conical.*
 Conical, curved anterior, margin notched
 or the apex perforated Fissurellidæ, xlix.
 Conical or depressed, neither notched
 nor perforated Patellidæ, l.
 Like *Patella*, but having a projection
 formed over a siphonal groove
 on right side Siphonariidæ, lxvii.
 Shell small, translucent trigonal Aplysiidæ, lvii.
 (4.) *Shell multivalve.*
 Shell composed of eight separate imbri-
 cating plates Chitonidæ, li.
 CLASS SCAPHOPODA.
 (5.) *Shell tube-like, tapering posteriorly Dentaliidæ, lxviii.*

(II.) MARINE BIVALVES.

CLASS PELECYPODA.

- (A.) *Bivalves cemented to or contained within a shelly tube.*
 Shell either small, equilateral, cemented
 to the lower end of a shelly tube,
 umboes alone visible, as in *Asper-*
 gillum, or wholly contained within
 a tube as in *Gasterochæna* Gastrochænidæ, lxix.
 (B.) *Bivalves not cemented or contained within a shelly tube.*
 (1.) *Dorsal margin protected by one or more accessory valves.*
 Shell gaping at both ends, thin, brittle
 white, very hard. Borers Pholadidæ, lxxi.
 (2.) *Bivalves lacking accessory valves.*
 (a.) Two adductor impressions, nearly equal.
 * Pallial line *sinuated*.
 † Ligament external.

- Very long, sub-cylindrical, straight ends
gaping Solenidæ, lxxii.
Equivalve thick, gaping Saxicavidæ, lxxiii.
Shell rounded, beaks turned forward;
hinge teeth 2—2 Semelidæ, lxxviii.
Compressed, thin ligament, anterior Tellinidæ, lxxix.
Shell rugosely striated and ribbed,
sinus profound Petricolidæ, lxxxii.
Three diverging teeth in each valve Veneridæ, lxxx.
†† Ligament internal.
Small, thick, produced behind Corbulidæ, lxxiv.
Thin, cartilage with a free ossicle Anatinidæ, lxxv.
Ligament in a triangular pit; two
cardinal teeth Mactridæ, lxxvi.
Ligament in a triangular pit; one
cardinal tooth Paphiidæ, lxxvii.
Hinge with many teeth in a line, inside
pearly Nuculidæ, xcii.
** Pallial line *simple*.
† Ligament external.
Trigonal, radiately ribbed, inside pearly Trigonidæ, xci.
Radiately ribbed, cordate not pearly Cardidæ, lxxxiii.
Thin, orbicular, white, divaricating striæ Lucinidæ, lxxxv.
Inequivalve thick, attached by left umbo Chamidæ, lxxxiv.
Sub-orbicular, smooth, ligament double
submarginal. No lateral teeth Ungulinidæ, lxxxvi.
Minute, thin, sub-oval, usually trans-
parent Erycinidæ, lxxxvii.
†† Ligament internal.
Large, solid, oblong, ventricose, at-
tenuate behind, smooth or con-
centrically furrowed Crassatellidæ, lxxxviii.
Roundly ovate, strongly radiately ribbed Astartidæ, lxxxix.
Hinge, many teeth in a line, not pearly Arcidæ, xciii.
Hinge, many teeth in a line, pearly
inside Nuculidæ, xcii.
(b.) Two adductor impressions, very unequal, umbones anterior.
Shell equivalve, oval or elongated, inside
pearly Mytilidæ, xciv.
Shell large, equivalve wedge shaped,
thin, brittle Pinnidæ, xcvi.
Shell small, eared, thin, transparent, or
having pearly interior, often
gaping Aviculidæ, xcv.
(c.) One adductor impression.
Shell irregular, radiately ribbed, spiny,
usually 2 hinge teeth in each
valve Spondylidæ, xcvi.

Ostreidæ, ci.

Anomiidæ, c.

Pectinidæ, xcvi.

Limidæ, xcix.

Teredidæ, lxx.

CLASS BRACHIOPODA.

Terobratulidæ, cii.

(III.) LAND AND FRESH WATER MOLLUSCS.

(A.) Land Slugs, or Snails; shell none, or rudimentary.

Limacidæ, lxi.

Arionidæ, lxii.

(2.) *Land Snails, with shell more or less spiral and fully developed.*

Succineidæ, lxiii.

Vitrinidæ, lviii.

Helicidæ, lix.

Pupidæ, lx.

(B.) *Fresh water or sub-aquatic, nearly all more or less covered with a dark brownish epidermis.*

(a.) Spiral univalves.

* Sub-aquatic.

Shell minute, cylindrical apex, truncated whorls, striated transversely—margins of sea shore

Truncatellidæ, xxxix.

Shell, smooth, elongated, perforated, whorls very convex, aperture round, peristome slightly expanded or reflected, apex frequently decollate. (Pomatiopsis)

Part

Rissoidæ, xxxvi.

** Aquatic.

(1.) † *Shell very minute, depressed, conical or umbilicated*

Valvatidæ, xxxviii.

(2.) †† *Shell very minute, 4 to 6 whorls, sub-umbilicated, elongate, ovate or pupiform (Bithynella), turbinate-ly ovate, inner lip more or less reflected. (Beddomeia)*

Shell minute, turbinate-ly elongate, sub-perforate. (Hydrobia.)

Part

Rissoidæ, xxxvi.

(3.) ††† *Shell small, globosely rounded, ovate imperforate, inner lip thickened. (Brazieria.)*

(4.) *Shells found in or near brackish water. Small, minute, globosely conical, sharp lip*

Assiminiidæ, xxxvii.

Shell, moderate, sub-globose, banded

Amphibolidæ, lxvi.

Elongate, minute, pyramidal pointed spire, flattish whorls. (Tatea.)

Rissoellidæ, xxxv.

(5.) *Shell moderate size or minute with sharp spire more or less acuminate; columella lip with oblique plait above, oval, oblong, corneous translucent, dextral. (Limnæa.)*

Part

Limnæidæ, lxv.

Sinistral. (Physa.)
Shell very minute, discoidal bi-concave. (Planorbis.)

(b.) *Non-spiral, pateliform or conical, base, partly closed by a flat shelf, leaving a semi-lunar aperture, apex inclined to the right. (Gundlachia.)*

Part

Limnæidæ, lxv.

Shell aperture simple, entire, conical, limpet-shaped, sometimes radiately ribbed. (Ancylus.)

(c.) Bivalve shells minute, ovate, thin, }
 olive or white. (Pisidium) } Cyrenidæ, lxxxi.
 Minute, sub-quadrate, thin, yel-
 lowish. (Sphærium or Cyclas.) }

Shell, large, oblong-oval, blackish
 epidermis; umboes eroded, pearly
 inside Unionidæ, xc.

LIST OF THE VARIOUS AUTHORS WHO HAVE DESCRIBED
 MORE THAN ONE LOCAL SPECIES, ARRANGED ACCORDING
 TO THE ORDER OF THEIR IMPORTANCE LOCALLY.

Species Described.

	No.
1. Tenison-Woods	212
2. Lamarek	59
3. Reeve	39
4. Sowerby	37
5. Petterd	37
6. Cox	29
7. Deshayes	23
8. Brazier	19
9. Quoy	18
10. A. Adams	18
11. Gray	17
12. Beddome	17
13. Angas	15
14. Crosse	10
15. Linne	9
16. Johnston	9
17. Adams and Angas	9
18. Swainson	9
19. Pfeiffer	8
20. Quoy and Gaim	8
21. Tate	5
22. Chemnitz	5
23. Dunker	5
24. Martyn	4
25. Born	3
26. H. and A. Adams	3
27. Gmelin	3
28. Philippi	3
29. Hinds	3
30. Kiener	3
31. Stutchbury	3

32. Hanley ...	...	...	...	...	3
33. Frauenfeld	...	...	...	...	2
34. Menke ...	...	...	...	...	2
35. Mueller ..	...	...	...	...	2
36. All others	...	...	...	...	63
Total	...	...	...	...	<u>716</u>

CLASSES, FAMILIES AND GENERA.

DESCRIPTIVE ACCOUNT OF THE VARIOUS CLASSES, FAMILIES
AND GENERA OF MOLLUSCS INHABITING TASMANIA,
SYSTEMATICALLY ARRANGED ACCORDING TO TRYON,
("STRUCTURAL AND SYSTEMATIC CONCHOLOGY, 1884.")

NOTE.—The Roman numbers refer to the number of the family, and the Arabic numbers in brackets to the number of the species; both arranged in consecutive order in the systematic list.

CLASS CEPHALOPODA.

Cuttle Fish, Squids, Nautili, etc.

Head large, separate from the body; eyes large, lateral; ears developed; mouth with two *horny or shelly beak-like jaws* with fleshy lips, and surrounded by *eight or ten fleshy arms or numerous tentacles*, furnished with an entire or slit tube, used in locomotion, which is usually directed backwards in swimming.

SYNOPSIS OF FAMILIES.

A. Order DIBRANCHIATA.

Animal breathing by a *single pair* of symmetrical branchiæ or gills; *eyes sessile*; *shell internal or none*; *mandibles horny*; arms with suckers.

Sub-Order OCTORONA.

Arms, eight; no shell, (the so-called shell of the argonaut is the egg nest of the female.)

Sessile

Suckers slightly *pedicelled*; female having two of the upper arms expanded into broad webs, one of which secretes an egg nest (nautiliform shell.)

Family
Octopodidæ

Argonautidæ

(i.) Family OCTOPODIDÆ.

Mantle supported by fleshy bands; no cephalic aquiferous pores; arms subulate, elongated, more or less united by webs, their *suckers sessile*.

SYNOPSIS OF GENERA.

(1.) *Arms with two rows of suckers*

Genus.

(a.) *Body not finned.*

Body *rounded*; arms long; suckers sessile; *third right arm of male* hectocotylised

Octopus (1.)

Differs from Octopus in having a small aquiferous system, consisting of a bag with a small pore at its lower edge upon the web between each arm

Cistopus (—)

Body *oval*, wider than head; arms short; cups with narrowed bases; *third left arm* hectocotylised

Scæurgus (—)

Arms united by a web nearly to the ends

Alloposus (—)

(b.) *Body Finned.*

Body like Octopus, but finned; arms with two rows of suckers

Pinnoctopus (2)

(2.) *Arms with a single row of suckers*(a.) *Not Finned.*

Body rounded, without fins; *third right arm* hectocotylised

Eledone (—)

More gelatinous than Eledone; suckers smaller, less developed

Bolitaena (—)

(6.) *Finned.*

Body with two transverse medial fins; mantle united to the head nearly all round by a conical band; arms united by a web nearly to the tips

Cirroteuthis (—)

(3.) *Arms with three rows of suckers.*

Body not finned.

Trixaxopus (—)

(ii.) Family ARGONAUTIDÆ.

Mantle supported by two buttons fitting into grooves at the base of the siphuncle; the two upper or dorsal arms (in the females only) expanding into broad webs at their extremity, from which an egg-nest (shell) is

secreted; cups slightly pedicelled; a pair of aquiferous pores at the upper hinder angle of the eye.

Genus.

Characters those of the family; the third right arm of the male is hectocotylished; shell thin, translucent; nautiliform, white, usually two nodose keels at periphery

Argonauta (3)

SUB-ORDER DECAPODA.

Ten arms, of which eight are sessile, and two (longer) tentacular, shell internal.

(1.) *Internal shell horny.*

(a.) *Eyes covered by skin; mostly littoral species.*

Family

Body long; tentacular arms, partially retractile

Loliginidæ

Body short; tentacular arms, completely retractile

Sepiolidæ

(b.) *Eyes naked; Pelagic species.*

Body long, cylindrical; arms or tentacles armed with *hooks*

Onychoteuthidæ

Body long, cylindrical; arms with *suckers* only

Ommatostrephidæ

(2.) *Internal shell calcareous.*

(a.) *Shell blade like*

Sepiidæ

(b.) *Shell forming a series of chambers transversed by a siphon*

Spirulidæ

(iii.) *Family LOLIGINIDÆ.*

Body rather long; buccal skin sometimes armed with suckers; tentacular arms only partially retractile; fins lateral, terminal; inner shell or *gladius as long as the back.* (Calamary.)

Genus.

Body long, with posterior rhombic fins united behind; mantle supported by a cervical ridge, and by cup-like cartilages on the base of the funnel or siphon; siphon valved, attached by bands to the head; arms with two rows of suckers, provided with *horny dentated rings*; tentacular arms with *four rows* of suckers on their clubs; fourth

- left arm hectocotylised at its extremity; gladius feather-like, its shaft keeled on the ventral side
- Body** rather long or oval, with small lateral fins extending its entire length; siphon attached to the head by muscular bands; buccal skin with *seven* projections covered with suckers; a strong wrinkle behind the eyes; otherwise like *Loligo*
- Genus.
Loligo (—)

Sepioteuthis (6)

(iv.) Family ONYCHOTEUTHIDÆ.

Body long, cylindrical; mantle supported by cartilaginous projections; eyes with a lachrymal sinus; arms or tentacles *armed with hooks*; siphon with or without bands and valve; gladius or shell generally lancet form, with *end-conus*

- Arms** with two rows of suckers; rings not toothed; tentacles thick; *clubs armed with two rows of strong hooks*; bases of the same also strongly hooked; gladius or shell lancet form, with a conical commencement
- Genus.

Onychoteuthis (4)

Family OMMATOSTREPHIDÆ.

- Arms** *short*, with two rows of suckers; tentacles short, not retractile; the clubs armed with *four rows of suckers*; siphon valved, fastened to the head by bands; shell lancet form, with a hollow end, conus
- Club** arm armed with a combination of smooth-rimmed suckers and tubercles
- Ommatostrephe* (5)

Architeuthis (—)

(A gigantic group of cephalapods.)

(—) Family SEPIIDÆ.

Eyes covered by skin; littoral. **Body** oval, with long lateral fins, uniting behind; mantle supported by *cartilaginous tubercles*, fitting into sockets on the neck and siphon; arms with suckers; tentacular arms entirely retractile; siphon valved; shell (cuttle bone, sepioid, or sepiostaire),

broad, flat, thickened internally by numerous plates, terminating behind in a hollow, imperfectly chambered, apex or mucro, without connecting siphon.

Genus.

A lid-like fold under the eyes with lachrymal openings over them; six aqueous pores in the buccal membrane; arms short; tentacles long, suckers long, pedunculated; siphon with very large valve; fourth left arm hectocotylised to its base, (one or two species undetermined abundant in Tasmanian waters)

Sepia (—)

Differing from *Sepia* by the sessile arms having only two rows of suckers

Hemisepius (—)

(v.) Family SPIRULIDÆ.

Animal, body oblong, with minute terminal fins; mantle supported by a cervical and two ventral ridges and grooves; arms with six rows of minute cups; tentacular arms elongated; siphon valved; *shell* laxly spiral, pearly whorls on the same plane, not in connection, chambered; chambers connected by a ventral siphon, invested by a series of cone-shaped tubes, one for each chamber; shell is placed vertically in the end of the body, and is held in place by side flaps of the mantle.

Genus.

Characters same as those of family

Spirula (7)

(B.) TETRABRANCHIATA.

Animal breathing by *two pairs* of symmetrical branchiæ; *eyes pedunculated*; mandibles *shelly*; arms very numerous, *without suckers*; shell external, chambered; capable of containing the animal.

(vi.) Family NAUTILIDÆ.

Septa simply curved, concave on the outer face; sutures simple, or undulate, or lobed; mouth simple; siphonal opening nearly central; shell often banded with colour, pearly inside. (Six living, and over 2,000 fossil species.)

Shell involute, discoidal few-whorled; septa concave, simple; siphon nearly central. Dist.—Tropical seas. Australia and Tasmania

Nautilus (8)

CLASS GASTEROPODA. (vii.-lxvii.)

Head distinct, usually furnished with eyes and tentacles; body mostly protected by a *spiral* or *conical univalve shell*; lower surface of animal developing a thickened, expanded, creeping disc or foot.

SUB-CLASS PROSOBRANCHIATA. (vii.-li.)

Sexes separate in different individuals. *Mostly marine animals*, provided with a shell and generally an operculum, embraces at least all operculated molluscs. Animals breathe by *gills* or *branchiæ*.

SUB-CLASS OPISTHOBRANCHIATA. (lii.-lvii.)

Marine slugs breathing by *arborescent* or *fasciculated branchiæ*, more or less exposed on back and sides posteriorly; a large division shell less, another possessing a spiral, conical or lamellar shell partly concealing branchiæ and itself *more or less concealed by mantle lobes*. *Sexes united*.

SUB-CLASS PULMONATA. (lviii.-lxvii.)

Mostly terrestrial (land shells), a portion being fluviatile (fresh water), usually provided with a *shell without operculum*, breathing air by the *simplest form of lung*, a pouch with external opening, lined with a net work of respiratory vessels. *Sexes united* in the same individual.

CLASS SCAPHOPODA. (lxviii.)

Shell or *hollow cylinder*, straight or curved without spire, open at both ends. Head rudimentary; foot vermiform, lobulate; nervous system simplified, resembling that of the pelecypods or lamellibranchs.

CLASS PELECYPODA. (lxix.-ci.)

(*Lamellibranchiata* Conchifera, Bivalves.)

No head nor eyes. Animals breathing by lamollæ, two on each side, mostly diæcious head with two chambers;

nervous system, gills with three principal pairs of ganglia. No sexual union, fertilisation being accomplished by the surrounding water containing the male element. Shell composed of two valves hinged together, but occasionally (*Barnea*) with smaller supernumerary pieces about the hinge.

Order SIPHONIDA. (lix. to lxxxix.)

Animal with siphons, and mantle margins more or less closed; comprises most of the marine branchiæ, including a large portion of the old order *Dimyaria*—having *two well developed muscular impressions*.

Siphons long, partly or wholly retractile; the pallial impression upon the inside of valve *with a sinus*. *Sub. order.*

Sinupalliata
(lix. to lxxx.)

Siphons short, not retractile; pallial impression *simple without sinus*.

Integripalliata
(lxxxi. to lxxxix.)

Order ASIPHONIDA (xc.-ci.)

No siphons; pallial impression *without sinus*; mantle margin open.

Two muscular impressions equally distinct; mantle margins open or closed behind. *Sub. order.*

Homomyaria
(xc. to xciii.)

Two unequal muscular impressions; *posterior impressions large, anterior impression very small*; frequently *inequivalve*.

Heteromyaria
(xciv. to xcvi.)

A single posterior or sub-central adductor muscle and impression only

Monomyaria
(xcvii. to ci.)

FAMILIES, GENERA AND SUB-GENERA.

(vii.) Family MURICIDÆ.

Shell spiral; turriculated with an *anterior* canal; the whorls thickened by varices or nodules at each rest period in its growth.

Genus MUREX. Linn. (9-11.)

Shell ovate or oblong; spire prominent; whorls convex crossed by three or more continuous varices; aperture ending below in a canal, which is generally partly closed.

Genus UROSALPINX. Stimpson. (12.)

Syn. Adamsia, Agnewia.

Shell fusiform; not variced; longitudinally ribbed or undulated and spirally striated; aperture with a short canal; outer lip dentate, lirate within. Operculum semicordate, nucleus marginal.

Genus TYPHIS. Montfort. (13.)

Shell ovate or oblong, with *numerous projecting hollow tubular spines* between the three varices; aperture nearly round, produced in front into an *enclosed siphonal canal*; operculum ovate with apical nucleus.

Genus TROPHON. Montfort. (14-22.)

Shell large, broadly fusiform, usually shouldered and umbilicate; with numerous lamelliform or lacinated varices, spire prominent; aperture ovate, lips thin; canal open, *usually turning to the left*; shell *white* without, but often dark within.

Genus PURPURA. Bruguiere. (23-28.)

Syn.—Microstoma. Thais.

Shell oblong-oval, *last whorl large*; spire usually short; columella flattened; aperture ovate, large, terminating in a very short oblique channel, or notched; outer lip simple. *Dist.*—Low water to 25 fathoms.

(viii.) Family TRITONIDÆ.

(Shell with varices which are either few and irregularly distributed, or form a continuous row crossing the whorls on opposite sides.)

Genus TRITON. Montf. (29-33.)

Syn.—Tritonium, Charonia, Aquilus, Lampusia, Ranularia

Shell oblong with prominent spire; whorls with a few remote non-continuous varices; columella rough or smooth; canal recurved; outer lip crenate or denticulate; operculum ovate with sub-marginal nucleus. *Dist.*—Low water to 50 fathoms.

Genus RANELLA. Lam. (34-36.)

Shell ovate or oblong, compressed; varices two, continuous, one on each side; *columella arcuated, ridged or crenulate*; aperture oval; outer lip crenated; canal short, recurved; operculum ovate, horny, with lateral nucleus. *Dist.*—Reefs and deep water.

Family ix. FUSIDÆ.

(Shell more or less spindle-shaped, *without varices*; the lip of aperture not thickened.)

Genus FUSUS. Lamarck. (37-42.)

Shell fusiform, not variced; spire long, acuminate, many whorled; *columella smooth, without plaits*; aperture ovate, usually striate within; outer lip simple; *canal long and straight*; operculum ovate; acute, with apical nucleus; yellowish brown; sometimes with red brown strigæ or spots, never branded. *Dist.*—World-wide.

Genus FASCIOLARIA. Lamarck. (43-45.)

Shell fusiform; spire acuminate; aperture oval-elongate, outer lip internally crenate; *columella smooth, with a few oblique plaits*; canal moderate, nearly straight. *Dist.*—World-wide.

(x.) Family BUCCINIDÆ.

(Columella generally without folds or plications.)

Genus SIPHONALIA. Adams. (46-48.)

Shell ovately fusiform, sometimes variegately coloured, thin with very thin fugacious epidermis; last whorl ventricose, shouldered usually nodosely, plicate and spirally ribbed; aperture oval; outer lip thin; *columella smooth; canal rather short, twisted*; operculum ovate, with apical nucleus. *Dist.*—Japan, California, Australasia.

Genus CANTHARUS. Bolten. (49.)

Syn. Tritonidea.

Shell bucciniform, more or less ventricose in the middle, narrow anteriorly; *spire and aperture nearly equal*; *columella generally with a few transverse ridges*; outer lip internally crenated with a superior siphonal canal; operculum ovate, with apical nucleus.

Genus PISANIA. Bivona. (50-51.)

Shell oblong, with prominent spire; whorls smooth or spirally striated; canal very short; outer lip thickened and crenated; operculum ovate, with apical nucleus. *Dist.*—West Indies, Mediterranean, Philippines, Australasia.

Genus COMINELLA. Gray. (52-59.)

Shell bucciniform, marked or spotted, *covered with an epidermis*; spire short, acute; last whorl large, ventricose,

with a *posterior depressed groove at the suture, producing a contraction at the hind part of the outer lip*; operculum with apical nucleus. The sub-genus *Josepha*, T.-Woods, differs from *Cominella* in possessing a plait upon the columella. *Dist.*—Cape, Australasia.

Genus *EBURNA*. Lam. (60.)

Shell ovate-oblong, thick, porcellaneous, under a thin epidermis; *deeply umbilicated*; spire acuminate; whorls more or less convex, *suture more or less channelled*; columella arcuated; callous posteriorly; aperture oval, inner lip spreading, *often covering the umbilicus* in the adult; outer lip simple acute; operculum with apical nucleus. *Dist.*—Red Sea, India, Cape, Japan, China, Australasia.

(xi.) Family *NASSIDÆ*.

(Base of aperture with a notch or short recurved canal; inner lip callous.)

Genus *NASSA*. Lam. (61-65.)

Shell small, ovate; ventricose; body whorl variously sculptured; aperture ovate, with a short, reflected, truncated, anterior canal; inner lip smooth; *often widely spread over with enamel, with a posterior callosity* or blunt, dentiform plait; outer lip dentated, internally crenulated; margin of operculum, serrate or entire. *Dist.*—World-wide.

(xii.) Family *VOLUTIDÆ*.

Genus *VOLUTA*. Linn. (66-72.)

Shell ovate or sub-conical, thick, solid; *spire usually short*; (Shoulder of whorls often angulated, sometimes nodose or spinous, but not so characterised in the Tasmanian living species.) Aperture—extending the *greater length of shell*—long and rather narrow; columella with a callous deposit and *prominently plaited*; lip generally thickened, sometimes sub-reflected. *Dist.*—World-wide, Australia being the chief centre.

(xiii.) Family *MITRIDÆ*.

Genus *MITRA*. (73-86.)

