

This genus has many characters in common with the genus *Batrachoseps*; but it differs in the tail (which is twice as long as the body and head) being cylindrical and of the same diameter and subannulated appearance as the body and head, giving the whole animal the appearance of a *Cæcilia* or worm.

*Ophiobatrachus vermicularis.*

Black. Length of the body and head  $2\frac{1}{8}$  inches, of the tail  $4\frac{1}{4}$  inches.

*Hab.* Costa Rica (Osbert Salvin, Esq.). B.M.

XXXVII.—*Last Report on Dredging among the Shetland Isles.*  
By J. GWYN JEFFREYS, F.R.S.\*

THIS was my seventh expedition to the northern extremity of our seas, and occupied the whole of the summer. It was not so successful as those in some previous years, owing to the stormy state of the weather. While my friends in England, Wales, Ireland, and Scotland were enjoying calm sunshine, our climate was exactly the reverse; and the persevering course of the wind (from north-west to south-west) prevented our doing much at sea. The North Sea is notoriously subject to broken weather, this being the point where the warm air induced by the Gulf Stream and westerly winds meets the cold air brought down by the arctic current. The fauna of the Shetland waters, however, is by no means exhausted. Every expedition has produced novelties, not only in the Mollusca, but in all other departments of marine zoology.

On the present occasion I obtained, at a depth of 120 fathoms, a living specimen and a larger dead one of a fine species of *Pleurotoma*, *P. carinata* of Bivona. It was originally described as a Calabrian fossil; and Searles Wood records a single specimen having been found in the Coralline and another in the Red Crag. Professor Sars and Mr. M'Andrew dredged a few specimens off the coasts of Norway; and the former gave some interesting particulars of the animal, which I have been able to confirm by my own observation. Although allied to *P. nivalis*, and found in the same locality, it has distinct eyes placed on rather prominent stalks or ommatophores, whereas *P. nivalis* has no eyes nor any trace of eye-stalks. On this account Sars proposed the generic name *Typhlomangelia* for the latter species; but it must be borne in mind that *Eulima stenostoma* is also eyeless, and yet is closely related to

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its congeners and companions, all of which have very conspicuous eyes. It is a somewhat remarkable coincidence that the shell of *E. stenostoma* resembles a large *Achatina acicula* (a land mollusk), which is in the same category as regards these so-called organs of sight. The shells of *P. carinata* and *P. nivalis* are easily distinguishable.

Among the rarer and more noteworthy mollusks procured this year were the following:—

*Montacuta tumidula*. St. Magnus Bay and near Fetlar. Described by me from the Hebrides in the Reports of the Association for 1866.

*M. donacina*, S. Wood. A single valve from deep water in St. Magnus Bay. Another valve had been dredged by me at Falmouth in 1839. It is a rare Coralline Crag fossil. Its nearest ally is *M. substriata*.

*Utriculus globosus*, Lovén. A small living specimen occurred again in St. Magnus Bay.

*U. expansus*, Jeffr. A few young specimens also in St. Magnus Bay.

*Odostomia Warreni*, Thompson. Never having seen this shell in a fresh and perfect state, I considered it (Brit. Conch. iv. p. 143) a variety of *O. obliqua*. But the discovery of live specimens in St. Magnus Bay and near Fetlar enables me to separate the two as distinct species. *O. Warreni* has a shorter spire and more swollen whorls than *O. obliqua*, the suture is deeper, the striæ are much stronger at the base of the shell, the whole surface is covered with most delicate and close-set microscopic spiral lines, and the umbilicus is well developed and deep. The animal of *O. Warreni* has a peculiar foot; this is not plain and rounded at its extremity, as in *O. obliqua*, but is deeply bilobed or forked like the tail of a swallow. No other species of *Odostomia*, so far as I am aware, has a similar foot. One individual spun a fine glutinous thread from the middle of the sole of the foot, and kept itself suspended for some time from the surface of the water, with the point of the shell downwards. I found a dead specimen of *O. obliqua* on the same ground with *O. Warreni*.

*O. umbilicaris*, Malm. A young specimen from St. Magnus Bay, nearly globular, and thus exhibiting the same distinctive characters as the adult.

*Siphonodentalium Lofotense* and *Cadulus* (or *Loxoporus*) *subfusiformis* again occurred, the former being more widely distributed. Both inhabit the Mediterranean; and the latter is a Sicilian and Viennese fossil. I had an excellent opportunity of observing them alive and in active motion. The thread-like and extensile organs by which the Solenoconchia seize their prey are unlike the tentacles of any Gastropod, and their

function is quite different. I would call these organs *captacula*, an appropriate word and not less classically formed than *tentacula*.

*Leda pernula* was again dredged in St. Magnus Bay; but with it was a dead and apparently semifossil valve of *Tellina calcarea*. I must therefore hesitate in considering the one more than the other recent or an inhabitant of the British seas at the present time.

Being in the south of Europe last winter I undertook the examination of the Mediterranean and Adriatic shells; and the result greatly surprised as well as interested me. The dredgings of Capt. Acton (the Commandant of the Italian navy) in the Gulf of Naples, and the extensive collections of Dr. Tiberi at Portici, General Stefanis at Naples, Herr Weinkauff from Algeria, and of Dr. Brusina at Zara, especially yielded a vast quantity of new material for a comparison of the marine testacea of the north and south of Europe. Many of the species having been described (some insufficiently) under different names, the difficulty of identification is considerable; but there is no doubt that a remarkable concordance exists, and to a great extent, between the mollusca which