Shell fusiform thick; spire elevated; *aperture small, generally less than half the length of the shell, narrow, notched in front*; columella *transversely, somewhat obliquely plicate*; outer lip thick, smooth within, not variced externally. *Dist.*—Tropical and sub-tropical; range low water to 80 fathoms.

(xiv.) Family MARGINELLIDÆ.

Genus MARGINELLA. Lam. (88-96.)

Shell smooth, bright; spire short or concealed; aperture obtuse or truncated in front; *columella plaited*; *outer lip* (of adult) *with a thickened marginal varix*; inner margin smooth or crenulate. *Dist.*—Tropical and sub-tropical.

Genus ERATO. Risso. (87.)

Shell obovate, polished; spire short, conical, distinct; aperture linear; *outer lip without varix*, but *thickened towards the middle*, and denticulate within; *columella with distinct plaits at the fore part*. *Dist.*—World-wide.

(xv.) Family OLIVIDÆ.

(Shells sub-cylindrical, porcellaneous, brilliant in colour; *columella lip, sutures and spire more or less covered with a callous deposit*; *outer lip simple, notched below*.)

Genus OLIVELLA. Swainson. (97.)

Shell small, polished, sub-cylindrical, solid; *spire produced, acute*; suture canaliculate; aperture narrow behind, enlarged anteriorly; *columella plicated in front, callous posteriorly*; *operculum present, thin, half ovate with apical nucleus*. *Dist.*—N. America, China, Australasia, etc.

Genus OLIVA. Brug. (98.)

Shell oblong, sub-cylindrical, polished; *spire short, conical*; suture canaliculate; *aperture long, narrow, anteriorly widely notched*; *columella obliquely plicate*; *sulcate or striate in front*; *callous posteriorly*; *outer lip simple*; *operculum wanting*. *Dist.*—America, Africa, India, Polynesia, Australasia.

Genus ANCILLARIA. (99-101.)

Shell oblong, polished, sub-cylindrical; body whorly, swollen; sutures covered by enamel; aperture broadly effuse below; *columella not umbilicated, with a few oblique anterior plaits*; *basal whorl marked with revolving grooves which terminate occasionally in a slight anterior lip projection or tooth*; *operculum generally present, small, ovate, acute*. *Dist.*—Red Sea, Indian Ocean, Japan, West Indies, Australasia.

(xvi.) Family COLUMBELLIDÆ.

Genus COLUMBELLIA. Lam. (102-113.)

Shell strombiform, mitriform, or fusiform (usually fusiform, with elevated spire in Tasmanian species), smooth, or longitudinally or transversely ribbed; internal lip excavated in middle, *crenulate or denticulate in front*; outer lip *inflected and internally thickened and crenulate in the middle*. *Dist.*—Mostly sub-tropical. (Oat shell.)

(xvii.) Family CANCELLARIIDÆ.

Genus CANCELLARIA. Lam. (114-117.)

Shell ovately fusiform, *cancellated*, reticulated or ribbed; last whorl ventricose; aperture oblong, canaliculate in front; canal short, sometimes recurved; *columella with several large oblique plications*; operculum wanting. *Dist.*—World-wide; range, low water to 40 fathoms (vegetable feeders).

(xviii.) Family TEREBRIDÆ. (Auger Shells.)

Genus TEREBRA. Lam. (118-123.)

Shell *elongate, narrow, turriculate*, solid; whorls flattish, numerous, with superficially impressed sutures; aperture *small, ovate*. Profoundly notched at the base; *columella oblique*; operculum annular, horny, with apical nucleus. *Dist.*—Mostly tropical.

(xix.) Family PLEUROTOMIDÆ.

Genus PLEUROTOMA. Lam. (124-152.)

Shell turriculated, fusiform, *terminated anteriorly* by a straight canal, more or less prolonged; aperture generally linear-ovate; *columella smooth, straight, or sinuous*; outer lip *somewhat sinuous, with a notch or slit near the suture*; operculum corneous, annular, not always present. *Dist.*—World-wide; low water to 100 fathoms.

Sub-Genus DRILLIA. Gray.

Turriculated; aperture oval, oblique, about one-third the length of (adult) shell; canal short, twisted; *columella lip strongly callous above*.

Sub-Genus BELA. Gray.

Shell oval, fusiform; spire produced; canal short; sinus small near the suture; *columella flattened*; aperture narrowly ovate, nearly half the length of shell; *operculum pointed at both ends*.

Sub-Genus CLATHURELLA. Carp.

Differs from *Mangelia* in the more ventricose form and more evident canal; from *Clavatula* in the emargination of outer lip; from *Bela* and *Daphnella* in texture and sculpture; shell fusiform or turriculate, cancellated surface; columella lip without callosity, except a small posterior tooth; *no operculum*; aperture nearly half the length of (adult) shell.

Sub-Genus DAPHNELLA. Hinds.

Shell fusiform, *thin, fragile, usually striated*; aperture elongated, oval, usually less than half the length of (adult) shell; canal very short. Small and elegant shells, distinguished from *Defrancia* by their elongated body-whorl tenuity and sculpture. No operculum.

Sub-Genus CITHARA. Schum.

Shell fusiform, *polished, longitudinally ribbed*; aperture linear, truncated in front, slightly notched behind; outer lip *marginated, denticulate within*; inner lip *frequently finely striate*; no operculum.

Sub-Genus MANGELIA. Leach.

Shell fusiform, mostly longitudinally ribbed; spire elongated, turriculate, acuminate; canal short, more or less truncate; columella smooth; aperture usually fully half the length of shell; sinus near the suture; no operculum.

(xx.) Family CONIDÆ.

Genus CONUS. Lam. (153-157.)

Shell thick, obconic; whorls enrolled upon themselves; spire not elevated or short, smooth or tuberculate; aperture elongate, narrow, margins parallel, truncate at base; outer lip with a slight sutural sinus. *Dist.*— Principally developed in the equatorial region.

(xxi.) Family CYPRÆIDÆ.

(Shell *convolute, enamelled*; *spire concealed*; aperture narrow, channeled at each end; no operculum.)

Genus CYPRÆA. Linn. (158-164.)

Shell ventricose, *convolute, covered with shining enamel*; *spire concealed*; aperture long, narrow, with short canal at each end; *inner lip crenulated*; outer lip *inflected and crenulated*.

Sub-Genus TRIVIA. Gray.

Distinguished by being striated over the back, frequently interrupted by an impressed dorsal sulcus.

Sub-Genus CYPRÆ-OVULA. Gray.

Pyriiform, oval, ventricose. Surface covered with revolving striæ.

Genus OVULUM. Brug. (165.)

Shell ventricose, convolute, *attenuate, and sub-acuminate at both ends*; outer lip of adult thickened and inflected.

Sub-Genus VOLVA. Bolten.

Distinguished by being ventricose *in middle*, and in having both extremities prolonged into canals.

(xxii.) Family CASSIDIDÆ.

Genus CASSIS. Lam. (166-170.)

Shell sub-globular or triangular, usually solid, thick (Tasmanian species excepted), last whorl large, varicose; aperture longitudinal, narrow; outer lip *with a thickened, reflected margin, dentate within*; inner lip rugosely plicate; operculum oval, narrow, with median apex. *Dist.*—Mostly tropical and sub-tropical; voracious, living in sandy localities, preying upon bivalve molluscs.

Sub-Genus SEMICASSIS. Klein.

Shell oval, with revolving ribs; spine moderate, sharp.

Sub-Genus CASMARIA. H. and A. Adams.

Shell *generally* smooth; *whorls simple or sub-plicate*, spire moderate; inner lip smooth, callous; outer lip margined, smooth or slightly crenulated on the inner edge.

(xxiii.) Family NATICIDÆ.

(Shell globular or oval; spire, usually short; aperture, semi-lunar, *without canal or anterior notch*; outer lip sharp; *columella callous, more or less reflected over the umbilicus*; operculum pauci-spiral, corneous, or with an exterior calcareous layer.)

Genus NATICA. Lam. (171-177.)

Shell sub-globular; spire slightly elevated; aperture half round. *A spiral columella callus entering the umbilicus.* *Dist.*—World-wide.

Sub-Genus MAMILLA. Schum. (RUMA, H. and A. Adams.)

Shell ovate, conic, *rather thin*, with pointed spire; whorls fasciated; mouth *oblong*; inner lip narrow, reflected; umbilicus *not funiculated*.

Genus SIGARETUS. Lam. (178.)

Shell *ear-shaped*, with minute spire, and very large aperture, externally *with revolving striae*; colour usually white, with sometimes a thin corneous epidermis; operculum minute, horny, sub-spiral. *Dist.*—United States, West Indies, China, Peru, Australasia.

Genus LAMELLARIA. Montagu. (179.)

Shell *ear-shaped, thin, pellucid, fragile*; spire very small; aperture large, patulous; inner lip receding; no operculum. *Dist.*—Norway, Great Britain, Mediterranean, New Zealand, Philippines.

(xxiv.) Family CALYPTRÆIDÆ.

(Shell *limpet-like*, with the apex more or less spiral; interior simple, or divided by a shelly process or plate, variously shaped, to which the adductor muscles are attached.)

Genus INFUNDIBULUM. Montfort. (180.)

Syn.—Trochita, Clypeola, Trochella.

Shell conic trochiform, spiral; summit central; whorls convex, plicate not umbilicated; aperture large, containing a spiral, transverse lamina or plate, extending obliquely from the centre to the outer margin of the shell. *Dist.*—Mostly tropical and sub-tropical.

Genus CALYPTRÆA. Lam. (182.)

Shell conical, more or less angular, with sub-central sub-posterior sharp apex; aperture basal, with a central lamina, half-cup shaped, attached to apex and open in front. *Dist.*—World-wide.

Genus LEGRANDIA. Beddome. (181.)

Shell *emarginuliform*; internal plate like *Crepidula*; radiately ribbed; *front edge fissured*. *Dist.*—Tasmania.

Genus CREPIDULA. Lam. (183-184.)

Shell oval, *limpet-like*, with a posterior generally lateral spiral apex; interior with a shelly plate covering its posterior half. *Dist.*—World-wide.

Genus HIPPONYX. Defrance. (185-187.)

Shell thick, obliquely conical, *non-spiral*; apex somewhat posterior and curved backwards; *muscular impression, horse-shoe shaped*; base of attachment shelly. *Dist.*—Almost world-wide.

Sub-Genus AMALTHEA. Schum.

Like Hipponyx, but *without shelly* base; impression *crescent-shaped*. This form is usually found attached to living shells.

(xiv.) Family SOLARIIDÆ.

(Shell *orbicular, depressed, or trochiform*; aperture generally angular; umbilicus usually wide and deep; operculum corneous, spiral.)

Genus SOLARIUM. Lam. (188-189.)

Shell depressed, conical, angular at periphery; aperture, sub-quadrangular, lip simple; umbilicus wide, spiral, its margins crenulated; operculum horny, sub-spiral. *Dist.*—Tropical, world-wide.

Genus ADEORBIS. S. Wood. (190.)

Shell *depressed, orbicular, widely umbilicated*; *whorls not numerous, smooth or striate, the last somewhat angular*; *aperture rounded, the outer lip arcuate, simple, sharp*; operculum shelly, sub-spiral. *Dist.*—West Indies, China, Australasia.

(xxvi.) Family SCALARIDÆ.

Genus SCALARIA. Lam. (191-202.)

Shell *mostly white and lustrous*; *turreted*; many whorled; whorls round, sometimes separate, *ornamented with numerous transverse ribs*; aperture round; *peristome continuous*; operculum horny, few whorled. *Dist.*—Mostly tropical.

Sub-Genus CROSSEA. A. Adams.

Shell *turbinate, umbilicated, white*; whorls convex, *cancellated, simple or with varices*; aperture roundish, anteriorly angular, somewhat produced and canaliculate; umbilicus surrounded and narrowed by a callus. Occurs also fossil in Australia and Tasmania, in rocks of Eocene age.

(xxvii.) Family IANTHINIDÆ.

Genus IANTHINA. Lam. (203-205.)

Shell thin, *translucent, trochiform or globular-turbinate; nucleus minute, styliiform, sinistral*; whorls few, rather ventricose; aperture four sided; columella tortuous; lip thin, notched at the outer angle; base of the shell deep violet; spire nearly white. *Dist.*—Pelagic in Atlantic and Pacific Oceans.

(xxviii.) Family TURRITELLIDÆ.

Genus TURRITELLA. Lam. (206-210.)

Shell *elongated, awl-shaped*, many whorled, with revolving striæ; *aperture rounded*; operculum, many whorled, with a fimbriated margin, usually whitish or brownish, with sometimes red-brown spots or flames. *Dist.*—World-wide, ranging from Laminarian Zone to 100 fathoms.

(xxix.) Family VERMETIDÆ.

(G.) Shell (adult) *irregularly spiral, or contorted tubular*; operculate.

Genus VERMETUS. Adamson. (211.)

Shell irregularly spiral, adult stage, or contorted, tubular, operculate. *Dist.*—Tropical and sub-tropical. World-wide.

Genus SILIQUARIA. Brug. (212-213.)

Shell tubular: spiral at first, afterwards irregular; *tube with a continuous slit*; operculum spiral.

(xxx.) Family EULIMIDÆ.

(Shell *turriculated or turbiniform, smooth, milk white, polished*; aperture oval or rounded, sometimes angular in front; *columella without plications*; operculum corneous, sub-spiral, when present.

Genus EULIMA. Risso. (214-220.)

Shell *small, white and polished*; slender, *elongated*, with numerous level whorls; spire often curved to one side; *obscurely marked on one side by periodic mouths*, which form prominent ribs internally; *apex acute*; aperture oval, pointed above; outer lip thickened internally; inner lip reflected over the pillar; not umbilicated; operculum horny, sub-spiral. *Dist.*—World-wide—5 to 90 fathoms.

Genus STYLIFER. Brod. (221.)

Syn.—Stylina.

Shell *hyaline*, pellucid, thin, globular or subulate, smooth, polished; whorls numerous; apex very sharp, sometimes bent; *nucleus sinistral*; aperture sub-oval, angulated posteriorly, rounded in front; inner lip smooth, arcuated; outer lip slightly sinuous, thin, simple, no operculum. *Dist.*—Europe, West Indies, Polynesia, Australasia.

(xxxi.) Family TURBONILLIDÆ.

(Shell *white, slender, elongated*, many whorled, *mostly longitudinally ribbed or spirally striate.*)

Genus TURBONILLA. Risso. (222-225.)

Shell *slender, elongated*, many whorled; whorls plaited; *apex sinistral*; aperture simple, ovate; *peristome incomplete*; *columella not plaited*; operculum horny, sub-spiral. *Dist.*—World-wide. Range from low water to 90 fathoms.

Genus ACLIS. Lovén. (226.)

Shell *minute, like Turritella*; usually spirally striated; apex sinistral; aperture oval; outer lip prominent; axis slightly rimate, operculate. *Dist.*—Europe, North America, Australasia.

Genus ODOSTOMIA. Fleming. (227-229.)

Syn.—Odontostomia.

Shell subulate or ovate, typically smooth; apex sinistral; aperture *ovate*; peristome *not continuous*; columella *with a single tooth-like fold*; operculum horny, indented on the inner side. *Dist.*—Universal, from low water to 40 fathoms.

Sub-Genus PARTHENIA. Lowe.

Shell thin, turriculate, imperforate, usually milk white, under a very pale, thin, epidermis; whorls ribbed or striate, sometimes cancellate, vanishing at periphery of last whorl. *Dist.*—Japan and Tasmania.

Genus ELUSA. A. Adams. (230.)

Shell *subulate, turreted*; whorls *longitudinally plicate*; aperture *ovate*; inner lip with a single plait; outer lip often *lirate* within. *Dist.*—China, Japan, Australasia.

Genus SYRNOLA. A. Adams. (231-232.)

Shell subulate, *straight*, vitreous, *banded, polished*; whorls flat; *suture impressed*; aperture *oblong*; inner lip acute, *obliquely plicate in the middle*; outer lip simple, acute.

Genus EULIMELLA. Forbes.

Sub-Genus STYLOPTYGMA. A. Adams. (233.)

Shell elongated, pupiform, turriculate, solid, smooth or slightly ribbed, polished; whorls inflated middle of spire, numerous; apex sinistral; aperture *sub-quadrangular*. *Dist.*—Europe, Japan, Australasia.

(xxxii.) Family LITTORINIDÆ.

(Shell spiral, *turbinate or globular*; peritreme entire; interior *not nacreous*; operculum corneous, spiral or or pauci-spiral)

Genus LITTORINA. Ferussac. (234-238.)

Shell turbinated, thick, pointed, few whorled; aperture rounded; outer lip acute; columella rather flattened, imperforate, operculum, pauci-spiral. *Dist.*—Universal on sea shores.

Genus RISELLA. Gray. (239-241.)

Shell depressed, trochiform, with flattened whorls and keeled periphery; not umbilicated; aperture rhomboidal; marked with brown inside the margin; operculum pauci-spiral, distinguished from Trochus, which they resemble, by their non-nacreous interior. *Dist.*—Australasia, sea shore.

Genus FOSSARUS. Philippi. (242-244.)

Shell minute, turbinate, perforate, sculptured; inner lip thin; aperture semi-lunate; operculum not spiral. *Dist.*—Almost world-wide; among weed at low water.

(xxxiii.) Family PIANAXIDÆ.

Genus ALABA. H. and A. Adams. (245-247.)

Shell ovate, conical or elongated, *sub-diaphanous*; whorls *plicate or varicose*; apex sub-mammillate; aperture ovate, the columella more or less truncate. *Dist.*—Japan, West Indies, Australasia.

Sub-Genus DIALA. A. Adams.

Whorls *not varicose*, sometimes nodulate around the middle; columella *straightish, not truncated*; labrum not thickened. *Dist.*—Philippines, Japan, Australasia.

(xxxiv.) Family CERITHIIDÆ.

Shell spiral, elongated, many whorled, frequently varicose; aperture *channeled in front*, with a *less distinct* posterior canal; lip generally expanded in the adult; operculum, horny, spiral.

Genus CERITHIUM. Brug. (248-259.)

Shell turreted, many whorled, with indistinct varices; aperture small, *with a tortuous canal in front*; outer lip expanded; inner lip thickened; operculum horny, spiral. *Dist.*—Almost world-wide.

Sub-Genus BITTIUM.

Shell elevated, with numerous *granular* whorls and *irregular* varices; anterior canal short, *not recurved*; inner lip simple; outer lip *not reflected*; usually with an exterior rib; operculum four whorled.

Genus TRIFORIS. Deshayes. (260-261.)

Shell *sinistral*, sculptured, granular; whorls numerous, terminating below in a *small aperture with tubular anterior canal*; opposite this canal is sometimes a second one upon a varix, marking the position of a former aperture; operculum orbicular, few-whorled. *Dist.*—East Indies, Polynesia, Panama, West Indies, Mediterranean, Australasia.

Genus POTAMIDES. Brong. (262.)

Shell often large sized, *turriculated*; whorls *angulated and coronated*; aperture prolonged in front into a nearly straight canal; outer lip thin, *sinuous*; *epidermis thick*, olive brown; operculum many whorled. *Dist.*—Tropical and sub-tropical; fresh and brackish streams and swamps.

(xxxv.) Family RISSOELLIDÆ.

Genus TATEA. Tenison-Woods. (263.)

Shell minute, elongate, pyramidal, attenuate, with brownish-black epidermis; spire elevated, acuminate; whorls flattish (8); aperture pyriform; inner lip reflected; operculum horny and thin, with a vertical sub-marginal claw. *Dist.*—Only one representative, *T. Huonensis*, T. Woods. Found under stones at low water in tidal estuaries in Tasmania.

(xxxvi.) Family RISSOIDÆ.

Shell small, spiral, turreted or depressed, often more or less umbilicated; aperture more or less rounded, never truly channeled in front; peritreme continuous.

Sub-Family RISSOININÆ.

Shell small, ovate, or turreted with a thick corneous or calcareous pauci-spiral operculum, with internal process, *articulated (marine)*.

Genus *Rissoina*. D'Orb. (264-274.)

Shell turreted, whorls numerous, *ribbed or cancellated*; aperture semi-lunar; lip slightly thickened within, somewhat expanded, faintly channeled anteriorly; operculum corneous, thick, semi-lunar, pauci-spiral *with an interior process*. *Dist.*—World-wide (*marine*).

Sub-Family *Rissoinae*.

Shell small, ovate or elongate; operculum pauci-spiral, *not provided with an internal process* (*marine*).

Genus *Rissoa*. Frem. (275-289.)

Shell minute, white or horny, conical, pointed, many whorled; smooth, ribbed or cancellated; aperture rounded; peristome entire or continuous; *outer lip slightly expanded and thickened*; operculum sub-spiral. *Dist.*—Universal (*marine*).

Sub-Genus *Setia*. H. and A. Adams.

Shell thin, oval-oblong, or sub-conic; whorls few, ventricose spotted; spire short; apex obtuse; aperture sub-orbicular.

Sub-Genus *Ceratia*. H. and A. Adams.

Shell *sub-cylindrical, spirally striated*, white, thin, *sub-pellucid*; whorls rounded; summit of spire obtuse; aperture sub-oval; peristome continuous; *the outer lip thin and sharp*.

Sub-Genus *Cingula*. Fleming.

Shell thin, *elongated*, smooth or spirally striate, *spotted or banded*; aperture *pyriform or oval*; outer lip *sharp, with an external varix*.

Sub-Genus *Alvania*. Risso.

Shell *oval, turbiniform*; spire *rounded, usually cancellated*; aperture *sub-circular, crenulated within*; outer lip with a marginal exterior varix.

Sub-Family *Hydrobiinae*.

Shell *very small*, or of moderate size, never exceeding two-fifths of an inch in length, globose, ovate or *elongated*, generally *umbilicated or rimate*, and *covered with a periostraca, for the most part of an olive colour*; whorls numerous (4-8) smooth or rarely ribbed or carinated; *never cancellated*; aperture more or less ovate or rounded, rarely sub-acute or effuse anteriorly; *peritreme continuous*; outer lip *usually simple and acute*; operculum pauci-spiral, corneous. *Dist.*—*Lakes, rivers and lagoons, sea-level to 4,000 altitude; mostly inhabiting fresh water but some entering brackish water; herbivorous.*

Genus HYDROBIA. Hartmann. (290-293.)

Shell minute, ovate or elongated, smooth, *sub-perforate*; spire conic; whorls generally flat; apex acute; aperture ovate; inner lip *not thickened*; operculum corneous; rostrum rather long; tentacles somewhat tapering but blunt at the extremity; foot somewhat pointed behind.
Dist.—World-wide *fresh and brackish waters*.

Genus BITHYNELLA? Moquin-Tandon. (294-303.)

Shell minute, elongated-ovate, usually somewhat pupiform, imperforate, or simply rimate; apex obtuse; aperture oval or rounded; peritreme continuous; outer lip sharp or slightly thickened; operculum corneous, nucleus moderately large, not very close to basal margin. Tentacles tapering blunt at the tip; foot rather narrow, rounded behind; very bifid. *Fresh water*, ascending to 4,000 feet altitude in Tasmania.
Dist.—Europe, America, Australasia?

Genus POTAMOPYRGUS. Stimpson.

Shell ovate-conic, imperforate; apex acute; whorls coronated with spines: aperture ovate; outer lip acute; operculum corneous; rostrum moderate; tentacles very long, slender, tapering, and pointed; eyes on very prominent tubercles; foot rather short, broadest in front, and strongly auriculated. *Dist.*—Fresh water, New Zealand, Tasmania, Cuba.

Genus POTAMOPYRGUS? Hutton *non* Stimpson. (294-303.)

Shell ovate-conic or oval, imperforate; body whorl more than half the length of shell; aperture ovate, the outer lip acute; peritreme continuous or discontinuous; operculum horny, sub-spiral, without any internal process. *Animal* with the foot rather short, broadest, and slightly expanded in front; tentacles very long, slender, tapering and pointed; eyes on very prominent tubercles. *Dentition*, median tooth trapezoidal; inferior margin more or less trilobate; first lateral broad and excavated in the middle, contracted into a long peduncle, the denticles nearly equal; second lateral pointed at the inner extremity; the shank broad and thickened on its outer margin; third lateral with the inner extremity broad and rounded, constructed at its junction with the very broad shank which is thickened on its outer margin. Number of transverse rows of teeth, 55 to 69. Formula of the denticles $\frac{7 \text{ or } 9}{3 \text{ or } 4-3 \text{ or } 4}$; 9 or 11; 20 to 23; 30 to 40. Hutton's new definition of *Potamopyrgus* would exactly

fit the numerous species in Australia, Tasmania, and New Zealand, hitherto variously assigned to *Paludetrina*, *Amnicola*, and latterly *Bithynella*. It is doubtful, however, whether the greatly modified definition may not have the effect of severing some of the original forms embraced under Stimpson's original definition of *Potamopyrgus*. A new name, say *Huttonia*, for the Australian, Tasmanian, and New Zealand forms, with the definition given by Professor Hutton, is suggested as the best course to adopt in the classification of Australasian species determined by the dentition characteristics.

GENUS BRAZIERIA. Petterd. 1888. (304.)

Shell minute, globosely rounded, *solid, imperforate*; spire small; body whorl large; *aperture very oblique*; outer lip acute; inner lip thickened; operculum horny, sub-spiral. Animal very similar to *Beddomeia Launcestonensis*, Johnston. *Dist.*—Fresh water streams, North-Western Tasmania—River Wye, Surrey Hills, and tributaries of the Arthur River. The shell originally described by Tenison-Woods as *Ampullaria Tasmanica*, and later transferred to genus *Amnicola*, is here provisionally referred to Petterd's new genus, *Brazieria*.

SUB-GENUS BEDDOMEIA. Petterd. 1888. (305-310.)

Shell globosely conical, thin, umbilicate or sub-umbilicate; spire short; body whorl inflated; aperture ovate; columella margin more or less thickened; operculum horny, pauci-spiral. Animal with a somewhat broad foot; *tentacles long, slender and pointed*; eyes sessile at outer base of same; muzzle broad and projecting. Dentition as in *Potamopyrgus*, Hutton *non* Stimpson, but the trapezoidal median tooth has quite a different arrangement of the inferior basal row, which consists of two ovate elevations on either side of a curved central tooth.

Formula of denticles on median tooth - $\frac{7 \text{ or } 9}{2-1-2}$.

Formerly the writer doubted the wisdom of erecting a new genus for the forms now included as above; but if the difficulty of the alteration of Stimpson's genus *Potamopyrgus* be surmounted, or if the name *Huttonia*, as suggested, be adopted for Professor Hutton's new definition as applied to Australasian forms, there is little doubt but that the sub-genus erected by Mr. Petterd would be most fitting for Australasian forms of this group.

Sub-Family POMATIOPSINÆ.

(Shell and operculum as in Rissoinæ. Foot with lateral sinus. Amphibious.)

Genus POMATIOPSIS. Tryon. (311-312.)

Shell elongated, frequently decollated, perforate, smooth; *whorls very convex*; aperture round; peristome continuous, slightly expanded or reflected. *Air breathing animal, preferring damp location in the vicinity of streams or lagoons.* Dist.—United States, Central America, Australia, Tasmania, Flinders' Island.

(xxxvii.) Family ASSIMINIIDÆ.

Genus ASSIMINEA. Leach. (313.)

Shell small, oval, conical, with moderate spire; aperture rounded, oval, with sharp lip entire; columella lip somewhat thickened. Dist.—Europe, Asia, America, Tasmania.

(xxxviii.) Family VALVATIDÆ.

Genus VALVATA. Müller. (313^a.)

Shell depressed, conical (in the typical group), umbilicated; covered by a thin greenish epidermis; operculum orbicular, corneous, multispiral. Animal with a produced muzzle; tentacles long and slender, eyes at their bases; foot bilobed in front; branchial plume long, pectinated, partly exerted on the right side when the animal is walking; lingual teeth broad, uncini 3 lanceolate; all toothed and denticulated. Dist.—Freshwater, mundane.

(xxxix.) Family TRUNCATELLIDÆ.

Genus TRUNCATELLA. Risso. (314-317.)

Shell small, sub-cylindrical or turbate, with elevated spire; apex obtuse or truncated; whorls striated transversely; aperture oval, entire; peristome continuous; operculum corneous, sub-spiral. Animal with short diverging tentacles; eyes centrally behind; head bilobed; foot short, rounded at each end. Dist.—On stones and seaweed *between tide marks*.

(xl.) Family NERITIDÆ.

Genus NERITA. Linn. (318.)

Shell *thick*, smooth or spirally grooved; epidermis horny; outer lip thickened and sometimes *denticulated within*; columella broad and flat, with its inner edge *straight and toothed*; operculum shelly. Dist.—Nearly all warm seas, living on rocks and stones at low water.

(xli.) Family LIOTIIDÆ.

(Shell *depressed*, spiral, white ribbed, *sometimes cancellate*, or nodulous; aperture orbicular, rarely pearly within; operculum *corneous inside*; outside with a calcareous coat of pearl-like shelly particles, spirally arranged.

Genus LIOTIA. Gray. (319-324.)

Shell turbinated or *depressed, varicose*, perforated or umbilicated whorls *ribbed or cancellated*; aperture rounded, *pearly within*; peristome thick, callously margined. *Dist.*—Tropical and sub-tropical.

Genus CYLOSTREMA. Marryat. (325-333.)

Shell orbicular, depressed, *widely umbilicated, spire short*; whorls transversely *striated or cancellated*; aperture round, *not nacreous*; peristome continuous, simple. *Dist.*—Japan, Philippines, West Indies, Australasia.

(xlii.) Family ROTELLIDÆ.

Genus ROTELLA. Lam. (334.)

Shell depressed, lenticular, the spire depressed, conical; aperture semi-orbicular; outer lip sharp; base with a convex rounded umbilical callus. *Dist.*—India, China, Japan, Philippines, Australasia.

(xliii.) Family PHASIANELLIDÆ.

Genus PHASIANELLA. Lam. (335-339.)

Shell elongated, polished, richly coloured; *whorls convex*; aperture oval, *not pearly*; inner lip callous, outer thin; operculum shelly, callous outside, sub-spiral inside. (*Pheasant-shell.*) *Dist.*—Large species, Australasia; small species, India, Philippines; very small species, West Indies, Mediterranean, Great Britain.

(xliv.) Family TURBINIDÆ.

Genus TURBO. Linn. (340-342.)

Shell spiral, turbinated, solid, *nacreous inside*; whorls convex, smooth, grooved or tuberculated; aperture *large, rounded*, slightly produced in front; operculum *shelly and solid*, callous outside and smooth, or variously grooved and mamillated, internally horny and pauci-spiral. *Dist.*—World-wide; rocks and weeds at low water, along the shore. (*Top-shell.*)

Sub-Genus TURBO. (Restricted.)

Shell smooth, or tuberculate, covered by a smooth epidermis; inner lip flattened, more or less produced in front; *no umbilicus*, operculum spiral on its inner face, convex and smooth or granular (*not ridged*) externally.

Sub-Genus SENECTUS. Humph.

Shell solid, with revolving squamose or spinose ridges covering the whorls; axis usually *narrowly perforated*; aperture usually slightly produced in front, with sometimes a short channel.

Sub-Genus MARMOROSTOMA. Swains.

Shell thick, smooth or tuberculate; aperture rounded in front; columella callus covering the axis, *which is umbilicated*, however; the umbilicus often *at the upper end of a curved channel in the callus*; operculum spiral, with central nucleus, and an indistinct sub-central external rib.

(xlv.) Family TROCHIDÆ.

(Shell usually conical, with *flattened base*, *nacreous inside*; operculum *corneous*, multispiral.)

Genus TROCHUS. Linn. (343-388.)

Shell pyramidal, with nearly a flat base; whorls, numerous, flat, variously striated; aperture oblique, rhombic, pearly inside; columella twisted, slightly truncated; outer lip thin; operculum, horny, multispiral. *Dist.*—World-wide; low water to 15 fathoms, the smaller species to 100 fathoms.

Sub-Genus TROCHUS. (Restricted.)

Umbilical region *excavated but not perforated*; columella *spirally twisted above*, terminating in a *point anteriorly*.

Sub-Genus INFUNDIBULUM. Mont. (CARINIDÆ. Swains.)

Shell, conical; whorls *flattened*, the last *angular*, base *concave*; columella *without teeth*, or teeth obsolete.

Sub-Genus MINOLIA. A. Adams.

Shell *globosely conoidal*, widely and *profoundly umbilicated*; whorls rounded, clathrate; suture canaliculate; last whorl, subsolute towards the aperture; umbilicus perspective; aperture circular, pearly within; *peristome*, continuous, thin, acute.

Sub-Genus ASTELE. Swainson. (Tas. Journal, 1855.)

Shell nacreous, *pyramidal* or trochiform; unarmed; body whorl convex; columella, none; *umbilicus large*, closed only by the terminal whorl of the spire; aperture, broader than high, the margin of both lips thin.

Sub-Genus *MONILEA*. Swainson.

Shell *orbicular, depressed, widely umbilicated*; whorls encircled by grooves, the last rounded; umbilicus *encircled by a striated callus*; columella terminating anteriorly in one or two tubercles.

Sub-Genus *GIBBULA*.

Shell *conoidal, umbilicated*; umbilicus *cylindrical or infundibuliform*; whorls frequently tuberculated above, and with channeled suture; columella *sometimes* terminating in a tubercular tooth.

Sub-Class *ZIZYPHINUS*. Gray. (*CALLIOSTOMA*.) Swains.

Shell trochiform, conical, *not umbilicated*; last whorl *angulated* and usually *ribbed at the periphery*; aperture, *quadrangular*; columella simple, oblique, often ending in a tooth in front.

Sub-Genus *THALOTIA*. Gray.

Shell ovate-turriculated, rather thick, *not umbilicated*; whorls *flattened*, with revolving ribs, which are *sometimes granular*; aperture, sub-rotund; columella *tuberculate, truncate in front*; outer lip *rather thick, crenulated within*.

Sub-Genus *ELENCHUS*. Humphrey.

Shell elevated, conoidal, *spire sharp*; whorls *rather flat, smooth, polished*, usually with distant revolving incised lines; aperture *sub-oval*; columella with a *tooth-like projection in the middle*; outer lip thickened within. Brilliantly coloured shells, but very pearly within (used as ornamental necklaces by the Tasmanian Aborigines).

Sub-Genus *CANTHARIDUS*. Montfort.

Shell ovate, thin, outer lip acute; the columella wants the conspicuous tooth seen in *Elenchus*; the whorls are *encircled by striæ and not polished*; interior highly iridescent.

Sub-Genus *BANKIVIA*. Beck.

Shell *subulate*, with sharp spire, polished, bright coloured; whorls smooth, flattened, *without epidermis*; aperture sub-ovate, rather large, *not nacreous within*; columella twisted, truncated in front; outer lip simple, sharp.

Sub-Genus *TROCHOCOCHLEA*. Klein.

Shell elevated, turbiniform; whorls bluntly angled at the periphery, or with revolving carinæ; outer lip thin, smooth within; inner lip *spreading, twisted, dentate below, no umbilicus*.

Sub-Genus EUCHELUS. Phil.

Shell *conoidal, turbinate umbilicated*; whorls rounded, with *granulated* revolving ribs; columella lamellarly produced into a central tooth; outer lip thickened and *crenulate within*; opercular whorls rather few, rapidly increasing.

Sub-Genus CLANCULUS. Montfort.

Shell *conoidal or turbinated, not umbilicated*; whorls mostly *granulous*; aperture contracted; columella spirally twisted, forming a *false umbilicus, plicated throughout* and terminating in a *multi-dentate varix*; outer lip *dentate within*, with sometimes a larger superior tooth.

Sub-Genus DILOMA. Philippi.

Shell *conoidal, smooth, not umbilicated*; whorls rather few, *convex*; aperture sub-rotund; columella lip *excavated in the middle and expanded over the umbilicus region*, produced laterally to join the outer lip; outer lip thin, unarmed.

Genus MARGARITA. Leach. (—)

Shell *thin, globular, conical, umbilicated*; whorls rounded, smooth; aperture rounded, pearly; lip sharp, smooth. *Dist.*—Japan, California, Australasia.

(xlv.) Family STOMATELLIDÆ.

Genus STOMATELLA Lam. (389.)

Shell *ear-shaped, regular*; spire small; aperture oblong, very large and oblique, *nacreous*; lip thin, even edged; operculum circular, *horny*, multispiral. *Dist.*—On reefs and under stones at low water.

Genus STOMATIA. Helbing. (390.)

Shell like *Haliotis*, but without perforations, their place being occupied by a *simple furrow*; surface rugose, smooth or spirally ridged; spire small, prominent; aperture *large, oblong*; outer margin irregular. *Dist.*—Java, Philippines, Torres Straits, Pacific, Australasia.

Sub-Genus GENA. Gray.

Shell sub-spiral, *oblong, auriform, depressed*, smooth or striated; *spire flattened, nearly obsolete*; aperture very large; no operculum.

(xlvii.) Family PLEUROTOMARIIDÆ.

Shell more or less conically elevated, turreted or trochiform, with a *marginal slit* in the upper part of the outer lip, or a row of perforations in the upper part of the whorl; aperture often pearly within.

Genus SCHISMOPE. Jeffreys. (391.)

Shell minute, thin, translucent, *not pearly*; spire laterally compressed, as in Stomatia; *slit* of the young shell is converted into a foramen in the adult; it does not commence until the animal is half grown. *Dist.*—Mediterranean, Japan, Tasmania.

(xlviii.) Family HALIOTIDÆ.

Genus HALIOTIS. Linn. (392-395.)

Shell *ear-shaped*, large, with a small flat spire; aperture very wide, *iridescent*; exterior striated, dull; outer angle perforated by a series of holes, those of the spire progressively closed. *Dist.*—Almost world-wide.

(xlix.) Family FISSURELLIDÆ.

Shell conical, *limpet-shaped*; apex recurved; nucleus spiral, often disappearing in the course of growth; anterior margin notched or apex perforated; muscular impression horse-shoe shaped, open in front.

Genus FISSURELLA. Lam. (396-401.)

Shell oval, conical, depressed, with the apex in front of the centre, and perforated; surface radiated or cancellated; muscular impression with the points incurved. *Dist.*—Universal, but mostly in warm seas.

Sub-Genus MACROSCHISMA. Swainson.

Shell square, oval, roughly rayed, truncate at the end; perforation very large, sub-triangular, elongated.

Genus EMARGINULA. Lam. (402-405.)

Shell oval, conical, elevated, with the apex recurved; surface cancellated; anterior margin notched; muscular impression with recurved points. *Dist.*—Almost world-wide, range low-water to 90 fathoms.

Genus PARMOPHORUS. Blainv. (406-408.)

Shell lengthened oblong depressed; apex posterior; front margin incurved; muscular impression horse-shoe shaped, elongated; shell smooth, white. *Dist.*—East Indies, Philippines, Australasia.

(l.) Family PATELLIDÆ.

Shell wholly external, disc shaped, with apex anteriorly directed. (*Limpets*.)

Genus ACMÆA. Esch. (409-417.)

Shell solid, limpet form; apex erect, or anteriorly inclined. *Dist.*—Mostly West Coast of North America, Europe, Australasia.

Genus *PATELLA*. (418-424.)

Shell conical, *more or less depressed*, oval at the base; apex sub-central or anterior, from which usually radiate ribs, which are frequently nodose; mostly crenulated on the inner margin. *Dist.*—World-wide. (Common Limpet.)

(li.) Family *CHITONIDÆ*.

Shell composed of *eight separate transverse imbricating plates*, lodged in a coriaceous mantle, which forms an expanded margin around them.

Genus *CHITON*. Linn. (425-433.)

Same general description as given for the family.

Sub-Genus *CHITON*. Lam.

Girdle covered with distinct scales; anterior and posterior valve with many slits, middle valve with one.

Sub-Genus *LOPHYRUS*. Poli. (*RADSIA*. Gray.)

Teeth in *middle valve two or more*; differs also from *Chiton* in having side slits.

Sub-Genus *LEPIDOPIEURUS*. Risso. (*Isnochiton*.)

Scales transverse, flattened, somewhat imbricated, generally striated.

Sub-Genus *PLAXIPHORA*. Gray. (*EUPLACIFORA*. Gray.)

Mantle with a double series of pores, beset with bifurcate bristles, one row at the insertion of the valves, the other at the external margin; shell with the valves broad, transverse, external.

Sub-Genus *ACANTHOCITES*. Risso.

Mantle densely spinulose, surrounded with a series of setigerous pores; shell with the valves deeply immersed, sub-equal externally, the exposed part moderate; cordate as broad as long; plate of insertion of the anterior valve six lobed, that of the middle bilobed, that of the posterior five lobed,

Genus *CHITONELLUS*. Blainville. (434-435.)

Tail plate funnel shaped; laminae thrown forward; insertion plates very sagittate; slits in anterior valve 5, in middle 0-1, in posterior none; teeth very short, except of sutures; eaves distinct; sinus very deep and narrow; girdle crowded with bristles, no tufts; gills posterior.

Sub-Genus *CRYPTOPLAX*. Gray.

Middle valve without ribs; girdle with crowded bristles, tufted.

(lii.) Family PHILINIDÆ.

Genus PHILINE. Ascanias. (436.)

Shell *bulliform, not forming a single whorl*, internal, white, translucent, oval, slightly convoluted; spire rudimentary
Dist.—West Indies, Boreal Atlantic, Mediterranean, East Indies, Australasia.

(liii.) Family TORNATELLIDÆ.

Shell *spiral, ovate, convolute* or involute, spire more or less elevated; surface mostly *spirally punctated*; aperture usually high and narrow, truncate or roundish in front; columella solid.

Genus TORNATINA. D'Orb. (437.)

Shell oval, elongated, conical or fusiform, with revolving punctated striæ; aperture long and narrow, widened in front, entire; lip sharp; columella thickened, but without plications. *Dist.*—Almost world-wide.

Genus RINGICULA. Desh. (438.)

Shell *minute, ventricose*, with small spire; aperture *notched*; columella callous, *deeply plaited*; outer lip *thickened and reflected*. *Dist.*—In all warm seas.

(liv.) Family CYLICHNIDÆ.

Shell external, spiral, *more or less cylindrical*; nearly white; no operculum.

Genus CYLICHNA. Lorén. (439-440.)

Shell strong, *cylindrical*, smooth, or punctate-striate; spire minute or truncated; aperture narrow, rounded in front; columella callous, with one plait. *Dist.*—Chiefly deep water shells, Greenland, Britain, Red Sea, Australasia.

(lv.) Family BULLIDÆ.

Shell spiral, *ventricose, rather thick, maculated and banded* in the typical genus, white in others; spire *involute*, external, but usually partly covered by the lateral lobes of the foot.

Genus BULLA. Linn. (441.)

Shell oval, globular, smooth, spotted, marbled or zoned; spire concave; aperture as long as the shell; inner margin without columella; outer lip trenchant. *Dist.*—Universal.

Genus HAMINEA. Linn. (442)

Shell oval, globular, spiral, ventricose, *corneus*, thin, covered by a slight *smooth epidermis*; spire involute; lacks the colours of Bulla.

(lvi.) Family LOPHOCERIDÆ.

Genus AKERA. Muller. (443.)

Shell like Bulla, thin, flexible, globosely cylindrical; spire truncated; whorls channeled; aperture long, expanded and deeply sinuated in front; outer margin disunited at the suture; columella open, exposing the whorls. *Dist.*—Greenland, Great Britain, Mediterranean, East Indies, Australasia.

(lvii.) Family APLYSIIDÆ.

Shell wanting or rudimentary, and covered by the mantle; *oblong, trigonal or slightly convoluted*; large, slug-like animals.

Genus APLYSIA. Gmelin. (444-445.)

Shell oblong, convex, *flexible and translucent*, with a posterior slightly incurved apex. (Sea-hare.) *Dist.*—West Indies, Norway, Britain, Mediterranean, Mauritius, China, Australasia.

(lviii.) Family VITRINIDÆ. (Land Shells.)

Shell usually thin, corneous, transparent, spiral, of *few rapidly enlarging whorls*.

Genus VITRINA. Drap. (446-448.)

Shell imperforate, very thin, depressed; spire short, last whorl large; aperture large, lunate or rounded; columella margin slightly inflected; peristome often membranous. *Dist.*—Universal, mostly inhabit cold or temperate countries or mountain regions of warm countries.

(lix.) Family HELICIDÆ. (Land Shells.)

(Shell spiral, usually thicker than in the Zonitidæ, and mostly with reflected lip, the aperture edentulous or contracted by teeth.)

Genus HELIX. (449-518.)

Shell of variable form, smooth, rugose, striate, ribbed or tuberculate, sometimes pilose; orbicular convex, planorbid, trochiform subturriculated, or short bulimiform (monstrosities sinistral, or with the whorls more or less uncoiled); aperture oblique, oval or

semi-lunar, with or without interior teeth on the margin or parietal wall; lip simple or thickened internally or reflected, umbilicus covered, widely open.
Dist.—Universal.

Genus *BULIMUS*. (519-520.) Land Shells.

Shell *oval-oblong* or *turriculated*, solid, sub-perforate or imperforate; whorls few, the last ventricose and large; aperture longitudinal; columella widened, rarely plicate; peristome thickened, reflected; the lip usually joined by a callus. *Dist.*—Mostly South American.

(lx.) Family *PUPINÆ*. (Land Shells.)

Shell generally *minute*, multispiral, cylindrical, with obtuse summit (pupiform); *aperture small*, usually contracted by internal teeth or lamellæ.

Genus *PUPA*. (521.)

Shell usually *very small*, *cylindrical* or *oval-oblong*; umbilicus slight or a mere slit; plicate, striate or costellate brown or horn-colour; columella *plicate* or *sub-dentate*; *lip reflected*, usually dentate or plicate within, the extremities usually joined by a raised callus. *Dist.*—Universal, boreal and tropical.

(lxi.) Family *LIMACIDÆ*. (Terrestrial Land Slugs.)

Shell *rudimentary*, a *calcareous plate*, not spiral, concealed under the mantle, and covering the respiratory cavity.

Genus *LIMAX*. (522.)

Shell-plate *testaceous thin*, *flat*, longer than wide, with concentric striæ of increase, internal. *Dist.*—Universally distributed.

(lxii.) Family *ARIONIDÆ*.

(*Animal naked*, with or without mucous pore; mantle concealing a shell-plate, or a few calcareous grains which represent it; jaw strongly ribbed; central tooth tricuspidate, the median cusp long and narrow; laterals and marginals bicuspidate.)

Genus *CYSTOPELTA*. (523.)

Body attached for half its length to the back of the foot; mantle very large, enveloping the whole animal in repose, but from beneath which the head and the tip of the tail alone are visible from above when the animal is crawling; tentacles four; tail with a mucous spore at the tip; mandible like that of *Arion*; lingual teeth resembling those of *Testacella*. No shell. *Dist.*—Tate. Tasmania.

(lxiii.) Family SUCCINEIDÆ.

Genus SUCCINEA. (524-525.)

Shell oval, very fragile and transparent; spire short; the whorls few, and very rapidly enlarging; aperture oval; outer lip thin, not reflected, united below by a very broad curve with the thin, smooth columella. *Dist.*—World-wide; sub-aquatic, living in damp places, near the margin of streams.

(lxiv.) Family AURICULIDÆ.

(Shell oblong-oval, covered by a thin epidermis; spire short, conoidal, very rarely sub-elongated; last whorl large; rounded at the base; aperture longitudinal, narrow, ear-shaped; inner wall of the aperture with two or three plications, peristome thickened internally, without teeth.)

Genus CASSIDULA. (526-529.)

Shell sub-perforated, cassidiform, solid; spire short, conoidal; last whorl very large, attenuated to the base, where it is usually carinated or angulated around the axis; aperture narrow, sinuous; inner lip dentately plicate; columella plication strong; outer lip thickened within by a strong callosity with toothed edge. *Dist.*—Ceylon, East Indies, Philippines, Australasia, Polynesia.

Genus ALEXIA. (527.)

Shell oblong-oval, thin, spire acuminate; last whorl large, rounded at base; columella with an oblique plait; aperture contracted by teeth, and sometimes by a callosity of the outer lip. *Dist.*—United States, West Indies, Maderia, Europe.

Genus MARINULA. (528.)

Shell oval-oblong, imperforate, solid, smooth; spire short, sharp; aperture oval; inner lip rather thick, excavated with three plications, the posterior largest; outer lip simple, sharp. *Dist.*—Australia, Mediterranean, W. Coast of America.

Genus OPHICARDELUS. (529.)

Shell oval-oblong, umbilicated, smooth; spire elevated-conic; aperture oval, elongated, angulated above; inner lip reflected, with two spiral plications, one of which surrounds the umbilicus; outer lip thin, simple. *Dist.*—Australia, Polynesia.

(lxv.) Family LIMNÆIDÆ.

Shell thin, horn-coloured, mostly spiral, sometimes patelli-form, capable of containing the entire animal, contracted; aperture simple, rounded; lip sharp.

Genus LIMNÆA. (530-533.)

Shell normally dextral, oval-oblong, thin, corneous, translucent; spire sharp, more or less acuminate; last whorl ventricose; aperture oval, ample, rounded in front; columella lip with an oblique plait entering above. *Dist.*—Europe, Asia, America, North of the Equator, Polynesia.

Genus AMPHIPEPLEA. (534-535.)

Shell globular, ventricose, thin, transparent; spire very short, depressed; aperture very large; columella without fold; outer lip sharp. *Dist.*—Europe, East Indies, Australia, Philippines.

Genus PHYSA. (536-547.)

Shell ovate, sinistrally spiral, thin, polished; aperture rounded in front. *Dist.*—North America, Europe, East Indies.

Genus PLANORBIS. (548-551.)

Shell discoidal, biconcave, the whorls visible on both sides; aperture small, rounded, margin usually simple, sometimes expanded. *Dist.*—World-wide.

Genus ANCYLUS. (552-554.)

Shell conical, limpet-shaped, thin; apex posterior turned to the left; aperture with entire basal margin; interior with a sub-spiral muscular scar. *Dist.*—North and South America, Europe, Australia.

Genus GUNDLACHIA. (555-556.)

Shell very small, thin, obliquely conic, apex inclined posteriorly and to the right; base two-thirds closed by a flat, straight-edged shelf, leaving a semicircular aperture. *Dist.*—United States, Cuba, Tasmania.

(lxvi.) Family AMPHIBOLIDÆ.

Genus AMPHIBOLA. (557-559.)

Shell sub-globose, rather thick, rugose, umbilicated; spire short, whorls shouldered above, umbilicated; aperture sub-oval; columella lip callous; columella flattened and reflected; outer lip sinuous posteriorly; operculum corneous, sub-spiral. *Dist.*—New Zealand.

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Shell very small, thin, obliquely conic, apex inclined posteriorly and to the right; base two-thirds closed by a flat, straight-edged shelf, leaving a semicircular aperture. *Dist.*—United States, Cuba, Tasmania.

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Shell sub-globose, rather thick, rugose, umbilicated; spire short, whorls shouldered above, umbilicated; aperture sub-oval; columella lip callous; columella flattened and reflected; outer lip sinuous posteriorly; operculum corneous, sub-spiral. *Dist.*—New Zealand.

(lxvii.) Family SIPHONARIIDÆ.

Genus SIPHONARIA. (560-562.)

Shell solid, porcellanous; apex central or sub-central; provided with more or less elevated radiating ribs or ridges, which by their projection render the margin irregular. *Dist.*—Cape, India, Philippines, Australia, New Zealand, Pacific, Galapagos, Peru, Cape Horn, West Indies, West Coast of North America.

CLASS SCAPHOPODA.

(lxviii.) Family DENTALIIDÆ.

Genus DENTALIUM. (563-564.)

Shell *tube-like*, gradually tapering posteriorly, longitudinally ribbed, margin of the aperture sharpened, posterior end with an internal, slightly projecting tube, which is provided with a dorso-ventrally elongated opening; the outer layer having a very slight emargination dorsally and ventrally. *Dist.*—Universal.

CLASS PELECYPODA.

(Lamellibranchiata. Conchifera.)

(lix.) Family GASTROCHÆNIDÆ.

Shell *equivalue*, gaping; valves *thin*, edentulous, united by a thin external ligament, sometimes *cemented to a shelly tube* when adult; adductor impressions 2, pallial line *sinuated*.

Genus ASPERGILLUM. (565.)

Shell small, equilateral, *cemented to the lower end of a shelly tube, the umbones alone visible* externally; tube elongated, closed below by a perforated disc, with a minute central fissure; siphonal end plain, or ornamented with ruffles. *Dist.*—Red Sea, Java, Australia, New Zealand; in sand.

Genus GASTROCHÆNA. (566.)

Shell *elongated, narrow*, contained within a *shelly tube*; posterior adductor nearly central, with a *pedal star* in front; siphonal inflection angular, with its apex joining the pallial line; tube round, straight, tapering upwards, transversely striated, closed at the lower end when complete, and furnished with a perforated diaphragm behind the valves. *Dist.*—Madagascar, India, Philippines, Australia; burrowing in sand or mud.

(lxx.) Family TEREDIDÆ.

Genus TEREDO. (567.)

Shell *globular*, open in front and behind, lodged at the inner extremity of a *burrow partly or entirely lined with shell*; valves *three lobed*, concentrically striated, and with one transverse furrow; hinge margins reflected in front, marked by the anterior muscular impressions; umbonal cavity with a long, curved, muscular process. *Dist.*—Norway, Britain, Black Sea, Tropics, Australasia, 119 fathoms.

(lxxi.) Family PHOLANIDÆ.

Genus BARNEA. (568.)

Shell *oval*, oblong, anteriorly gaping; with a *single lanceolate dorsal accessory valve*; umbonal process reflected, closely applied. *Dist.*—Australia, Burmah, Red Sea, Europe, Patagonia, Philippines.

(lxxii.) Family SOLENIDÆ.

Genus SOLEN. (569.)

Shell *very long, sub-cylindrical, straight*, margins parallel, ends gaping; beaks terminal, or sub-central; hinge teeth, one in each valve; ligament long, external; anterior muscular impression elongated; posterior oblong; pallial line extending beyond the adductors; sinus short and square. *Dist.*—World-wide, except Arctic Seas; 100 fathoms.

(lxxiii.) Family SAXICAVIDÆ.

Shell *equivalve, thick, gaping at the extremities*; hinge with a single cardinal tooth; ligament external, prominent, solid, inserted in a nymphaal callosity; pallial impression *irregular, sinuous*.

Genus SAXICAVA. (570.)

Shell when young symmetrical, with two minute teeth in each valve; adult rugose, toothless; oblong, *equivalve gaping*; ligament external; *pallial line sinuated, not continuous*. *Dist.*—Universal.

Genus PANOPÆA. (571.)

Shell *equivalve, thick, oblong, gaping at each end*, ligament external *on prominent ridges*; one prominent tooth in each valve; *pallial sinus deep*. *Dist.*—Northern Seas, Mediterranean, Capo, Australia, New Zealand, Patagonia; low water—90 fathoms.

(LXXIV.) Family CORBULIDÆ.

Shell *small, inequivalve, thick, gaping in front*; hinge consisting of a single recurved tooth in one valve, received into a fosset or notch in the other.

Genus CORBULA. (572-573.)

Shell *thick, inequivalve, gibbose*, closed, produced posteriorly; right valve with a prominent tooth in front of the cartilage pit; left valve smaller, with a projecting cartilage process; pallial sinus slight; pedal scars distinct from the adductor impressions. *Dist.*—United States, Norway, Britain, Mediterranean.

Genus NEIRA. (574.)

Shell *globular, attenuated*, and gaping behind; right valve a little the smallest; umbones strengthened internally by a rib on the posterior side; cartilage process spatulate in each valve (furnished with a movable ossicle—Deshayes), with an obsolete tooth in front, and a posterior lateral tooth; pallial sinus very shallow. *Dist.*—Norway, Britain, Mediterranean, Canaries, Madeira, China, Moluccas, New Guinea, Chili; from 12-200 fathoms.

(LXXV.) Family ANATINIDÆ.

Shell often inequivalve, *thin, interior nacreous*; surface granular; ligament external, thin; cartilage internal, placed in corresponding pits and usually furnished with a free ossicle; muscular impressions faint, the anterior elongated; pallial line usually sinuated.

Genus ANATINA. (575-578.)

Shell *oblong, ventricose*, sub-equivalve, *thin and translucent*, posterior side attenuated and gaping; umbones fissured, directed backwards, supported internally by an oblique plate; hinge with a spoon-shaped cartilage process in each valve, furnished in front with a transverse ossicle; pallial sinus wide and shallow. *Dist.*—India, Philippines, New Zealand, Japan, United States.

Genus MYODORA. (579-583.)

Shell *trigonal, rounded in front, attenuated and truncated behind*; right valve convex, left flat; interior pearly; cartilage narrow, triangular, between two tooth-like ridges in the left valve, with a free sickle-shaped ossicle; pallial line sinuated; structure like *Anatina*; outer cells large, rather prismatic. *Dist.*—New Zealand, New South Wales, Philippines.

Genus MYOCHAMA. (584-585.)

Shell inequivalve, *attached by the dextral valve, and modified by the form of the surface of attachment*; posterior side *attenuated*; *left valve gibbose*; cartilage internal, between two tooth-like projections in each valve, and furnished with a movable ossicle; anterior muscular impression curved, posterior rounded, pallial sinus small. *Dist.*—Australasia; attached to Crassatella and Trigonia in 8 fathoms water; the fry, (as indicated by the umbones) is free, regular and Myodora-shaped.

(lxxvi.) Family MACTRIDÆ.

Shell *equivalve, trigonal*, close or slightly gaping; ligament (cartilage) *internal*, sometimes external, contained in a *deep triangular pit*; *epidermis thick*; hinge with two diverging cardinal teeth, and usually with anterior and posterior laterals; pallial sinus short, rounded.

Genus MACTRA. (586-588.)

Shell nearly *equilateral*; anterior hinge-tooth Δ shaped, with sometimes a small laminar tooth close to it; lateral tooth doubled in the right valve. *Dist.*—All seas, especially within the tropics; 35 fathoms.

Genus LUTRARIA. (589.)

Shell *oblong, gaping at both ends*; cartilage plate prominent, with 1 or 2 small teeth in front of it in each valve; pallial sinus deep, horizontal. *Dist.*—United States, Brazil, Britain, Mediterranean, Senegal, Cape, India, New Zealand, Sitka.

(lxxvii.) Family PAPHIDÆ.

Genus PAPHIA. (590-595.)

Shell *trigonal, thick, compressed*, closed; ligament *internal, in a deep, central pit*; a minute interior hinge-tooth, and 1—1 lateral teeth in each valve; muscular scars deep; pallial sinus small. *Dist.*—West Indies, Mediterranean, Crimea, India, New Zealand, Tasmania, Chili; sands at low-water.

Sub-Genus MESODESMA. Desh.

Shell *oval, sub-equilateral*; lateral teeth short, smooth, sub-equal; siphonal inflection distinct.

Sub-Genus DONACILLA. Lam.

Shell *elongate, cuneiform, slightly truncate posteriorly*; anterior lateral teeth *elongated*; posterior short; siphonal sinus distinct.

Sub-Genus *ANAPA*. Gray.

Shell *sub-trigonal, ventricose, truncate posteriorly; lateral teeth sub-equal, compressed, smooth; siphonal inflection obsolete.*

(lxxviii.) Family SEMELIDÆ.

Genus *SEMELE*. (596-598.)

Shell *rounded, sub-equilateral, beaks turned forward; posterior side slightly folded; hinge-teeth 2·2, laterals elongated, distinct in the right valve; external ligament short, cartilage internal, long, oblique; pallial sinus deep, rounded. Dist.*—West Indies, Brazil, India, China, Australasia, Peru.

(lxxix.) Family TELLINIDÆ.

Shell *free, compressed, usually closed and equivalve; cardinal teeth, 2 at most, laterals 1—1, sometimes obsolete; muscular impressions rounded, polished; pallial sinus very large; ligament on shortest side of the shell; external structure obscurely prismatic-cellular; prisms fusiform, nearly parallel with surface, radiating from the hinge in the outer layer, transverse in the inner.*

Genus *TELLINA*. (599-606.)

Shell *slightly inequivalve, compressed, rounded in front, angular and slightly folded posteriorly, umbones sub-central; teeth 2·2, laterals 1—1, most distinct in the right valve; pallial sinus very wide and deep; ligament external, prominent. Dist.*—In all seas, especially the Indian Ocean. Most abundant and highly coloured in the Tropics. Low water—coral zone, fifty fathoms. Wellington Channel, Kara Sea, Behring's Straits, Baltic, Black Sea.

Genus *GARI*. (607-609.)

Shell *transverse, oval-oblong, flat, equivalve, sub-equilateral, concentrically plicate, a little gaping on each side and covered by a thin epidermis; hinge narrow, with two small cardinal teeth, sometimes bifid, in each valve; beaks small; ligament long and prominent; margins simple; muscular impressions rather large, equally distant from the hinge, the anterior oblong, the posterior rounded; pallial impression distant from the margin, with a narrow, profound sinus. Dist.*—Norway, Britain, India, New Zealand, Pacific; littoral—coralline zone, 100 fathoms. *G. Gari* is eaten in India.

Genus HIATULA. (610-611.)

Valves *oval-oblong, compressed*, ventral margin usually *incurved* posteriorly, where the valves are attenuated; broadly rounded anteriorly; beaks sub-median, not prominent, violaceous, under an olive epidermis; ligament thick, swollen; one or two very small cardinal teeth in each valve; muscular impressions rounded, distant; pallial impression *very sinuous*. *Dist.*—W. Indies, Red Sea, India, Madagascar, Japan, Australia, Tasmania, Peru.

(lxxx.) Family VENERIDÆ.

(Shell *regular, closed, sub-orbicular or oblong*; ligament external; hinge with usually three diverging teeth in each valve; muscular impression oval, polished; *pallial line sinuated*.)

Genus VENUS. (612-623.)

Shell thick, *ovate*, smooth, sulcated, or cancellated; margins minutely crenulated; cardinal teeth 3·3; pallial sinus *small, angular*; ligament prominent; lunule distinct. *Dist.*—World-wide. Low water, 140 fathoms. *V. Astartoides*, Behring's Sea. *V. Verrucosa*, Britain, Mediterranean, Senegal, Cape, Red Sea, Australia?

Sub-Genus CHIONE. Megerle. (MURCIA, Romer.)

OMPHALOCLATHRUM. Klein.)

Shell *oval, triangular or sub-cordiform*; margins *finely crenulated*; hinge narrow, solid, with *three teeth in the right valve, two in the left*, the anterior tooth longest; ligament narrow; pallial sinus *shallow*. Mantle-margins folded and dentate; siphons short, unequal, the branchial doubly ciliated, the anal ciliated.

Genus CYTHEREA. (624-631.)

Shell like Venus; oval-triangular, smooth; margins simple; hinge with *three cardinal teeth and an anterior tooth beneath the lunule*; pallial sinus *moderate, angular*. *Dist.*—Same as Venus. Recent. 150 sp.

Sub-Genus CALLISTA.

Shell oval, *transverse, inequilateral*; pallial sinus sub-oval, profound. Mantle-margins folded and cirrous above the siphons; siphons united, ciliated at their extremities.

Sub-Genus GOULDIA.

Shell *sub-trigonal, oval, shining, inflated*.

Genus DOSINIA. (632-636.)

Shell *orbicular, compressed, concentrically striated*, pale, ligament sunk; lunule deep; hinge like Cytherea, margins even; pallial sinus *deep, angular*, ascending. *Dist.*—Boreal, Tropical Seas. Low water, 80 fathoms.

Sub-Genus GOULDIA.

Shell sub-trigonal, oval, smooth, shining, inflated.

Genus TAPES. (637.)

Shell *oblong*, umbones anterior, margins smooth; teeth, three in each valve, *more or less bifid*; pallial sinus *deep, rounded*. *Dist.*—Norway, Britain, Black Sea, Senegal, Brazil, India, China, New Zealand. Low water, 100 fathoms.

(lxxx.) Family CYRENIDÆ.

Shell *sub-orbicular*, closed, ligament external; *epidermis thick, horny*; umbones of aged shells eroded; hinge with two or three cardinals and lateral teeth; pallial line with a *small inflection*.

Genus CORBICULA. (638.)

Shell sub-cordiform, solid, close, concentrically striated or rigid, covered by a smooth, greenish epidermis; three cardinal teeth in each valve, the right anterior and left posterior rather small; lateral teeth elongated, compressed, striated; ligament prominent, thick; pallial impression with a slight or well-marked sinus. *Dist.*—India, East Indies, Philippines, S. America.

Genus PISIDIUM. (639-640.)

Shell *sub-oval, trigonal*, inequilateral, covered by a greenish *epidermis*; cardinal teeth very small, elongated, one sometimes bifurcated in the right valve, two diverging in the left valve; lateral teeth longitudinal, compressed, lamelliform, double in the right valve. *Dist.*—Universal. *Fresh water lakes and rivers*, Tasmania.

Genus SPHÆRIUM. (41.)

Syn. Cyclas.

Shell thin, *oval or sub-orbicular*, inflated, covered by a *greenish epidermis*; cardinal teeth very small or rudimentary, one more or less bifurcated, one in the right and two oblique ones in the left valve; lateral teeth compressed, lamelliform, the anterior shortest; ligament short; margins plain, muscular impressions scarcely apparent, sub-marginal; pallial impression simple. *Dist.*—Universal.

(lxxxii.) Family PETRICOLIDÆ.

Genus RUPELLARIA. (642-647.)

Shell *elongated*, moderately tumid, *surface rugosely striated* and *ribbed*, distinctly *gaping posteriorly*; hinge in the right valve with two cardinal teeth, and a third very small, but usually obsolete, anterior; the middle one is prominent, curved as in *Petricola*; the posterior is longitudinally lamellar, low and bifurcate; in the left valve are three distant and very unequal cardinal teeth; the middle one is similarly projecting as the corresponding tooth in the other valve. *Rup. lamellifera*, Conrad; may be considered as a type of a group. *Dist.*—Europe, Pacific, etc.

(lxxxiii.) Family CARDIIDÆ.

Genus CARDIUM. (648-651.)

Shell *ventricose*, close or *gaping posteriorly*; umbones *prominent*, sub-central; *radially ribbed*; margins *crenulated*; pallial line more or less sinuated. *Dist.*—World-wide; from sea shore to 140 fathoms. Gregarious on sands and sandy mud.

(lxxxiv.) Family CHAMIDÆ.

Genus CHAMA. (652.)

Shell attached *usually by the left umbo*; valve *foliaceous*, the *upper smallest*; hinge tooth of free valve thick, curved, received between two teeth in the other; adductor impressions large, oblong, the anterior encroaching on the hinge-tooth. *Dist.*—Tropical seas, especially amongst coral reefs: fifty fathoms. West Indies, Canaries, Mediterranean, India, China, Australasia.

(lxxxv.) Family LUCINIDÆ.

Shell *orbicular*, free, closed; hinge-teeth 1 or 2; laterals 1—1; or obsolete; interior dull, *obliquely furrowed*; pallial line simple; muscular impressions two, *elongated, rugose*, ligament external or sub-internal.

Genus LUCINA. Brug. (653-655.)

Shell *orbicular, white*, sometimes divaricately striate; umbones depressed; lunule distinct; margins smooth or minutely crenulated; ligament oblique, *semi-internal*; hinge-teeth 2—2, laterals 1—1 and 2—2 or obsolete; muscular impressions rugose, anterior elongated within the pallial line, posterior oblong; umbonal area with an oblique furrow. *Dist.*—Universal.

Sub-Genus. CYCLAS. Klein.

Valves divaricately striate.

Genus LORIPES. Poli. (656.)

Shell almost equilateral, *cancellated or sculptured by flexuous striae*; lunule short, cartilage *quite internal*; teeth one cardinal in the right and two in the left valve; laterals remote, and sometimes indistinct. *Dist.*—Atlantic, Mediterranean, W. Indies, Australasia.

(lxxxvi.) Family UNGULINIDÆ.

Genus MYSIA. (657.)

Shell *sub-orbicular smooth*; ligament *double*, rather long, sub-marginal; hinge-teeth 2·2, of which the anterior in the left valve, and posterior in the right are bifid; muscular impressions polished, anterior elongated. *Dist.*—West Indies, Rio, Britain, Mediterranean, Red Sea, West Africa, India, Corea, Australia, California.

(lxxxvii.) Family ERYCINIDÆ.

Shell *very small, thin, fragile, usually transparent*, and sometimes gaping, rounded or transverse, laterally depressed; hinge narrow, with one or two cardinal teeth, the lateral more or less elongated, compressed sometimes wanting; muscular impressions small, not well-marked; pallial line *simple*.

Genus LASÆA. (658-659.)

Shell minute and *roundish, oval*; beak straight; cartilage long, placed at the *shorter end of the shell*, contrary to that in *Kellia*; left valve with a minute thorn-like cardinal tooth; and in each valve two remarkably strong lateral teeth. *Dist.*—Universal.

Genus KELLIA. (660-661.)

Shell small, thin, sub-orbicular, closed, *beaks small*; margins smooth; ligament internal, interrupting the margin, or on the thickened margins; cardinal teeth 1 or 2, laterals 1—1 in each valve. *Dist.*—Norway, New Zealand, California.

(lxxxviii.) Family CRASSATELLIDÆ.

Genus CRASSATELLA. (662-664.)

Shell *solid, ventricose*, attenuated behind, smooth or concentrically furrowed; lunule distinct; *ligament internal*;

margin smooth or denticulated; pallial line simple; hinge-teeth 1·2, striated in front of cartilage-pit; lateral teeth 0—1, 1—0; adductor impressions deep, rounded; pedal small, distinct. *Dist.*—Australia, New Zealand, Philippines, India, West Africa, Canaries, Brazil.

(lxxxix.) Family ASTARTIDÆ.

Shell *thick, solid, equivalve*, the cardinal teeth always well developed, 2—3 in each valve; lateral teeth sometimes present on one or both sides, ligament always external, strong; muscular scars ovate, the anterior usually with a small deep superimposed pit, produced by the retractile muscles of the foot; pallial line entire.

Genus CARDITA. (665-668.)

Shell *oblong, radiately ribbed*; ligament external; *margins toothed*; hinge-teeth 1·2, and an elongated posterior tooth; *pallial line simple*; anterior pedal scar close to adductor. *Dist.*—Universal.

Genus MYTILICARDIA. (669-670.)

Shell *elongated, very inequilateral, with squamous radiating ribs*; hinge with an anterior triangular cardinal tooth; posterior cardinal tooth double in the left valve; no anterior laterals. Foot rounded, grooved, byssiferous. *Dist.*—Universal.

(xc.) Family UNIONIDÆ.

Genus UNIO. (671.)

Shell *nacreous; epidermis thick and dark, oval or elongated, smooth, corrugated, or spiny, becoming very solid with age*; anterior teeth 1·2, or 2·2, short, irregular; posterior teeth, 1·2, elongated, laminar. *Dist.*—*Fresh water.* Universal.

(xci.) Family TRIGONIDÆ.

Genus TRIGONIA. (672.)

Shell *trigonal, nacreous internally, thick, tuberculated or ornamented with radiating or concentric ribs*; posterior side angular; ligament small and prominent; hinge-teeth 2·3, *diverging, transversely striated*; *centre tooth of left valve divided*; pedal impressions in front of the posterior adductor, and one in the umbo of the left valve; anterior adductor impression close to the umbo; pallial line simple. *Dist.*—Australia.

(xcii.) Family NUCULIDÆ.

Shell oval, or *trigonal*, *small*, *nacreous within*; hinge composed of a *great number of transverse teeth*, interrupted by a *central pit* for the reception of the ligament, which is internal or external.

Genus NUCULA. (673-674.)

Shell *trigonal*, with the umbones turned towards the short posterior side, smooth or sculptured; *epidermis olive*, *interior pearly*; margins *crenulated*; hinge with *prominent internal cartilage pit*, and a series of sharp teeth on each side; *pallial line simple*. *Dist.*—Northern and Arctic Seas; 10—180 fathoms; Siberia, Melville Island, New England, Britain, Mediterranean, Cape, Japan, Australia.

Genus LEDA. (675-676.)

Shell resembling Nucula; oblong, rounded in front, produced and pointed behind; margins even; *pallial line with a small sinus*; umbonal area with a linear impression joining the anterior adductor. *Dist.*—Northern and Arctic Seas; 10—180 fathoms; Siberia, Melville Island, New England, Britain, Mediterranean, Cape, Japan, Australia.

(xciii.) Family ARCIDÆ.

Shell regular, equivalve, with *strong epidermis*; ligament exterior, occupying an area between the beaks; *hinge with a long row of similar comb-like teeth*; pallial line distinct; muscular impressions sub-equal; structure corrugated, with vertical tubuli in rays between the ribs of striæ.

Genus ARCA. (677-681.)

Shell equivalve, or nearly so, thick, *sub-quadrate*, ventricose, strongly ribbed or cancellated; margins smooth or dentated, close or sinuated ventrally; hinge straight, teeth very numerous transverse; umbones anterior, separated by a flat, lozenge-shaped ligamental area, with numerous cartilage grooves; pallial line simple; posterior adductor impression double; pedal scars two, the posterior elongated. *Dist.*—World-wide, most abundant in warm seas; low-water, 230 fathoms.

Genus PECTUNCULUS. (682-685.)

Shell *orbicular*, nearly equilateral, smooth or radiately striated; umbones central, divided by a striated ligamental area; hinge with a semi-circular row of transverse teeth; adductor sub-equal; pallial line simple;

margins crenated inside. *Dist.* — West Indies, Britain, India, New Zealand, West America; ranging from 8 to 60, rarely 120 fathoms.

Genus LIMORSIS. (685.)

Shell orbicular, convex, *slightly oblique*, ligamental area with a *triangular cartilage pit* in the centre; hinge with two equal curved series of transverse teeth. *Dist.*—Red Sea (Nyst.), Japan, Britain, Tasmania. Mr. M'Andrew has dredged *L. Pygmaea* living on the coast of Finmark.

(xciv.) Family MYTILIDÆ.

Shell equivalve, *oval or elongated*, closed, umbones anterior, *epidermis thick and dark*, often filamentose; *ligament internal*, sub-marginal, very long; *hinge edentulous*; outer shell-layer obscurely prismatic-cellular; *inner more or less nacreous*; pallial line simple; anterior muscular impression small and narrow; posterior large, obscure.

Genus MYTILUS. (686-691.)

Shell *wedge-shaped*, rounded behind, smooth in the typical species; umbones terminal, pointed; hinge-teeth minute or obsolete; pedal muscular impressions *two in each valve*, small, simple, close to the adductors. *Dist.*—World-wide, Ochotsk, Behring's Sea, Russian Icc-meer, Black Sea, Cape Horn, Australasia.

Genus MODIOLA. (692-694.)

Shell *oblong, inflated in front*; umbones anterior, obtuse; hinge toothless; pedal impressions *three in each valve*, the central elongated; epidermis often produced into long beard-like fringes. *Dist.*—Universal.

Genus MODIOLARIA. (695.)

Shell rhomboidal, sculptured by two rows of striæ (one on each side), which radiate from the beaks, leaving the middle portion smooth; umbones incurved; hinge edentulous or crenulated, hinge-plate finely notched. *Dist.*—Temperate and Arctic Seas.

(xcv.) Family AVICULIDÆ.

Shell *inequivalve, very oblique*, resting on the smaller (right) valve, and attached by a byssus; epidermis indistinct; outer layer prismatic-cellular, *interior nacreous*; posterior muscular impression large, sub-central, anterior small within the umbo; pallial line irregularly

dotted; hinge-line straight, elongated; umbones anterior, eared, the posterior ear wing-like; cartilage contained in one or several grooves; *hinge edentulous or obscurely toothed*.

Genus AVICULA. (696-697.)

Shell *obliquely oval, often thin diaphanous*, very inequivalve, eared, the posterior ear produced wing-like; right valve with a byssal sinus beneath the anterior ear; cartilage pit single, oblique; hinge with one or two small cardinal teeth, and an elongated posterior tooth, often obsolete; posterior muscular impressions (adductor and pedal) large, sub-central; anterior (pedal scar) small, umbonal. *Dist.*—Mexico, South Britain, Mediterranean, India, Pacific, Australasia; 20 fathoms.

Genus CRENATULA. (698.)

Shell *thin, oblong compressed*, byssal sinus obsolete; cartilage pit shallow, crescent-shaped. *Dist.*—N. Africa, Red Sea, China, in sponges.

Genus VULSELLA. (699.)

Shell *oblong, striated*, sub-equivalve, with an inner pearly and outer fibrous layer; umbones straight, earless. Often found imbedded in living sponges. *Dist.*—Red Sea, India, Australia, Tasmania.

(xcvi.) Family PINNIDÆ.

Genus PINNA. (700.)

Shell *equivalve, wedge-shaped*; umbones quite anterior; posterior side truncated and gaping; ligamental groove linear, elongated; hinge edentulous; anterior adductor scar apical, posterior sub-central, large, ill-defined pedal scar in front of posterior adductor. *Dist.*—U. S., Britain, Mediterranean, New Zealand, Tasmania, Australia, Pacific, Panama.

(xcvii.) Family SPONDYLIDÆ.

Genus SPONDYLUS. (701.)

Shell *irregular*, attached by the right valve, *radiately ribbed, spiny or foliaceous*; umbones remote, eared; ower valve with a triangular hinge-area, cartilage in a central groove, nearly or quite covered; hinge of two curved interlocking teeth in each valve; adductor impression, double. *Dist.*—West Indies, Canaries, Mediterranean, India, Australasia, Torres Straits, Pacific, W. America, 105 fathoms.

(xcviii.) Family PECTINIDÆ.

Genus PECTEN. (702-706.)

Shell *sub-orbicular*, regular, resting on the right valves, usually ornamented with *radiating ribs*; beaks approximate, *eared*; anterior ears most prominent; posterior side a little oblique; right valve most convex, with a notch below the front ear; hinge margins straight, united by a narrow ligament; cartilage internal, in a central pit; adductor impressions double, obscure; *pedal impression only in the left valve, or obsolete*. *Dist.*—World-wide, Nova-Zembla, Cape Horn; 200 fathoms.

(xcix.) Family LIMIDÆ.

Shell *eared*, white, gaping at the sides; hinge edentulous, with a *central, triangular cartilage-pit*.

Genus LIMA. (707-708.)

Shell *equivalve*, compressed, *obliquely oval*; anterior side straight, gaping, posterior rounded, usually close; umbones apart, *eared*; valves white, smooth, punctate, striate, or radiately ribbed and imbricated; there is usually a thin, brownish epidermis; hinge-area triangular, cartilage-pit central; adductor impression lateral, large, double; pedal scars two, small. *Dist.*—Norway, Britain, West Indies, Canaries, India, Australia, 1-150 fathoms. The largest living species (*L. excavata*, Chemn) is found on the Coast of Norway.

(c.) Family ANOMIIDÆ.

Genus PLACUNANOMIA. (709.)

Shell adherent, sub-equivalve, *irregular, flattened*; hinge with two thick divergent elongated lamella in the inferior, corresponding with two long pit in the upper valve; upper valve with only two muscular impressions, the pedal scar radiately striated; the byssal plug is often fixed in the lower valve, and its muscle becomes (functionally) an adductor. *Dist.*—West Indies, Britain, New Zealand, California, Bebring's Sea, Ochotsk; 50 fathoms. *Mocine*, California. *P. macrochissna*, Desh.

(cii.) Family OSTREIDÆ.

Genus OSTREA. (701-713.)

Shell *irregular*, attached by the left valve; upper valve *flat or concave*, often plain; lower *convex*, often plaited or

foliaceous, and with a prominent beak; ligamental cavity triangular or elongated; hinge toothless; structure *sub-nacreous*, laminated with prismatic-cellular substance between the margins of the laminæ. *Dist.*—Tropical and temperate seas, Norway, Black Sea, Australasia, etc.

BRACHIOPODA.

(cii.) Family TEREBRATULIDÆ.

Shell *minutely punctate*; usually round or oval, smooth or striated; ventral valve *with a prominent beak, perforated near or at the apex*, and attached by a portion of the valve itself; hinge with two curved teeth; dorsal valve with a depressed umbo, a prominent cardinal process between the dental sockets, and a *slender shelly loop*. (*Lamp shell*.)

Genus WALDHEIMIA. (714.)

Shell *smooth or plaited*, dorsal valve frequently impressed; *foramen complete*; loop elongated or reflected; septum of smaller valve elongated. *Dist.*—Norway, West Indies, Java, Australia, California, Cape Horn; low water, 100 fathoms.

Genus KRAUSSIA. (715-716.)

Shell small, *transversely oblong*; hinge-line nearly straight; beak truncated, laterally keeled; area flat; *foramen large, deltidum rudimentary*; dorsal valve longitudinally impressed, furnished inside with a forked process, rising nearly centrally from the septum; interior often strongly tuberculated. The Apophyses are sometimes a little branched. *Dist.*—S. Africa, Sydney, New Zealand; low-water to 120 fathoms. *K. rubra*, Pallas.

DESCRIPTIVE TERMS.

EXPLANATION OF TERMS COMMONLY USED IN DESCRIBING THE EXTERNAL CHARACTERS AND FORMS OF VARIOUS KINDS OF SHELLS.

Shells are said to be *external* when the animal is contained in them, and *internal* when they are concealed in the mantle; the latter, with many species devoid of shelly covering, are termed *naked mollusca*. The greater number of shells have but one shell (usually a closely-set spiral tube or cone,) and are termed *univalves*; the others are mostly composed of two valves (*bivalve*) hinged together, generally under the *beak* or

umbo. Some bivalves, as in *Pholas* and *Barnea*, have one or two accessory plates near the hinge, while the *Chitons* have eight imbricating valves like an articulated limpet, and are termed *multivalves*. The conical or flatly conical shells of the limpet group are usually *simple* and not *spiral*. The following are a list of terms applied to the principal distinguishing character of shells generally.

UNIVALVES.

FORM OF SHELL.

		*Example fig. No.
I. (a) Regularly spiral.		
1. Elongated, subulate, elevated ...	...	32
2. Turreted, turriculate, an elongated shell with the whorls angulate or shouldered on their upper part ...	...	33
3. Cylindrical, pupiform ...	...	44, 45
4. Short, bucciniform ...	...	5
5. Fusiform, spindle-shaped ...	...	2, 3
6. Contabulate, short, with shouldered whorls ...	...	—
7. Globular, rounded ...	...	16
8. Depressed, lenticular ...	...	19
9. Discoidal, having the form of a disc or quoit ...	...	21, 22
10. Convolute, aperture about as long as the shell, nearly or quite concealing the spire ...	24, 25, 26, 28	
11. Trochiform, pyramidal, conical, with a flat base ...	...	11
12. Turbinated, conical, with rounded base ...	...	9, 18
13. Cone shaped, obconic ...	...	27
14. Few whorled, whorls rapidly increasing ...	...	13, 36
15. Many whorled, whorls slowly or gradually increasing ...	...	12, 39
16. Ear-shaped ...	...	23
17. Subulate, awl-shaped ...	...	38
18. Acicular ...	...	40
(b.) Irregularly spiral, evolute ...	...	31
(c.) Tubular, tusk-like, tooth-like ...	...	46
(d.) Boat-shaped, slipper-shaped ...	...	14, 15
(e.) Conical or limpet-shaped ...	...	57, 58, 59
(f.) Multivalve and imbricated ...	...	47

* See accompanying Plate.

DIVISIONS OF THE SHELL.

Example fig.
No.

- II. Apex, the posterior end of shell, or
nucleus 5^a
1. The *nucleus* may be *reversed* or
sinistral, turning to the left as in
the body whorls of *Physa* ...
 2. Dextral, turning to the right, normal
condition
 3. Oblique, when the nuclear whorls
are set at an angle, unconformable
with the body whorls ...
- III. Whorl, a single complete revolution of
the spiral cone 11^a
1. Periphery, that part marking its
greatest circumference ... 8^a 21^a
 2. Suture, the line of channel formed
by the junction of the whorls ... 5^c
 3. Body-whorl usually capacious, the
last turn ending with the aperture ... 36^a
- IV. Base, anterior extremity opposite end
to apex, usually the front of the
aperture 11^a
1. Oblique, as in 20
 2. Concave, as in 20
 3. Convex, as in 19
 4. Flat, as in 11-12
- V. Aperture, the open mouth of the shell,
the interior of which may be simple
or entire, or may be channeled by a
gutter or canal, more or less pro-
duced or everted (2.3). The aperture
is :—
1. Longitudinal, when its greatest
diameter is parallel to the axis of
whorls 27
 2. Transverse, reverse of longitudinal ... 13
 3. Oblique, greatest diameter oblique
to the axis 37
 4. Rounded, the circle slightly in-
terrupted 9
 5. Auriform, ear-shaped 35
 6. Ovate, egg-shaped 36
 7. Oblong, rounded above and below,
longer than wide 17
 8. Lunate, semi-lunar, semi-circular ... 16
 9. Triangular

			Example fig. No.
10.	Linear, narrow	...	26
11.	Quadrate, squarish	...	13
12.	Patulous, dilated at its entrance	...	
13.	Compressed, diminished at its entrance	...	
14.	Produced, lengthened out	...	2 ^d 3 ^c
15.	Sometimes truncated, stunted, cut short abruptly at the end	...	5, 6, 33-34
VI.	Peristome. Sometimes peritremc.		
	Margin of aperture. It is :—		
1.	Continuous or entire, as in	...	8, 9, 21, 44
2.	Interrupted, when the left side of aperture is formed only by the body-whorl	...	5
3.	The left side is formed either by the <i>inner</i> or <i>columella lip</i> (labrum) or partly by the body-whorl or <i>parietal wall</i> . The right side is formed by the <i>outer lip</i> (labrum.)		
VII.	Outer lip may be :—		
1.	Thin and sharp	...	7
2.	Thickened	...	1
3.	Reflected, curled outwards	...	8
4.	Inflected, curled inwards	...	25
5.	Expanded, swollen	...	1
6.	Digitate.		
7.	Foliated, fringed with spines.		
8.	Emarginate, incised, or slit	...	3 ^a
9.	Effuse, when basal or anterior extremity is slightly produced, depressed, or reflected	...	32, 33, 34
10.	Sinuous, bent or curved interiorly.	...	
	It may be :—		
11.	Dentate, toothed	...	3, 29
12.	Plicate or lamellate, when the teeth become rib-like.		
13.	Ringent, having <i>large</i> plications, nodules or teeth.		
14.	Deflected, deflexed, bent aside or backwards.		
VIII.	Inner lip or columella margin may have characters like those described under outer lip.		
IX.	Umbilicate. Perforate. When the base of the axis or columella, around which the whorls are coiled, is open		

Example fig.
No.

or hollow (12^a.) It is *sub-umbilicated*, or *sub-perforate* when partly covered over by shelly matter (16). It is not umbilicated or non-perforate, where the axis of the shell is solid.

SCULPTURE OR COLOUR MARKINGS.

X. These are :—

- | | | |
|---|--------|---------|
| 1. Longitudinal, when taking the direction of the axis. | | |
| 2. Revolving or transverse, when they follow the spiral. | | |
| 3. Canaliculate. Suture deeply channeled | ... .. | 5 |
| 4. Cingulate. Encircled by revolving ribs | .. ... | 9 |
| 5. Carinate, revolving sculpture prominent, sharp | ... .. | 9 |
| 6. Sulcate, encircled by channels | ... .. | 10, 11 |
| 7. Plicate, costate, ribbed. Sculpture longitudinal | ... .. | 4, 5, 8 |
| 8. Nodosely, tuberculately, granosely plicate, when the ribs are broken up into tubercles or granules; mostly caused by the intersection of revolving sculpture | ... .. | 9 |
| 9. Striate, covered by fine close lines, either longitudinal or revolving. | | |
| 10. Punctate, pitted. Frequently punctate, striate, <i>i.e.</i> , 9 & 10 combined | ... .. | 11 |
| 11. Granulate, nodose, tuberculate, covered with nodules of small or large size, but <i>not ribbed</i> | ... .. | 3 |
| 12. Muricate, spinous, echinate when the nodules are <i>sharp pointed</i> . | | |
| 13. Decussate, cancellate, longitudinal and revolving sculpture, crossing at <i>right angles</i> . | | |
| 14. Reticulate, sculpture not crossing at right angles, irregularly decussate. | | |
| 15. Clathrate, longitudinal and revolving lines both distant, forming a pattern somewhat like the iron bars of a prison window. | | |

- | | | | |
|--|-----|-----|---|
| 16. Coronate, the upper part of the whorls having a series of revolving tubercles or spines | ... | ... | 4 |
| 17. Varicose, when the external thickening of the outer lip of aperture occurring in some shells during rest-periods is not absorbed when growth is resumed, but remains crossing the whorls, rib-like, at regular intervals | ... | ... | 1 |

XI. Operculum. A horny or shelly lid which closes the aperture of a large number of univalve shells. It is.—

1. Concentric when nucleus is central or sub-central.
2. Imbricated or lamellar when nucleus is marginal.
3. Claw-shaped or unguiculate, nucleus apical or in front.
4. Spiral, revolving gradually and growing on one edge.
5. Pauci-spiral, few rapidly increasing whorls.
6. Sub-spiral, scarcely spiral.
7. Multi-spiral, many whorled.
8. Articulated when it has a projection.
9. Radiated, modification of the articulated form in which the spiral is not so evident.

BIVALVES.

XII.

- | | |
|---|-------------|
| Arcuated, bent in the form of an arch. | |
| Auriform, ear-shaped. | |
| Auricled, having appendages like ears. | ... (53) |
| Byssus, a beard. | |
| Gibbous, bulging, swollen. | |
| Compressed, squeezed together. | |
| Concamerated, arched over, vaulted. | |
| Concave, hollowed out | ... .. |
| Concentrically rayed or ribbed, curved, with the umboe as a centre. | |
| Cordate, cordiform, heart-shaped. | |
| Crenulated, notched at the margin, scalloped | (53) |

Example fig.
No.

(55)

Cuneiform, wedge-shaped

Cylindrical, round, like a roller or cylinder.

Cymbiform, boat-shaped.

Denticulated, set with small teeth as in Arca.

Dexter valve, right valve.

Divaricated, spreading out widely.

Dorsal margin, the side on which the hinge is placed.

Elliptical, having the form of an ellipse.

Elongated, lengthened, drawn out.

Gap, gaping; when the valves are shut in some bivalves, as in Pboles, an opening is disclosed called the gap.

Globose, globular.

Hemispherical, in the shape of a half-globe.

Inequilateral, when the anterior and posterior sides make different angles with the hinge. *Equilateral*, having both sides alike.

Inequivalve when one valve is more convex than the other, or dissimilar in other respects, as in the common oyster.

Equivalve, having both valves alike.

Lenticulate, doubly convex, of the form of a lens.

Ligament, a solid body, softer than a cartilage, but harder than a membrane, which connects the valves.

External ligament usually attached to ridges on the posterior, hinge-margin behind the umbones.

In some bivalves, as in Mactra, the ligament is internal, lodged in a cartilage furrow or pit.

Limb, the margin in bivalve shells.

Lobated, rounded at the edge.

Lunule, a crescent-like mark or spot, situated near the anterior and posterior slopes.

Nacred, nacreous, pearly.

Oblong-ovate, egg-shaped or oval.

Obsolete, indistinct, not well defined

Papyraceous, thin as paper.

Pectinated, resembling the teeth of a comb.

Pinnated, winged.

Quadrangular, having four right angles.

Radiately, rayed or ribbed, rays or ribs springing from umboe, in the direction of limb or margins

... (52)

Ridge, the upper part of a slope.

Scalloped, indented at the edges.

Serrated, having teeth like a saw.

Serrulated, very minutely serrated.

Sub-arcuated, somewhat arched.

Sub-diaphanous, somewhat transparent.

Transverse, breadth greater than length.

Trapeziform, shaped like a trapezium.

Trigonal, having three angles, deltoid.

Turgid, swollen.

Ventral margin, the margin opposite the hinge-margin.

Ventricose, inflated or swelled in the middle.

Umbo, the beak or round part which turns over the hinge.

NOTE.—Many of the terms relating to the sculpture of univalves, are also applicable to the sculpture of bivalves.

LENGTH, BREADTH AND THICKNESS.

The hinge line of bivalves indicates the direction of the *length* of the shell, and the actual length is the maximum distance between lateral margins.

The breadth is the greatest diameter measured transversely to length.

The thickness is the greatest diameter of an imaginary line passing through one or both valves.

LIGAMENT.

The *valves* of the Pelecypods are bound together by a *ligament*, (49^c) and usually articulated by a *hinge* furnished with interlocking teeth. The shell is closed by (either one or two) powerful *adductor muscles* (53^a) but opens spontaneously by the action of the *ligament* when the animal relaxes, and after it is dead.

Example fig.
No.

UMBO.

The *apex*, *beak* or *umbo* (49^d) is the point from which the growth commences and is situated near the hinge. The beaks are either straight, as in *Pecten*, curved as in *Venus* or *Cardium*, or spiral, as in *Isocardia*.

RIGHT AND LEFT VALVE.

When a shell is placed so that the dorsal margin is furthest from the observer, with the exterior side of valve uppermost, the position of the ligament to the right indicates the left valve, if to the left the right valve.

The *lunule* is a small cordate or semi-circular impression under and anterior to the beaks. When this appears to the right the valve is right, and *vice-versa*.

The *sinus* or *flexure* (fig. 49^c) of the pallial impression (48^c) when present is seen under the ligament. When the inside surface is viewed with the dorsal margin furthest from observer, if to the right it indicates the right valve, and *vice-versa*. Sometimes there are posterior lateral teeth, or laminae of the hinge-margin, and are found on the right or left side accordingly as the valve is right or left. Thus the *pallial sinus*, the *external ligament*, (49^c) and the *posterior slope* (49^a) are to the right side, (the internal surface being exposed with the beak furthest from observer,) in the *right valve* (49), and *vice-versa*.

Linnæus and the older naturalists were wont to describe the front of the shell as the back and the right valve as the left.

HINGE-LINE AND TEETH.

The dorsal margin on which the ligament and teeth are situated is termed the *hinge-line*. It is long and straight in *Arca*, short in *Vulsella*, and curved in most genera.

The central teeth immediately under umbo are called *hinge* or *cardinal* teeth (48^a), those on each side are *lateral* teeth (48^b), either the *cardinal* or the *lateral* teeth may be lacking in many shells, while in some teeth are entirely absent.

EDENTULOUS.

The dentition formulæ are usually stated as follows:—Cardinal teeth 2·3 or $\frac{2}{3}$ —meaning 2 in the *right* valve, 3 in the left; lateral teeth, 1—1, 2—2, or 1 anterior and 1 posterior in *right* valve, 2 anterior, and 2 posterior lateral teeth in the *left* valve.

ADDUCTOR OR MUSCULAR IMPRESSIONS. (49¹⁻²)

The greater number of bivalves have two *adductor muscles*, whose *impressions* or *scars* on the shell, nearly equal in size, are situated respectively on the anterior and posterior sides at the extremities of the hinge-line. In *Mytilus*, *Modiola*, these two *adductor impressions* are unequal, the posterior one being very much larger. In the *Pectens*, *Oysters* and *Limas*, there is only *one* strong *adductor impression* (53^a), placed more centrally. The single *muscular scar* is not quite central, but nearer the posterior than the anterior side.

EPIDERMIS. SCARF OR SKIN.

All bivalve shells are clothed with an *epidermis*, *scarf*, or *skin*. Inconspicuous in some, but remarkably developed in others.

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52	<i>Tate, Prof. Ralph</i> —Critical examination of the Mollusca of the Older Tertiary of Tasmania, alleged to have living representatives. (Proc. Roy. Soc. Tas.) ...	1884
53	<i>Petterd, W. F.</i> —New species (5), of Tasmanian Marine Shells. Two papers. (Proc. Roy. Soc. Tas.) ...	1885
54	<i>Tate, Prof. Ralph</i> —On the Australian Pectens, confounded with the New Zealand <i>P. laticostatus</i> . Gray. (Proc. Roy. Soc. Tas.)	1886
55	<i>Brazier, John</i> —The Trochidae and other Genera of Mollusca from Tasmania, with their synonyms. (Proc. Roy. Soc. Tas.)	1886
56	<i>Johnston, R. M.</i> —Notes with respect to the Land and Fresh Water Molluscs of King's Island. (Proc. Roy. Soc. Tas.)	1887

Index No.		Year of Publication.
57	<i>Petterd, W. F.</i> —Contributions for a Systematic Catalogue of the Aquatic Shells of Tasmania. (Proc. Roy. Soc. Tas.)	1888
58	<i>Johnston, R. M.</i> —Critical Observations on recent contributions to our knowledge of the Fresh Water Shells of Tasmania. (Proc. Roy. Soc. Tas.)	1888
59	—————Observations on the variability of the Tasmanian Unio. (Proc. Roy. Soc. Tas.)	1888
60	<i>Tenison-Woods</i> —On the Anatomy and Life History of Mollusca peculiar to Australia. Prize Essay. (Roy. Soc. N.S.W.)	1888
61	<i>Tate, Prof. Ralph</i> —Supplement to a list of the Lamelli-branches and Pallio-brachs, etc., of South Australia, with a census of the Molluscan Fauna of Australia. (Trans. Roy. Soc. S.A.)	1888

CLASSIFIED LIST OF SPECIES.

(The numbers to the extreme right refer to index number of the publications containing fuller particulars or descriptions recorded in the Bibliography pages 71, 72.)

CLASS CEPHALOPODA.

(i.) Family OCTOPIDÆ. (sp. 2.)

1	<i>Octopus maorum.</i> <i>Hutton</i>	27, 46
2	<i>Pinnoctopus cordiformis.</i> <i>Quoy</i>	46

(ii.) Family ARGONAUTIDÆ. (sp. 1.)

3*	<i>Argonauta tuberculata.</i> <i>Shaw</i>	27, 46
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(iii.) Family LOLLIGNIDÆ. (sp. 2.)

4	<i>Sepioteuthis Lessoniana.</i> <i>Feruss</i>	46
	————— <i>bilineata.</i> <i>Quoy and Gaim.</i>	46

(iv.) Family ONYCHOTEUTHIDÆ. (sp. 2.)

5	<i>Onychoteuthis Bartlingu.</i> <i>Lesuer</i>	27, 46
6	<i>Ommastrephes Sloanii.</i> <i>Gray</i>	46

(v.) Family SPIRULIDÆ. (sp. 1.)

7*	<i>Spirula Peronii.</i> <i>Lam. (D. Lævis Gray)</i>	27
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(vi.) Family NAUTILIDÆ. (sp. 1.)

8	<i>Nautilus Pompilius.</i> <i>Linn.</i>	
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CLASS GASTROPODA.

(Prosobranchiata.)

(vii.) Family MURICIDÆ. (sp. 20.)

9	<i>Murex</i> <i>triformis</i> .	<i>Reeve</i>	27
10	—————	<i>zonatus</i> . <i>T. Woods</i> . Supposed to be a young variety of <i>M. Triform</i>	27
11	—————	<i>Angasi</i> . <i>Crosse</i>	27
12	<i>Arosalpinx typica</i> .	<i>Dunker</i> . (<i>Adamsia</i> et <i>Agnewia</i> .) <i>T-Woods</i>	27
13	<i>Typhis arcuatus</i> .	<i>Hind's Voyage of Sulphur</i>	*27
14	<i>Trophon umbilicatus</i> .	<i>T. - Woods</i>	*27
15	————— <i>squamosissima</i> .	"	†
16	————— <i>Petterdi</i> .	<i>Crosse</i>	27
17	————— <i>Brazieri</i> .	<i>T. - Woods</i>	27
18	————— <i>Assisi</i> .	"	27
19	————— <i>Marixæ</i> .	"	27
20	————— <i>Hanleyi</i> .	"	27
21	————— <i>Goldsteini</i> .	"	27
22	————— <i>Australis</i> .	"	27
23	<i>Purpura textilosa</i> .	<i>Lam.</i>	27
24	————— <i>humilis</i> .	<i>Crosse</i>	27
25	————— <i>succincta</i> .	<i>Martyn</i>	27
26	————— <i>madreporarum</i> .	<i>Sow.</i>	27
27	————— (?) <i>littorinoides</i> .	<i>T. - Woods</i>	27
28	————— <i>propinqua</i> .	<i>T. - Woods</i>	27

(viii.) Family TRITONIDÆ. (sp. 8.)

29	<i>Triton cutaceus</i> .	<i>Linne</i>	27
30	————— <i>Spengleri</i> .	<i>Dillwyn</i> . (Regarded by <i>T. - Woods</i> as a variety of <i>T. cutaceus</i>	27
31	————— <i>Waterhousei</i> .	<i>Ad. and Angas</i> . May also be simply a small variety of <i>T. cutaceus</i>	27
32	————— <i>Quoyi</i> .	<i>Reeve</i>	27
33	————— <i>subdistortus</i> .	<i>Lam.</i>	27
34	<i>Ranella leucostoma</i> .	<i>Lam.</i>	27
35	————— <i>vexillum</i> ?	<i>Sow.</i>	27
36	————— <i>epitrema</i> .	<i>T. - Woods</i>	27

(ix.) Family FUSIDÆ. (sp. 9.)

37	<i>Fusus dilatata</i> .	<i>Quoy and Gaim.</i>	27
38	————— <i>pyrulatus</i> .	<i>Reeve, Icon</i>	27
39	————— <i>Novæ-Hollandiæ</i> .	<i>Reeve, Icon</i>	27
40	————— <i>Tasmanicnsis</i> .	<i>Adams and Angas</i>	27
41	————— <i>Legrandi</i> .	<i>T. - Woods</i>	27
42	————— <i>Spiceri</i> .	"	27

43	<i>Fasciolaria fusiformis.</i>	<i>Valenc</i>	...	...	...	27
44	———— <i>coronata.</i>	<i>Lam.</i>	...	...	...	27
45	———— <i>trapezium.</i>	<i>Linne.</i>	(Reeve considers this form a variety of <i>F. coronata</i> .)			27

(x.) Family BUCCINIDÆ. (sp. 15.)

46	<i>Siphonalia Clarkei.</i>	<i>T.-Woods</i>	...	...	...	27
47	———— <i>turrita.</i>	<i>T.-Woods</i>	...	...	...	27
48	———— <i>fuscozonata.</i>	<i>Ad. and Angas</i>	...	...	...	27
49	<i>Cantharus, Petterdi.</i>	<i>Brazier.</i>	(Tritonida. Woods and Brazier)			27
50	<i>Pisania reticulata.</i>	<i>T.-Woods</i>	...	...	...	27
51	———— <i>Tasmanica.</i>	"	...	...	...	27
52	<i>Cominella tenuiscostata.</i>	"	...	...	...	27
53*	———— <i>alveolata.</i>	<i>Kiener</i>	...	...	...	27
54 ?	———— <i>lactea.</i>	<i>Reeve, Icon</i>	...	...	...	27
55	———— <i>Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27
56	———— <i>costata.</i>	<i>Quoy</i>	...	...	...	27
57	———— <i>Angasi.</i>	<i>Crosse</i>	...	...	...	27
58	———— <i>albo-lirata.</i>	<i>T.-Woods</i>	...	...	...	27
59	———— (Josepha), <i>Tasmanica</i>	"	...	...	...	27
60	<i>Eburna (Zemira), Australis.</i>	<i>Sow.</i>	...	...	...	27

(xi.) Family NASSIDÆ. (sp. 5.)

61	<i>Nassa Fasciata.</i>	<i>Lam.</i>	...	...	...	27
62	———— <i>pauperata.</i>	<i>Lam.</i>	...	...	...	27
63	———— <i>rufocincta.</i>	<i>A. Adams</i>	...	...	...	27
64	———— <i>Jacksoniana.</i>	<i>Kiener</i>	...	...	...	27
65	———— <i>Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27

(xii.) Family VOLUTIDÆ. (sp. 7.)

66	<i>Voluta Angasi.</i>	<i>Sow.</i>	...	...	...	27
67	———— <i>fusiformis.</i>	<i>Swainson</i>	...	...	...	27
68	———— <i>papillaris.</i>	"	...	...	...	27
69	———— <i>mitræformis.</i>	<i>Lam.</i>	...	...	...	27
70	———— <i>mamilla.</i>	<i>Gray</i>	...	...	...	27
71	———— <i>Kingii.</i>	<i>Cox.</i>	(Probably only a variety of <i>V. Angasi</i>)			27
72	———— <i>Selateri.</i>	<i>Cox</i>	...	...	...	27

(xiii.) Family MITRIDÆ. (sp. 14.)

73	<i>Mitra Badia.</i>	<i>Reeve</i>	...	...	...	27
74	———— <i>glabra.</i>	<i>Swainson</i>	...	...	...	27
75	———— <i>Australis.</i>	"	...	...	...	27
76	———— <i>pica.</i>	<i>Reeve</i>	...	...	...	27

132 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

77	Mitra declivis. Reeve.	May be a variety of M. glabra. (T.-Woods)	...	...	...	27
78	capensis. Dunker.	(M. Weddii. T.-Woods)	...	...	...	27
79	Tasmanica. T.-Woods	...	...	...	...	27
80	Scalariformis.	"	...	...	...	27
81	Legrandi.	"	...	...	...	x†
82	Teresiac.	"	...	...	...	v†
83	scita.	"	...	...	...	27
84	granatina.	Swainson and T.-Woods	...	...	...	27
85	Franciscana. T.-Woods	...	...	...	...	27
86	semilivida	"	...	...	...	27

(xiv.) Family MARGINELLIDÆ. (sp. 10.)

87	Erato pellucida. T.-Woods	...	...	...	27
88	Marginella Muscaria. Lam.	...	...	...	27
89	turbinata. Sow.	...	...	...	27
90	formicula. Lum.	...	...	...	27
91	Volutiformis. Reeve	...	...	...	27
92	Tasmanica. T.-Woods	...	...	...	27
93	Stanislas.	"	...	...	27
94	minutissima	"	...	...	27
95	Allporti.	"	...	...	27
96	Petterdi. Beddome	...	...	...	27

(xv.) Family OLIVIDÆ. (sp. 5.)

97	Olivella Australis. T.-Woods	...	...	...	27	31
98	Oliva hieroglyphica. Reeve	...	...	...	27	
99	Ancillari marginata. Lam.	...	...	...	27	
100	fusiiformis. Petterd	...	...	...	53	
110	obtusa	"	...	...	53	

(xvi.) Family COLUMBELLIDÆ. (sp. 12.)

102	Columbella semi-convexa. Lam.	...	...	...	27	
103	Lincolnsis. Reeve	...	...	...	27	
104	irrorata.	"	...	...	27	
105	Roblini. T.-Woods	...	...	...	27	
106	Xavierana.	"	...	...	27	
107	Legrandi.	"	...	...	27	
108	miltostoma	"	...	...	27	
109	badia	"	...	...	27	
101	(Aesopus) pilosa. Angas	...	...	...	27	
111	minima.	"	...	...	27	
112	dictua. T.-Woods	...	...	...	31	
113	rosacea (?) Reeve.	Probably identical with				
	C. semi-convexa. Tate.)	...	...	...	44	

(xvii.) Family CANCELLARIDÆ. (sp. 4.)

114	<i>Cancellaria</i> <i>laevigata</i> .	<i>Sow.</i>	...	...	...	27
115	----- <i>undulata</i>	"	...	...	...	27
116	----- <i>Tasmanica</i> .	<i>T. Woods</i>	...	...	...	27
117	----- <i>excavata</i> .	<i>Sow.</i>	...	...	...	27

(xviii.) Family TEREBRIDÆ. (sp. 6.)

118	<i>Terebra</i> <i>bicolor</i> .	<i>Angas.</i>	(<i>Acus.</i> <i>Angas and Woods</i>)	...	...	27
119	----- (<i>Hastula</i> .)	<i>Brazieri.</i>	<i>Angas</i>	...	...	27
120	----- <i>Sp. indet.</i>	<i>T. Woods</i>	...	...	...	27
121	----- <i>addita.</i>	<i>Desh.</i>	...	...	...	27
122	----- <i>Kieheri.</i>	"	...	...	...	27
123	----- <i>nitida.</i>	<i>Hinds</i>	...	...	...	27

(xix.) Family PLEUROTOMIDÆ. (sp. 29.)

124	<i>Pleurotoma</i> (<i>Drillia</i>) <i>Coxi.</i>	<i>Angas</i>	...	...	...	27
125	----- "	<i>incrusta.</i>	<i>T. Woods</i>	...	...	27
126	----- "	<i>pseudo-carinata.</i>	<i>Reeve</i>	...	...	27
127	----- "	<i>Angasi ?</i>	...	...	...	27
128	----- "	<i>Atkinsoni.</i>	<i>T. Woods</i>	...	...	27
129	----- "	<i>minuta.</i>	"	...	...	27
130	----- "	<i>Weldiana.</i>	"	...	...	27
131	----- "	<i>Beraudiana.</i>	<i>Cross</i>	...	...	27
132	----- "	<i>tæniata.</i>	<i>T. Woods</i>	...	...	27
133	----- "	<i>Agnewi.</i>	"	...	...	27
134	----- "	<i>Legrandi.</i>	<i>Beddome</i>	...	...	49
135	----- <i>Bela mitralis.</i>	<i>Ad. and Angas</i>	...	...	...	27
136	----- (<i>Clathurella</i>)	<i>Philomenæ.</i>	<i>T. Woods</i>	...	...	27
137	----- "	<i>granulosissima.</i>	"	...	...	31
138	----- "	<i>sculptilior</i>	"	...	...	31
139	----- (<i>Daphnella</i>)	<i>Tasmanica.</i>	<i>T. Woods</i>	...	...	27
140	----- "	<i>varix.</i>	"	...	...	27
141	----- (<i>Cythara</i>)	<i>Tasmanica</i>	"	...	...	27
142	----- (<i>Mangelia</i>)	<i>St. Gallæ</i>	"	...	...	27
143	----- "	<i>Desalesii</i>	"	...	...	27
144	----- "	<i>Atkinsoni</i>	"	...	...	27
145	----- "	<i>Meredithæ</i>	"	...	...	27
146	----- "	<i>immaculata.</i>	"	...	...	27
147	----- "	<i>Le-Tourneuxiana.</i>	<i>Crosse</i>	...	...	27
148	----- "	<i>Harrisoni.</i>	<i>T. Woods</i>	...	...	31
149	----- "	<i>delicatula</i>	"	...	...	31
150	----- "	<i>alternata</i>	"	...	...	31
151	----- "	<i>trachys</i>	"	...	...	31
152	----- "	<i>cancellata.</i>	<i>Beddome</i>	...	...	49

134 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

(xx.) Family CONIDÆ. (sp. 5.)

153	<i>Conus</i>	<i>Novæ-Hollandiæ.</i>	<i>Adams</i>	...	...	27
154	—	<i>pontificalis.</i>	<i>Lam.</i>	...	...	27
155	—	<i>Tasmaniæ.</i>	<i>Sow.</i>	...	...	27
156	—	<i>rutila.</i>	()	<i>C. Macleay and T.-Woods</i>	...	27
157	—	<i>Carmeli.</i>	<i>T.-Woods</i>	...	...	27

(xxi.) Family CYPRÆIDÆ. (sp. 8.)

158	<i>Cypræa</i>	<i>Annulus.</i>	<i>Linne</i>	...	...	27
159	—	<i>angustata.</i>	<i>Gray</i>	...	...	27
160	—	<i>piperata.</i>	<i>Soland.</i>	...	...	27
161	—	<i>Comptoni.</i>	<i>Gray</i>	...	...	27
162	—	(<i>Cyprovula</i>) <i>umbilicata.</i>	<i>Sow.</i>	...	...	27
163	—	<i>Scotti?</i>	<i>Brod.</i>	...	...	27
164	—	(<i>Trivia.</i>) <i>Australis.</i>	<i>Lam.</i>	...	...	27
165	<i>Ovulum.</i>	(<i>Volva.</i>) <i>Maccoyi.</i>	<i>T.-Woods.</i>	(<i>Birostru.</i>	<i>T.-Woods</i>)	27

(xxii.) Family CASSIDIDÆ. (sp. 5.)

166	<i>Cassis.</i>	(<i>Semi-cassis</i>) <i>semigranosa.</i>	<i>Lam.</i>	...	...	27
167	—	" <i>tumida.</i>	<i>Petterd</i>	...	...	53
168	—	(<i>Cassmaria</i>) <i>pyrum.</i>	<i>Lam.</i>	...	...	27
169	—	" <i>nivea.</i>	<i>Brazier.</i>	Regarded by		
		<i>T.-Woods</i> as a variety of <i>C. pyrum</i>	...	...	27	
170	—	(<i>Cassmaria</i>) <i>Paucirugus.</i>	<i>Menke</i>	...	...	27

(xxiii.) Family NATICIDÆ. (sp. 9.)

171	<i>Natica</i>	<i>conica.</i>	<i>Lam.</i>	...	...	27
172	—	<i>Beddomei.</i>	<i>R. M. Johnston.</i>	(<i>Proc. Roy. Soc. Tas.,</i>		
			1884. P. 221. <i>N. polita.</i>	<i>T. Woods.</i>)	...	27
173	—	<i>Tasmanica.</i>	<i>T.-Woods</i>	...	...	27
174	—	<i>nana.</i>	"	...	...	27
175	—	<i>Strangei.</i>	"	...	...	27
176	—	(<i>Mamilla.</i>) <i>umbilicata.</i>	<i>Quoy</i>	...	...	27
177	—	" <i>globosa.</i>	<i>T.-Woods.</i>	Probably merely		
		a white variety of <i>N. umbilicata</i>	...	...	27	
178	<i>Sigaretus</i>	<i>zonalis.</i>	<i>Quoy</i>	...	...	27
179	<i>Lamellaria.</i>	<i>Sp. indet.</i>	<i>North West Coast.</i>	(<i>T. R. Atkinson.</i>)	...	27

(xxiv.) Family CALYPTRÆIDÆ. (sp. 8.)

180	<i>Infundibulum</i>	<i>calyptreæformis.</i>	<i>Lam.</i>	(<i>Trochita,</i>	<i>T.-Woods</i>)	27
181	<i>Legrandia</i>	<i>Tasmanica.</i>	<i>Beddome</i>	...	...	43
182	<i>Calyptrea</i>	<i>Harrisoni.</i>	<i>Beddome.</i>	(<i>Cemoria,</i>	<i>Beddome</i>)	43
183	<i>Orepidula</i>	(<i>sp?</i>)	<i>Waterhouse Island</i>	...	...	27
184	—	(<i>sp?</i>)	<i>Frederick Henry Bay</i>	...	...	27

185	<i>Hipponyx foliacea</i> .	Quoy.	(<i>Cochlolepas</i> , T.-Woods)	...	27
186	———— subrufa.	Sow.	(<i>Cochlolepas</i> , T.-Woods)	...	27
187	———— (Amalthea) Conica.	Schum.	...	...	27

(xxv.) Family SOLARIIDÆ. (sp. 3.)

188	<i>Solarium</i> , luteum.	Lam.	...	...	27
189	————.	Sp. indet.	Recherche	...	27
190	<i>Adeorbis picta</i> .	T.-Woods	...	...	27

(xxvi.) Family SCALARIDÆ. (sp. 12.)

191	<i>Scalaria Australis</i> .	Lam.	...	...	27
192	———— (Cirostrema) varicosa.	Lam.	...	...	27
193	———— granulosa.	Quoy	...	...	27
194	———— aculeata.	Sow.	...	...	27
195	———— <i>delicatula</i> .	Crosse.	...	...	27
196	———— <i>Jukesiana</i> .	Forbes	...	...	27
197	———— lineolata.	Sow.	...	...	27
198	———— <i>Philippinarum</i> ?	Sow	...	...	27
199	————.				
200	———— (Crossea) labiata.	T.-Woods	...	...	27
201	———— (") concinna.	Angas, B.	...	...	49
202	———— (") cancellata.	T.-Woods.	(<i>Delphinula</i>		
		<i>Johnstoni</i> . Beddome)	...	...	49

(xxvii.) Family IANTHINIDÆ. (sp. 3.)

203*	<i>Ianthina communis</i> .	Lam.	...	...	27
204*	———— <i>exigua</i> .	Lam.	...	...	27
205	———— bipartita.	Gray ?	...	...	27

(xxviii.) Family TURRITELLIDÆ. (sp. 5.)

206	<i>Turritella Tasmanica</i> .	Reeve	...	...	27
207	———— granulifera.	T.-Woods	...	...	27
208	———— Tasmaniensis.	"	...	...	27
209	———— acuta.	"	...	...	27
210	———— sinuata.	Reeve	...	...	27

(xxix.) Family VERMETIDÆ. (sp. 3.)

211	<i>Vermetus dentiferous</i> .	Lam.	...	...	27
212	<i>Siliquaria Australis</i> .	Quoy.	(<i>Tenagodus</i> , T.-Woods)		27
213	———— Weldii.	T.-Woods.	(" ")		27

(xxx.) Family EULIMIDÆ. (sp. 8.)

214	<i>Eulima Tasmanica</i> .	T.-Woods	...	...	27
215	———— micans.	"	...	...	27
216	———— proxima.	Sow.	...	...	27

136 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

217	<i>Eulima marginata.</i>	<i>T.-Woods</i>	...	...	...	31
218	——— <i>apheles.</i>	"	...	...	...	31
219	——— <i>Legrandi.</i>	<i>Beddome</i>	...	...	...	49
220	——— <i>Petterdi.</i>	"	...	...	...	49
221	<i>Stylifer Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27

(xxx.) Family TURBONILLIDÆ. (sp. 12.)

222	<i>Turbonilla Angasi.</i>	<i>Angas and T.-Woods</i>	...	...	...	27
223	——— <i>Maria.</i>	<i>T.-Woods</i>	..	...	...	27
224	——— <i>Macleayana.</i>	"	...	...	...	27
225	——— <i>Tasmanica.</i>	"	...	...	...	27
226	<i>Aclis tristriata</i>	"	...	..	...	27
227	<i>Odostomia Tasmanica</i>	"	...	...	...	27
228	——— <i>(Parthenia) Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27
229	——— <i>lactea.</i>	<i>Angas</i>	...	...	...	27
230	——— <i>bifasciata.</i>	<i>T.-Woods</i>	...	...	...	27
231	<i>Syrnola Michaeli.</i>	"	...	...	...	27
232	——— <i>bifasciata</i>	"	...	...	...	27
233	<i>Eulimella (Styloptygma.) Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27

(xxxii.) Family LITTORINIDÆ. (sp. 11.)

234	<i>Littorina unifasciata.</i>	<i>Gray</i>	...	...	...	27
235	——— <i>paludinella.</i>	<i>Reeve</i>	...	...	...	27
236	——— <i>Hisseyana.</i>	<i>T.-Woods</i>	...	...	..	27
237	——— <i>undulata?</i>	<i>Gray. Probably a variety of L. unifasciata</i>	...	...	...	27
238	——— <i>Philippi?</i>	<i>Carpenter</i>	...	...	...	27
239	<i>Risella nana.</i>	<i>Lam.</i>	...	...	..	27
240	——— <i>melanostoma.</i>	<i>Gmelin</i>	...	...	...	27
241	——— <i>aurata?</i>	<i>H. and A. Adams. Regarded by T.-Woods as a variety of R. melanostoma</i>	...	...	...	27
242	<i>Fossarus (Fossarina.)</i>	<i>Petterdi Crosse</i>	...	...	...	27
243	——— <i>Tasmanicus.</i>	<i>T.-Woods</i>	..	..	...	27
244	——— <i>bulimoides.</i>	"	..	...	...	27

(xxxiii.) Family PLANAXIDÆ. (sp. 3.)

245	<i>Alaba(Diala) monile.</i>	<i>A. Adams. (D. tessellata.</i>	<i>T.-Woods</i>	...	...	27
246	—— " <i>lauta.</i>	" (<i>D. punctata.</i>	<i>T.-Woods</i>	...	...	27
247	—— " <i>tumida.</i>	<i>T.-Woods</i>	...	...	...	27

(xxxiv.) Family CERITHIIDÆ. (sp. 15.)

248	<i>Cerithium dubium.</i>	<i>Sow. Tate states that Sowerby's name has priority over C. monachus. C. and Fisch</i>	...	...	...	27, 44
249	——— <i>rhodostoma.</i>	<i>Adams</i>	...	...	...	27
250	——— <i>serotina.</i>	<i>A. Adams</i>	...	...	...	27

251	<i>Cerithium Diemense.</i>	<i>Quoy and Gairn.</i>	(Tate, P. 31-32.						
			Proc. Roy. Soc. Tas., 1881.)	..	...				27
252	———— (Bittium)	<i>granarium.</i>	<i>Kicner</i>	...	...				27
253	————	"	<i>turritella.</i>	<i>Quoy</i>	...	...			27
254	————	"	<i>Lawleyanum.</i>	<i>Crosse</i>	...	...			27
255	————	"	<i>minimum.</i>	<i>T.-Woods</i>	...	...			31
256	————	"	<i>turboniloides.</i>	"	...	...			31
257	————	"	<i>semi-lævis</i>	"	...	...			31
258	————	(<i>Cerithiopsis.</i>)	<i>Atkinsoni.</i>	"			(Perhaps a		
							variety of <i>C. crocea</i>	<i>Angas</i>)	27
259	————	"	<i>albosutura.</i>	<i>T.-Woods</i>	...				27
260	<i>Triforis fasciata.</i>	<i>T.-Woods</i>	...	...	...				31
261	————	<i>Tasmanica.</i>	"	...	...	...			27
262	<i>Potamides (Lampania) Australis.</i>	<i>Quoy</i>	...	...	...				27

(xxxv.) Family RISSOELLIDÆ (sp. 1.)

263.	<i>Tatea rufilabris.</i>	<i>A. Adams.</i>	(<i>Tatea Huonensis.</i>						
	<i>T.-Woods.</i>	<i>Diala.</i>	<i>Adams.</i>)						

(xxxvi.) Family RISSONIDÆ (sp. 48.)

264	<i>Rissoina variegata.</i>	<i>Angas</i>	...	...	...	...			27
265	———— <i>cincta.</i>	"	...	...	...	...			27
266	———— <i>nivea.</i>	"	...	...	...	...			27
267	———— <i>turricula.</i>	"	...	...	...	...			27
268	———— <i>St. Clara.</i>	<i>T.-Woods</i>	...	...	...	...			27
269	———— <i>Flindersii.</i>	"	...	...	...	...			27
270	———— <i>concatenata.</i>	"	...	...	...	...			27
271	———— <i>Gertrudis</i>	"	...	...	...	...			27
272	———— <i>Kershawi.</i>	"	...	...	...	...			31
273	———— <i>supra-sculpta.</i>	"	...	...	...	...			31
274	———— <i>uni-cirata.</i>	"	...	...	...	...			31
275	<i>Rissoa Agnewi.</i>	"	...	...	...	...			27
276	———— <i>cyclostoma.</i>	"	var. <i>a rosea</i>	...	...	...			27
277	———— <i>melanura.</i>	"	...	...	...	...			27
278	———— <i>Angeli.</i>	"	(<i>Cyclostrema</i> ?)	...	...	...			27
279	———— (<i>Setia</i>) <i>Brazieri.</i>	"	...	...	...	...			27
280	———— " <i>siennæ.</i>	<i>Assimineæ Tasmanica.</i>	<i>T.-Woods</i>						27
281	———— " <i>Flamina.</i>	<i>Beddome</i>	...	...	...	...			49
282	———— (<i>Cingula</i>) <i>Atkinsoni.</i>	<i>T.-Woods</i>	...	...	...	...			27
283	———— (<i>Ceratia</i>) <i>Maccayi.</i>	"	...	...	...	...			27
284	———— " <i>puncto-striata.</i>	"	...	...	...	...			31
285	———— " <i>Marie.</i>	"	...	...	...	...			27
286	———— (<i>Alvania</i>) <i>cheilostoma.</i>	"	...	...	...	...			27
287	———— " <i>fasciata.</i>	"	...	...	...	...			27
288	———— " <i>Baytoni</i>	"	...	...	...	...			49
289	———— <i>minutissima.</i>	<i>T.-Woods</i>	...	...	...	...			27
290	<i>Hydrobia cristallina?</i>	<i>Pfr.</i>	<i>Petterd,</i>	<i>Proc. Roy. Soc.</i>					
	<i>Tas., 1888</i>	...	...	...	...	...			57, 58

138 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

291	<i>Hydrobia Gunni</i> ? <i>Frauenfeld.</i>	Tate and Brazier, Proc. Linn. Soc., N.S.W., 1881	...	...	57, 58
292	<i>Hydrobia Tasmanica</i> ? <i>Martins.</i>	Petterd, Proc. Roy. Soc. Tas., 1888	...	...	57, 58
293	<i>Hydrobia, turbinata.</i>	<i>Petterd</i>	...	...	57, 58
294	<i>Bithynella (Potomapyrgus ?) nigra.</i>	<i>Quoy and Gaim.</i>	...	...	57, 58
295	———— " ?	<i>nitida. R. M. Johnston.</i>	(Fossil)	...	58
296	———— " ?	<i>Dulvertonensis. T.-Woods...</i>	...	...	57, 58
297	———— " ?	<i>Dunrobinensis.</i>	"	...	57, 58
298	———— " ?	<i>Dyeriana. Petterd</i>	...	...	57, 58
299	———— " ?	<i>Simsoniana. Brazier</i>	...	...	57, 58
300	———— " ?	<i>Woodsii. Petterd...</i>	...	...	57, 58
301	———— " ?	<i>Smithii.</i>	"	...	57, 58
302	———— " ?	<i>Brownii.</i>	"	...	57, 58
303	———— " ?	<i>marginata</i>	"	...	57, 58
304	<i>Amnicola ? (Brazieria) Tasmanica.</i>	<i>T.-Woods (Amnicola)</i>	...	...	57, 58
305	———— (Beddomeia)	<i>Dieraense. Frauenfeld.</i>	Previously referred to <i>Amnicola</i>	...	57, 58
306	———— "	<i>Launcestonensis. R. M. Johnston.</i>	Referred to Petterd's new Sub-genus <i>Beddomeia</i>	...	57, 58
307	———— "	<i>Bellii. Petterd...</i>	...	...	57, 58
308	———— "	<i>Lodderæ.</i>	"	...	57, 58
309	———— "	<i>Hulli.</i>	"	...	57, 58
310	———— "	<i>Tasmanica. T.-Woods.</i>	<i>Valvata, T.-Woods</i>	...	57, 58
311	<i>Pomatiopsis striatula.</i>	<i>Menke</i>	...	...	57, 58
312	———— <i>Badgerensis.</i>	<i>R. M. Johnston</i>	57, 58

(xxxvii.) Family ASSIMINIIDÆ. (sp. 1.)

313	<i>Assimineia bicincta.</i>	<i>Petterd</i>	57
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(xxxviii.) Family VALVATIDÆ. (sp. 1.)

313a	<i>Valvata Tasmanica.</i>	<i>T.-Woods.</i>	<i>Beddomeia Tasmanica</i>	57
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(xxxix.) Family TRUNCATELLIDÆ. (sp. 4.)

314	<i>Truncatella scalarina.</i>	<i>Cox. Pettord's Monograph</i>	...	27
315	———— <i>Tasmanica.</i>	<i>T.-Woods. Petterd's Monograph</i>	...	27
316	———— <i>marginata.</i>	<i>Kuster.</i>	" "	27
317	———— <i>micra.</i>	<i>T.-Woods.</i>	" "	27

(xl.) Family NERITIDÆ. (sp. 1.)

318	<i>Nerita atrata.</i>	<i>Quoy</i>	27
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(xli.) Family LIOTIDÆ. (sp. 15.)

319	<i>Liotia Tasmanica.</i>	<i>T.-Woods</i>	27
320	— <i>discoidea.</i>	"	27
321	— <i>Australis.</i>	"	27
322	— <i>Angasi.</i>	"	...	...	...	27
323	— <i>minima.</i>	"	...	...	...	31
324	— <i>annulata.</i>	"	...	...	...	31
325	<i>Cyclostrema Kingii.</i>	<i>Brazier</i>	...	...	...	27
326	— <i>Josephi.</i>	<i>T.-Woods</i>	...	...	...	27
327	— <i>micra.</i>	"	...	...	...	27
328	— <i>Weldii.</i>	"	...	...	...	27
329	— <i>Susonis.</i>	"	...	...	...	27
330	— <i>Spinosa.</i>	"	...	...	...	27
331	— <i>immaculata</i>	"	...	...	...	27
332	— <i>Bruniensis.</i>	<i>Beddome</i>	...	...	...	49
333	— <i>Johnstoni.</i>	"	49

(xlii.) Family ROTELLIDÆ. (sp. 1.)

334	<i>Rotella (Ethalia) Tasmanica.</i>	<i>T.-Woods</i>	x
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(xliii.) Family PHASIANELLIDÆ. (sp. 5.)

335	<i>Phasianella tritonis.</i>	<i>Chemnitz</i>	27
336	— <i>sanguinea.</i>	<i>Reeve</i>	27
337	— <i>Angasi.</i>	<i>Jour. Conch., 1864</i>	...	...	...	27
338	— <i>rosea.</i>	<i>Angas</i>	...	...	...	27
339	— <i>delicatula.</i>	<i>T.-Woods</i>	...	...	...	27

(xliv.) Family TURBINIDÆ. (sp. 3.)

340	<i>Turbo (Marmorostoma) undulatus.</i>	<i>Chemnitz</i>	...	...	...	27
341	— <i>(Senectus) circularis.</i>	<i>Reeve</i>	...	...	...	27
342	— <i>straminea.</i>	<i>Martyn</i>	...	...	...	27

(xlv.) Family TROCHIDÆ. (sp. 46.)

343	<i>Trochus tæniata.</i>	<i>Quoy and Gaim.</i>	...	...	...	27
344	— <i>(Gibbula) Coxi.</i>	<i>Angas</i>	...	...	...	27
345	— " <i>sulcosa.</i>	<i>A. Adams</i>	...	...	...	27
346	— <i>(Zizyphinus) granulatus.</i>	<i>Born</i>	...	...	...	27
347	— " <i>armillatus.</i>	<i>Woods. Z. Meyeri,</i> <i>Philippi (Br.)</i>	...	...	...	27, 55
348	— " <i>fragrum.</i>	<i>Philippi</i>	...	...	...	27
349	— " <i>incertus.</i>	<i>Reeve</i>	...	...	...	27
350	— <i>(Monilea) roseus.</i>	<i>T.-Woods</i>	...	...	...	27
351	— " <i>turbinatus.</i>	"	...	...	...	27
352	— <i>(Minolia) Tasmanicus.</i>	"	...	...	...	27
353	— <i>(Infundibulum) fimbriata.</i>	<i>Swainson. (Carniidea.)</i> <i>T.-Woods</i>	...	...	...	27

354	Trochus (Infundibulum)	Tasmanica.	(Carinidea.)	
	(Carinidea.	T.-Woods)	...	27
355	— (Infundibulum)	aurea.	Jonas.	(Carinidea.
	T.-Woods)	...	...	27
356	Trochus (Thalotia) conicus.	Gray.	T. Picta, T.-Woods	
	(Br.)	...	...	55, 27
357	— " dolorosa.	T.-Woods	...	55, 27
358	— " tessellatus.	"	...	31
359	— " dubium.	"	...	31
360	— (Elenchus) badius.	Woods	...	27
361	— " bellulus.	Dunker	...	27
362	— " irisodontes.	Quoy	...	27
363	— " nitidulus.	Phil. Kust	...	27
364	— Baulini	...	...	44
365	— (Cantharidus) pulcherrimus.	Gray	...	55
366	— " Lesueri.	Fischer.	(T. picta,	
	T.-Woods)	...	...	55
367*	— (Bankivia) varians.	Bech.	...	27
368	— (Trochochlea) Australis.	Favanne	...	27
369	— " constrictus.	Lam.	...	27
370	— " tæmatum?	Quoy and Gaim	...	27
371	— " compta.	T.-Woods	...	27
372	— (Euchelus) canaliculatus.	Lam.	...	27
373	— " Tasmanicus.	T.-Woods.	(Fossarus	
	Tasmanica)	T.-Woods.	...	27
374	— " scabriculus.	Ad. and Angas	...	27
375	— (Clanculus) nodulosus.	A. Adams	...	27
376	— " Aloysii.	T.-Woods	...	27
377	— " Philomenæ.	"	...	27
378	— " Dominicaux.	"	...	27
379	— " Raphæli.	"	...	27
380	— " Angeli.	"	...	27
381	— " conspersus.	A. Adams	...	27
382	— " rubens.	"	...	27
383	— " undatus.	Lam...	...	27
384	— " Mangeri.	Adams	...	27
385*	— " variegatus.	"	...	27
386	— " gibbosus.	"	...	27
387	— " nodo-liratus	" Gibbula multicari-		
	nata, T.-Woods (32)	...	...	27
388	(Astele) subcarinatus.	Swainson	...	27

(xlv.) Family STOMATELLIDÆ. (sp. 2.)

389	Stomatella imbricata.	Lam.	...	27
390	Stomatia (Gena) strigosa.	A. Adams	...	27

(xlvii.) Family PLEUROTOMARIDÆ. (sp. 1.)

391	Schismope Atkinsoni.	T.-Woods.	(Scissurella, T.-Woods,	
	1876)	...	...	27

(xlvi.) Family HALIOTIDÆ. (sp. 4.)

392	<i>Haliotis</i>	<i>nævosa.</i>	<i>Martyn</i>	...	...	...	27
393	—	<i>glabra.</i>	<i>Swainson</i>	...	...	...	27
394	—	<i>carinata.</i>	<i>Martini</i>	...	...	...	27
395	—	<i>elegans.</i>	<i>Koch</i>	...	...	...	27

(xlix.) Family FISSURELLIDÆ. (sp. 13.)

396	<i>Fissurella</i>	<i>Australis.</i>	<i>Krauss</i>	...	...	...	27
397	—	<i>scutella.</i>	<i>Gray</i>	...	...	...	27
398	—	<i>nigrita.</i>	<i>Sow.</i>	...	...	...	27
399	—	<i>concatenata.</i>	<i>Crosse</i>	...	...	...	27
400	—	<i>crucis.</i>	<i>Beddome</i>	...	...	...	49
401	—	(<i>Machroschisma</i>) <i>Tasmanica.</i>	<i>T.-Woods.</i>	(Var. <i>a, Rosea.</i>)	(<i>T.-Woods.</i>)	...	27
402	<i>Emarginula</i>	<i>emarginata.</i>	<i>Blainville</i>	...	...	...	27
403	—	<i>rugosa.</i>	(<i>Quoy?</i>)	<i>Sow.</i>	...	...	27
404	—	<i>Tasmanica.</i>	<i>Sow.</i>	...	...	...	27
405	—	<i>tenuicostata.</i>	"	...	...	...	27
406	<i>Parmophorus</i>	<i>elongatus.</i>	<i>Blainville.</i>	(<i>Scutus</i>)	<i>T.-Woods</i>	...	27
407	—	(<i>Tugalia</i>) <i>Australis.</i>	<i>Sow.</i>	...	...	...	27
408	—	"	<i>Tasmanica.</i>	<i>T.-Woods</i>	...	...	27

(l.) Family PATELLIDÆ. (sp. 16.)

409	<i>Acmæa</i>	<i>septiformis.</i>	<i>Quoy</i>	...	...	...	27
410	—	<i>marmorata.</i>	<i>T.-Woods</i>	...	...	...	27
411	—	<i>crucis.</i>	"	...	...	...	27
412	—	<i>costata.</i>	<i>Sow.</i>	...	...	...	27
413	—	<i>cantharus.</i>	<i>Reeve</i>	...	...	...	27
414	—	<i>flammea.</i>	<i>Quoy</i>	...	...	...	27
415	—	<i>conoidea.</i>	"	...	...	...	27
416	—	<i>Petterdi.</i>	<i>T.-Woods</i>	...	...	...	27
417	—	<i>alba.</i>	"	...	...	...	27
418	<i>Patella</i>	<i>aculeata.</i>	<i>Reeve</i>	...	...	...	27
419	—	<i>tramoserica.</i>	<i>Martyn</i>	...	...	...	27
420	—	<i>decora.</i>	<i>Philippi</i>	...	...	...	27
421	—	<i>ustulata.</i>	<i>Reeve</i>	...	...	...	27
422	—	<i>Tasmanica.</i>	<i>T.-Woods</i>	...	...	...	27
423	—	<i>Chapmani.</i>	"	...	...	...	27
424	—	<i>radicans.</i>	<i>Gmelin</i>	...	...	...	27

(li.) Family CHITONIDÆ. (sp. 11.)

425	<i>Chiton</i> (<i>Lophyrus</i>)	<i>Australis.</i>	(<i>R. Mag. Nat. Hist.</i> 1840)	...	...	...	27
426	—	(<i>Lepidopleurus</i>) <i>liratus.</i>	<i>Ad. and Angas</i>	...	...	...	27
427	—	"	<i>speciosus.</i>	"	...	...	27
428	—	<i>piceus.</i>	<i>Gmel.</i>	...	...	...	27
429	—	<i>proteus.</i>	<i>Reeve</i>	...	...	...	27
430	—	<i>Sinclairi?</i>	<i>Gray</i>	...	...	...	27

142 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

431	<i>Chiton glaucus</i>.	"	...	...	...	...	27
432	——— (<i>Plaxifora</i>) <i>petholatus</i> .	Sow.	<i>C. ciliata</i> .	Sow?			27
433	——— (<i>Acanthochites</i>) <i>Zelandius</i> .	Quoy.	Probably identical with <i>C. crinitus</i>	Pennart, and			
	<i>C. fascicularis</i>	...	...	...	...		27
434	<i>Chitonellus</i> (<i>Cryptoplax</i>) <i>Gunni</i> .	Reeve	...	...			27
435	——— "	<i>spinosa</i> .	<i>A. Adams</i>	...	...		27

OPISTHOBRANCHIATA.

(lii.) Family PHILINIDÆ. (sp. 1.)

436	<i>Philine aperta</i> .	Linne	27
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(liii.) Family TORNATELLIDÆ. (sp. 2.)

437	<i>Tornatina</i> <i>Mariæ</i> .	<i>T. Woods</i>		27
438	<i>Ringicula Australis</i> .	<i>Crosse</i>		27

(liv.) Family CYLICHNIDÆ. (sp. 2.)

439	<i>Cylichna arachis</i> .	<i>Quoy and Sow.</i>	...	...	...		27
440	——— <i>Atkinsoni</i> .	<i>T. Woods</i>	...	...	...		27

(lv.) Family BULLIDÆ. (sp. 2.)

441	<i>Bulla oblonga</i> .	<i>A. Adams</i>	...	...	...	...	27
442	<i>Haminea obesa</i> .	<i>Sow.</i>	27

(lvi.) Family LOPHOCERCIDÆ. (sp. 1.)

443	<i>Akera Tasmanica</i> .	<i>Beddome</i>		49
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(lvii.) Family APLYSIDÆ. (sp. 2.)

444	<i>Aplysia concava</i> .	<i>Sow.</i>	27
445	——— <i>Tasmanica</i> .	<i>T. Woods</i>	27

PULMONATA.

(lviii.) Family VITRINIDÆ. (sp. 3.)

446	<i>Vitrina Milligani</i> .	<i>Pfeiffer</i>	...	...	...	...	22, 34, 40
447	——— <i>Verreauxi</i>.	"	...	...	...	...	22, 34, 40
448	——— <i>fumosa</i> .	<i>T. Woods</i>	...	...	...	...	34, 40

(lix.) Family HELICIDÆ. (sp. 73.)			
449	<i>Helix architectonica.</i> <i>Brazier</i>	...	...
450	— <i>antialba.</i> (<i>Beddome</i>	...	...
451	— <i>Bassi.</i> <i>Brazier</i>	...	...
452	— <i>Barrenensis.</i> <i>Petterd</i>	...	...
453	— <i>bisulcata.</i> (<i>Pfr.</i>)	...	...
454	— <i>Bischoffensis.</i> <i>Beddome</i>	...	...
455	— <i>cellaria.</i> <i>Mueller</i> *	...	...
456	— <i>cæsus.</i> <i>Cox</i>	...	...
457	— <i>Collisi.</i> <i>Brazier</i>	...	...
458	— <i>Curaçœ.</i> "	...	...
459	— <i>Diemenensis.</i> <i>Cox</i>	...	...
460	— <i>direlecta.</i> "	...	...
461	— <i>dispar.</i> <i>Brazier</i>	...	...
462	— <i>Du Cani.</i> <i>Cox</i>	...	...
463	— <i>Dyeri.</i> <i>Petterd</i>	...	...
464	— <i>Fordei.</i> <i>Brazier</i>	...	...
465	— <i>Furneauxensis.</i> <i>Petterd</i>	...	...
466	— <i>Gunni.</i> <i>Brazier</i>	...	...
467	— <i>Gadensis.</i> <i>Beddome</i>	...	...
468	— <i>Hamiltoni.</i> <i>Cox</i>	...	...
469	— <i>Hobarti.</i> "	...	...
470	— <i>Halli.</i> "	...	...
471	— <i>Henryana.</i> <i>Petterd</i>	...	...
472	— <i>Hookeriana.</i> <i>R. M. Johnston</i>	...	...
473	— <i>jungermanniæ.</i> <i>Petterd</i>	...	...
474	— <i>Kingi.</i> <i>Brazier</i>	...	...
475	— <i>Kershawii.</i> <i>Petterd</i>	...	...
476	— <i>lampra.</i> (<i>Pfr.</i>)	...	...
477	— <i>Launcestonensis.</i> <i>Reeve</i>	...	...
478	— <i>Legrandi.</i> <i>Cox</i>	...	...
479	— <i>lamproides.</i> "	...	...
480	— <i>Luckmani.</i> <i>Brazier</i>	...	...
481	— <i>limula.</i> <i>Cox</i>	...	...
482	— <i>Langleyana.</i> <i>Brazier</i>	...	...
483	— <i>Lottah.</i> <i>Petterd</i>	...	...
484	— <i>Morti.</i> <i>Cox</i>	...	...
485	— <i>mimosa.</i> <i>Petterd</i>	...	...
486	— <i>marchianæ.</i> <i>Cox</i>	...	...
487	— <i>M'Donaldii.</i> "	...	...
488	— <i>Matlinna.</i> <i>Petterd</i>	...	...
489	— <i>Nelsonensis.</i> <i>Brazier</i>	...	...
490	— <i>Officieri.</i> <i>Cox</i>	...	...
491	— <i>Otwayensis.</i> <i>Petterd</i>	...	...
492	— <i>parvissima.</i> <i>Cox</i>	...	...
493	— <i>positura.</i> "	...	...
494	— <i>plexus.</i> "	...	...
495	— <i>Petterdi.</i> <i>Brazier</i>	...	...
496	— <i>pictilis.</i> <i>Tate</i>	...	...

22, 35, 40

* The three species so marked have been introduced from Europe, and are now abundant in Launceston and Hobart, in gardens or cellars.

144 PROVISIONAL AID TO THE STUDY OF TASMANIAN MOLLUSCA.

497	<i>Helix pulchella.</i>	<i>Mueller</i> *	...	...
498	— <i>questiosa.</i>	<i>Cox</i>	...	...
499	— <i>ruga</i>	"	...	...
500	— <i>rotella.</i>	<i>Brazier</i>	...	...
501	— <i>Roblini.</i>	<i>Petterd</i>	...	...
502	— <i>Sinclairi.</i>	(Pfr.)	...	...
503	— <i>subangulata.</i>	(Prf.)	...	...
504	— <i>sitiens.</i>	<i>Cox</i>	...	...
505	— <i>Stephensi.</i>	<i>Cox</i>	...	...
506	— <i>subrugosa.</i>	<i>Brazier</i>	...	...
507	— <i>Spiceri.</i>	<i>Petterd</i>	...	...
508	— <i>Stanleyensis.</i>	"	...	...
509	— <i>Savési.</i>	"	...	...
510	— <i>Tasmaniae.</i>	<i>Cox</i>	...	...
511	— <i>tranquilla.</i>	"	...	...
512	— <i>Trucanini.</i>	<i>Petterd</i>	...	...
513	— <i>tractura.</i>	<i>Cox</i>	...	...
514	— <i>Tamarensis.</i>	<i>Petterd</i>	...	...
515	— <i>vitrinaformis.</i>	<i>Cox</i>	...	...
516	— <i>Wynyardensis.</i>	<i>Petterd</i>	...	...
517	— <i>Weldii.</i>	<i>T. Woods</i>	...	...
517a	— <i>aspersa.</i>	" *	...	...
518	— <i>Brunonia.</i>	<i>R. M. Johnston</i>	...	...	56.
519	<i>Bulimus Dufresni.</i>	<i>Leach</i>	...	...	22, 35, 40
520	— <i>Tasmanicus.</i>	<i>Pfeiffer</i>	22, 35, 40

(lx.) Family PUPIDÆ. (sp. 1.)

521	<i>Pupa Lincolnensis.</i>	<i>Angas</i>	48.
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(lxi.) Family LIMACIDÆ. (sp. 1.)

522	<i>Limax Legrandi.</i>	<i>Tate</i>	42
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(lxii.) Family ARIONIDÆ. (sp. 1.)

523	<i>Cystopelta Petterdi.</i>	<i>Tate</i>	42
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(lxiii.) Family SUCCINEIDÆ. (sp. 4.)

524	<i>Succinea Legrandi.</i>	<i>Cox</i>	22, 35, 40
525	— <i>Australis.</i>	<i>Pfeiffer</i>	22, 35, 40

(lxiv.) Family AURICULIDÆ. (sp. 4.)

526	<i>Cassidula zonata.</i>	<i>H. and A. Adams.</i>	<i>Auricula Dyeranti,</i>		
	<i>T. Woods, 27</i>	...	...	...	32
527	<i>Alexia Harrisoni.</i>	<i>Beddome</i>	...	...	49
528	<i>Marinula pellucida.</i>	<i>Cooper</i>	...	...	27
529	<i>Ophicardelus cornica.</i>	<i>Swainson.</i>	<i>Auricula Australis.</i>		
	<i>Martyn</i>	...	...	...	27

(Lxv.) Family LIMNÆIDÆ. (sp. 27.)

530	<i>Limnæa</i>	<i>Sub-aquatilis</i> .	<i>Tate</i> .	Var. <i>a neglecta</i>	...	57
531	—	<i>Gunnii</i> .	<i>Petterd</i>	...	...	57
532	—	<i>lutosa</i>.	"	...	...	57
533	—	<i>stagnalis</i>	"	(Introduced)	...	57
534	<i>Amphipeplea</i>	<i>Launcestonensis</i> .	<i>T.-Woods</i>	...	...	33, 57, 58
535	—	"	?	(Var. <i>Papyracea</i>)	<i>Tate</i> ...	57
536	<i>Physa</i>	<i>Van Diemenensis</i> .	<i>Sow.</i>	} Possibly var. of <i>P. nitida</i> 28, 33, 45, 58		
537	—	<i>aperta</i>	"			
538	—	<i>nitida</i> .	"			
539	—	<i>Huonensis</i> .	<i>T.-Woods</i>			
540	—	<i>Bruniensis</i> .	"			
541	—	<i>Tasmanicola</i>	"			
542	—	<i>Huonicola</i> .	"			
543	—	<i>eburnea</i> .	<i>Sow.</i>			
544	—	<i>attenuata</i> .	"			
545	—	<i>mamillata</i> .	"			
546	—	<i>Tasmanica</i> ?	<i>T.-Woods</i>	} Possibly a var. of <i>P. nitida</i>		
547	—	<i>Legrandi</i> ?	<i>T.-Woods</i> .			
548	<i>Planorbis</i>	<i>meridionalis</i> .	<i>Brazier</i>	} <i>P. Tasmanicus</i> . <i>T.-Woods</i> 33, 58, 57		
549	—	<i>Atkinsoni</i> .	<i>R. M. Johnston</i>			
550	—	<i>Scottiana</i> .	"			
551	—	<i>Australianus</i> .	<i>Martens</i> .	Probably identical with <i>P. meridionali</i> .		
552	<i>Ancylus</i>	<i>Cumingianus</i> .	<i>Bourg.</i>	...	...	28, 33, 58
553	—	<i>Irvine</i> ?	<i>Petterd</i> .	Probably large variety of the variable <i>A. Cumingianus</i>		57, 58
554	—	<i>Tasmanicus</i> .	<i>T.-Woods</i>	...	...	28, 33, 58
555	<i>Gundlachia</i>	<i>Petterdi</i> .	<i>R. M. Johnston</i>	...	...	33, 58
556	—	<i>Beddomi</i> ?	<i>Petterd</i> .	Probably a variety of <i>G. Petterdi</i>		57

(Lxvi.) Family AMPHIBOLIDÆ. (sp. 3.)

557	<i>Amphibola</i>	(<i>Ampullarina</i>)	<i>fragilis</i> .	<i>Quoy</i>	...	27
558	—	"	<i>Quoyana</i> .	<i>Desh.</i>	...	27
559	—	"	<i>minuta</i> .	<i>T.-Woods</i>	...	27

(Lxvii.) Family SIPHONARIIDÆ. (sp. 3.)

560	<i>Siphonaria</i>	<i>Diemenensis</i> .	<i>Quoy</i>	...	...	27
561	—	<i>denticulata</i> .	<i>Quoy and Gaim</i>	...	...	27
562	—	<i>zonata</i> .	<i>T.-Woods</i>	...	...	27

CLASS SCAPHOPODA.

(Lxviii.) Family DENTALIDÆ. (sp. 2.)

563	<i>Dentalium</i>	<i>Tasmaniensis</i> .	<i>T.-Woods</i>	...	...	27
564	—	<i>Weldiana</i>.	"	...	...	27

CLASS PELECYPODA.

(SINUPALLIATA.)

(lxix.) Family GASTROCHÆNIDÆ. (sp. 2.)

565	<i>Aspergillum</i> (<i>Humphreya</i>)	<i>Strangei</i>	..	...	27
566	<i>Gastrochaena</i>	<i>Tasmanica</i>	<i>T.-Woods</i>	27

(lxx.) Family TEREDIDÆ. (sp. 1.)

567	<i>Teredo</i>	<i>navalis</i>	<i>Gray</i>	...	27
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(lxxi.) Family PHOLADIDÆ. (sp. 1.)

568	<i>Barnea</i>	<i>Australasia</i>	<i>Gray</i>	...	27
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(lxxii.) Family SOLENIDÆ. (sp. 1.)

569	<i>Solen</i>	<i>vaginoides</i>	<i>Lam.</i>	...	27
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(lxxiii.) Family SAXICAVIDÆ. (sp. 2.)

570	<i>Saxicava</i>	<i>Australis</i>	<i>Lam.</i>	...	27
571	<i>Panopæa</i>	<i>Australis</i>	<i>Sow</i>	...	27

(lxxiv.) Family CORBULIDÆ. (sp. 3.)

572	<i>Corbula</i>	<i>Zelandica</i> ?	<i>Quoy.</i>	(Doubtful.)	<i>T.-Woods</i>	...	27
573	—	<i>erythrodon</i>	<i>Lam.</i>	"	"	...	27
574	<i>Nerita</i>	<i>Tasmanica</i>	<i>T.-Woods</i>	...	...	...	27

(lxxv.) Family ANATINIDÆ. (sp. 11.)

575	<i>Anatium</i>	<i>anserifera</i>	<i>Spengler</i>	...	...	...	27
576	—	<i>creccina</i>	<i>Valence</i>	...	...	...	27
577	—	<i>Tasmanica</i>	<i>Reeve</i>	...	...	...	27
578	—	<i>Angasi</i>	<i>Crosse</i>	...	...	...	27
579	<i>Myodora</i>	<i>brevis</i>	<i>Stutchbury</i>	...	...	...	27
580	—	<i>ovata</i> ?	<i>Reeve.</i>	(Doubtful if identical with			
			<i>Reeves'</i>	<i>species.</i>	<i>(T.-Woods)</i>	..	27
581	—	<i>pandoriformis</i>	<i>Stutchbury</i>	...	...	...	27
582	—	<i>Tasmanica</i>	<i>T.-Woods</i>	...	...	...	27
583	—	<i>albida</i>	"	...	...	...	27
584	<i>Myochama</i>	<i>anomioides</i>	<i>Stutchbury</i>	...	...	...	27
585	—	(sp. indet)	...	...	...	...	27

(lxxvi.) Family MACTRIDÆ. (sp. 4.)

586	<i>Mactra</i>	<i>rufescens</i>	<i>Lam.</i>	...	...	...	27
587	—	<i>pura</i>	<i>Deshayes</i>	..	...	...	27
588	—	<i>cretacea</i>	<i>Angas</i>	...	...	...	27
589	<i>Lutraria</i>	<i>dissimilis</i>	<i>Deshayes</i>	...	...	...	27

(lxxvii.) Family PAPHIDÆ. (sp. 5.)

590	<i>Paphia</i> (<i>Anapa</i>) <i>triquetrum</i> . <i>Hanley</i>	27
591	—— " <i>Tasmanica</i> . <i>T.-Woods</i> . Possibly a variety of <i>P. triquetrum</i>	27
592	—— (<i>Donacilla</i>) <i>elongata</i> . <i>Deshayes</i>	27
593	—— (<i>Mesodesma</i>) <i>erycina</i> . <i>Lam.</i>	27
594	—— " <i>precæsia</i> . <i>Deshayes</i>	27
595	—— " <i>Diemenensis</i> . <i>Quoy and Gaim</i>	44

(lxxviii.) Family SEMELIDÆ. (sp. 3.)

596	<i>Semele</i> <i>decora</i> . <i>A. Adams</i>	27
597	—— <i>exigua</i> . <i>H. Adams</i>	27
598	—— <i>Warburtoni</i> . <i>T.-Woods</i>	27

(lxxix.) Family TELLINIDÆ. (sp. 13.)

599	<i>Tellina</i> <i>deltoidalis</i> . <i>Lam.</i>	27
600	—— <i>albinella</i> . "	27
601	—— <i>umbonella</i> . "	44
602	—— <i>diemenensis</i> . <i>Deshayes</i>	27
603	—— <i>Tristis</i> . "	27
604	—— (<i>Arceopagia</i>) <i>decussata</i> . <i>Lam.</i>	27
605	—— <i>Mariæ</i> . <i>T.-Woods</i>	27
606		
607	<i>Gari</i> <i>compta</i> . <i>Deshayes</i>	27
608	—— <i>zonalis</i> . <i>Lam.</i>	27
609	—— <i>Atkinsoni</i> . <i>Brazier</i>	27
610	<i>Hiatula</i> <i>epidermia</i> . <i>Deshayes</i>	27
611	—— <i>vitrea</i> . "	27

(lxxx.) Family VENERIDÆ. (Sp. 26.)

612	<i>Venus</i> (<i>Chione</i>) <i>Humphreyi</i> . <i>Donovan</i>	27
613	—— " <i>conularis</i> . <i>Lam.</i> } <i>V. Aphrodinoides</i>	27
614	—— " <i>lamellata</i> . " } <i>V. Scalarina</i> ...	27
615	—— " <i>Stutchburyi</i> . <i>Gray</i>	27
616	—— " <i>roborata</i> . <i>Hanley</i>	27
617	—— " <i>gallinula</i> . <i>Lam.</i>	27
618	—— " <i>Macleayana</i> . <i>T.-Woods</i>	27
619	—— " <i>striatissima</i> . <i>Sow.</i>	27
620	—— " <i>Australis</i> . "	27
621	—— " <i>laevigata</i> . "	27
622	—— " <i>fumigata</i> ? " Doubtful species ...	27
623		
624	<i>Cytherea</i> (<i>Callista</i>) <i>Diemenensis</i> . <i>Hanley</i>	27
625	—— " <i>plauatella</i> . <i>Chemnitz</i> ?	27
626	—— " <i>candida</i> ? <i>Deshayes</i> . Unknown. (<i>T.-Woods</i>)	27
627	—— " <i>disrupta</i> . <i>Sow.</i>	27
628	—— " <i>citrina</i> ? <i>Lam.</i>	27

629	<i>Cytherea</i> (<i>Callista</i>) <i>rutila</i> ?	<i>Deshayes</i> .	Doubtful.	
	(<i>T.-Woods</i>)	...	...	27
630	— " <i>Victoriae</i> .	<i>T.-Woods</i>	...	27
631	— (<i>Gouldia</i> .) <i>Petterdi</i> .	"	...	27
632	<i>Dosinia grata</i> .	<i>Deshayes</i> ...	...	27
633	— <i>japonica</i> ?	<i>Reeve</i> . Doubtful.	(<i>T.-Woods</i> .)	27
634	— <i>coryne</i> .	<i>A. Adams</i>	...	27
635	— <i>crocea</i> .	<i>Deshayes</i> ...	...	27
636	— <i>immaculata</i> .	<i>T.-Woods</i>	...	27
637	<i>Tapes undulata</i> .	<i>Born</i> . Rare.	...	27

INTEGRIPALLIATA.

(lxxxii.) Family CYRENIDÆ. (sp. 4.)

638	<i>Corbicula Brunnea</i> ?	Prime. Doubtful	...	44
639	<i>Pisidium Tasmanicum</i> .	<i>T.-Woods</i> ...	...	28
640	— <i>Dulvertonensis</i> .	"	...	28
641	<i>Sphærium</i> (<i>Cyclas</i>) <i>Tasmanica</i> .	<i>T.-Woods</i>	...	28

(lxxxiii.) Family PETRICOLIDÆ. (sp. 6.)

642	<i>Rupellaria Diemenensis</i> .	<i>Quoy and Gaim</i>	...	27
643	— <i>brevis</i> ?	"	Doubtful.	27
644	— <i>reticulata</i> .	<i>T.-Woods</i> ...	...	27
645	— <i>crenata</i> .	<i>Lam.</i> ...	...	27
646	— <i>sub-decussata</i> .	<i>Deshayes</i> ...	...	27
647	— <i>carditoides</i> .	<i>Lam.</i> ...	...	27

(lxxxiiii.) Family CARDIIDÆ. (sp. 4.)

648	<i>Cardium tenuicostatum</i> .	<i>Lam.</i> ...	...	27
649	— <i>pulchellum</i> .	<i>Reeve</i> ...	...	27
650	— <i>papyraceum</i> ?	<i>Chemnitz</i> . Probably var. of		
	<i>C. tenuicostatum</i>	27
651	— <i>cygnorum</i> .	<i>Deshayes</i>	27

(lxxxv.) Family CHAMIDÆ. (sp. 1.)

652	<i>Chama</i> (sp. indet)	27
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(lxxxv.) Family LUCINIDÆ. (sp. 4.)

653	<i>Lucina</i> (<i>Cyclas</i>) <i>divaricata</i> .	<i>Linne</i>	27
654	— " <i>minima</i> .	<i>T.-Woods</i>	27
655	— " <i>pecten</i> .	<i>Lam.</i> ...	...	27
656	<i>Loripes icterica</i>	<i>Reeve</i> ...	...	27

(lxxxvi.) Family UNGULINIDÆ. (sp. 1.)

657	<i>Mysia Tasmanica</i> .	<i>T.-Woods</i> . <i>Diplodonta</i> .	<i>T.-Woods</i>	27
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(lxxxvii.) Family ERYCINIDÆ (sp. 4.)

658	<i>Lasaca</i> (<i>Poronia</i> ? <i>australis</i> . <i>Sow</i> 27
659	— " ? <i>scalaris</i> . <i>Phil.</i> 27
660	<i>Kellia Atkinsoni</i> . <i>T.-Woods</i> 27
661	— (Pythina) <i>Tasmanica</i> , <i>T.-Woods</i> 27

(lxxxviii.) Family CRASSATELLIDÆ (sp. 3.)

662	<i>Crassatella Kingicola</i> . <i>Lam.</i> 27
663	— <i>aurora</i> . <i>Ad. and Angus</i> 27
664	— <i>Banksii</i> . " 27

(xxxix.) Family ASTARIDÆ (sp. 6.)

665	<i>Cardita Raouli</i> . <i>Angas</i> 27
666	— <i>Quoyi</i> . <i>Deshayes</i> 27
667	— <i>Gunni</i> . " 27
668	— <i>amabilis</i> . " 27
669	<i>Myticardia Tasmanica</i> . <i>T.-Woods</i> 27
670	— <i>excavata</i> . <i>Deshayes</i> 27

HOMOMYARIA.

(xc.) Family UNIONIDÆ (sp. 1.)

671	<i>Unio Moretonicus</i> ? <i>Reeve</i> . Very variable in form, probably one of the many varieties of <i>U. Australis</i> 28, 59
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(xci.) Family TRIGONIDÆ (sp. 1.)

672	<i>Tregonia Margaritacea</i> . <i>Lam.</i> 27
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(xcii.) Family NUCULIDÆ (sp. 4.)

673	<i>Nucula Grayi</i> . <i>D'Orb.</i> 27
674	— <i>minuta</i> . <i>T.-Woods</i> 27
675	<i>Leda crassa</i> . <i>Hinds</i> 27
676	— <i>Lefroyi</i> . <i>Beddome</i> 49

(xciii.) Family ARCIDÆ (sp. 9.)

677	<i>Arca trapezia</i> . <i>Desh.</i> 27
678	— <i>fasciata</i> . <i>Reeve</i> 27
679	— <i>semitorta</i> , <i>Lam.</i> 44
680	— <i>pistachia</i> " 44
681	— <i>squamosa</i> " 44
682	<i>Pectunculus radians</i> " 27
683	— <i>obliquus</i> . <i>Reeve</i> ? 27
684	— <i>flabellatus</i> . <i>T.-Woods</i> . <i>P. orbicularis</i> ... <i>Angas</i> ? 44
685	<i>Linopsis Tenisoni</i> . <i>T Woods.</i> 27

HETEROMYARIA.

(xciv.) Family MYTILIDÆ. (sp. 10.)

686	<i>Mytilus</i> <i>latus</i> . <i>Lam.</i>	...	...	...	...	27
687	— <i>Tasmanicus</i> . <i>T.-Woods</i> .	Doubtfully distinct				
	from last	...	...	...	...	27
688	— <i>Dunkeri</i> . <i>Reeve</i>	...	...	...	...	27
689	— <i>rostratus</i> . <i>Dunker</i>	...	...	...	...	27
690	— <i>hirsutus</i> . <i>Lam.</i>	...	...	...	...	27
691	— <i>crassus</i> . <i>T.-Woods</i>	...	...	...	...	27
692	<i>Modiola</i> <i>Australis</i> . <i>Gray</i> .	Doubtfully distinct from <i>M.</i>				
	<i>tulipæ</i> . (<i>T.-W.</i>)	...	...	...	...	27
693	— <i>albicostata</i> . <i>Lam.</i>	...	...	...	...	27
694	— <i>arborescens</i> . <i>Chemnitz</i>	...	...	...	...	27
695	<i>Modiolaria</i> <i>Cumingiana</i> . <i>Dunker</i>	...	...	...	...	27

(xcv.) Family AVICULIDÆ. (sp. 4.)

696	<i>Avicula</i> <i>pulchella</i> . <i>Reeve</i>	...	...	...	...	27
697	— (<i>Meleagrina</i>) <i>alba</i> . <i>Lam.</i>	...	...	...	...	44
698	<i>Crenatula</i> <i>modiolaris</i> . <i>Lam.</i>	...	...	...	...	44
699	<i>Vulsella</i> <i>Tasmanica</i> . <i>Reeve</i>	27

(xcvi.) Family PINNIDÆ. (sp. 1.)

700	<i>Pinna</i> <i>Tasmanica</i> . <i>T.-Woods</i>	27
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MONOMYARIA.

(xcvii.) Family SPONDYLIDÆ. (sp. 1.)

701	<i>Spondylus</i> <i>tenellus</i> . <i>Reeve</i>	27
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(xcviii.) Family PECTINIDÆ. (sp. 5.)

702	<i>Pecten</i> <i>meridionalis</i> . <i>Tate</i> . 54. <i>P. fumatus</i> . <i>Linne</i> .					
	<i>T.-Woods</i>	...	...	...	...	27
703	— <i>asperimus</i> . <i>Lam.</i>	...	...	...	...	27
704	— <i>bifrons</i>. "	...	...	...	...	27
705	— <i>Atkinos</i> . <i>Petterd</i> . Allied to <i>P. asperimus</i>	...	...	...	...	53
706	— <i>Mariae</i> . <i>T.-Woods</i>	...	...	...	...	27

(xcix.) Family LIMIDÆ. (sp. 2.)

707	<i>Lima</i> (<i>Radula</i> ?) <i>lima</i> . <i>Linne</i>	...	...	...	...	27
708	— " <i>bullata</i> . <i>Born</i>	27

(c.) Family ANOMIDÆ. (sp. 1.)

709	<i>Placunanomia</i> <i>Zealandica</i> ? <i>Gray</i> .	Doubtful.	27
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CLASSES AND SUB-CLASSES.

Classes and Sub-classes	Head	Body	Eyes	Mouth furnished with	Respiration by means of	Locomotion effected by	Shell
I. Cephalopoda...	Large ...	Often massive, enclosed in sack-like mantle ...	None ... or pedunculate ... None ... Stalked or sessile ...	Two horny beaks ...	Plume-like gills ...	Tentacular arms ...	Internal
II. Platyopoda ...	More or less distinct ...	Sack-like ...		Lingual armature ...	Branchiae external or internal ...	Two lateral swimming discs ...	Internal, external, or absent
III. Gasteropoda : Prosobranchiata. Opisthobranchiata. Pulmonata.	Distinct ...	" " ...		" " ...	Gills or branchiae ...	Crawling, gliding or disc ...	Mostly univalve, spiral, or conical
IV. Scaphopoda ...	Rudimentary ...	Worm-like ...	None ...	Thread-like tentacles ...	Branchiae (s) ...	" " ...	Straight or curved tube.
V. Polymyopoda ...	None ...	Enclosed in a mantle ...	None or rudimentary ...	Four fleshy leaflets ...	Gills only ...	A foot with statocysts ...	Rivalve binged.
VI. Brachiopoda ...	None ...	Inconspicuous, with two equal ciliated worm-like arms ...	None ...	Long filaments ...	Mantle lobes, no branchiae ...	Gills when young; fixed in the adult.	Bivalve with perforated beak.

ORDERS AND SUB-ORDERS

Orders and Sub-Orders.		Distinguishing Characters.	
I.	Dibranchiata ...	Gills, a single pair.	
	Octopoda ...	" ; arms eight	(Fam. i. ——— ii.
	Decapoda ...	" ; arms, ten	" iii. ——— v.
II.	Tetrabranchiata ...	" two pairs	" vi. ———
	Threcomata ...	" within mantle cavity; has an external shell	" ———
	Gynostomata ...	" indistinct; naked, no shell	" ———
III.	Pectinobranchiata ...	" in front of the heart; shell spiral	" ———
	Scutibranchiata ...	" ———	" ———
	Podopthalma ...	" ———	" ———
	Ectriopthalma ...	" ———	" ———
	Polydactylophora ...	" ———	" ———
	Nucleobranchiata ...	" ———	" ———
	Testibranchiata ...	" ———	" ———
	Nudibranchiata ...	" ———	" ———
	Anthobranchiata ...	" ———	" ———
	Aiolobranchiata ...	" ———	" ———
IV.	Stylomatophora ...	Terrestrial, four tentacles; eyes at the end of superior pair of tentacles	" ———
	Monotremata ...	" ———	" ———
	Ditremata ...	" ———	" ———
	Basomatophora ...	" ———	" ———
	Gehydrotula ...	" ———	" ———
	Hygrophila ...	" ———	" ———
	Thalassophila ...	" ———	" ———
V.	Scaphiophora ...	Shell open at both ends; straight or curved tube, not spiral	" ———
	Siphonata ...	Having two well-developed muscular impressions	" ———
	Sinopalliatia ...	Siphon long; pallial impression with a sinus...	" ———
VI.	Asiphonata ...	" short	" ———
	Homomyaria ...	" simple, without sinus	" ———
	Heteromyaria ...	No siphons; pallial impression without a sinus	" ———
VII.	Monomyaria ...	Muscular impressions; two equally distinct	" ———
	" ———	" anterior small, posterior large	" ———
	" ———	" one posterior...	" ———
VIII.	Arthropomata ...	Shell usually articulated with hinge teeth; arms generally supported by an internal shelly process	" ———
	Lycopomata ...	Shell not usually articulated with hinge teeth; arms free, not supported by an internal shelly process	" ———



(ci.) Family OSTREIDÆ. (sp. 4.)

710	<i>Ostrea edulis?</i>	<i>Linne</i>	...	...	...	...	27
711	— <i>mordax.</i>	<i>Gould</i>	...	...	...	...	27
712	— <i>rutupina.</i>	<i>Jeff</i>	...	...	...	...	27
713	— <i>Angasi.</i>	<i>Sow.</i>	...	...	...	...	27

MOLLUSCOIDA.

CLASS BRACHIOPODA.

(cii.) Family TEREBRATULIDÆ. (sp. 3.)

714	<i>Waldheimia flavescens.</i>	<i>Lam.</i>	...	...	...	27
715	<i>Kraussia Lamarckiana.</i>	<i>Davidson</i>	...	...	...	27
716	— <i>Atkinsoni.</i>	<i>T.-Woods</i>	...	...	...	27

CORRIGENDA.

Page	7	FOR	Pelecypoda	READ	Pelecypoda.
"	38	"	Trochocochlea	"	Trochocochlea.
"	48	"	Parnea	"	Barnea.
"	74	"	Urosalpinx	"	Urosalpinx.
"	76	"	Ancillari	"	Ancillaria.
"	"	"	Aesopus	"	Æsopus.
"	77	"	Cancellari	"	Cancellaria.
"	"	"	Cythara	"	Cithara.
"	78	"	Cassmaria	"	Casmaria.
"	79	"	Cirostrema	"	Cirsotrema.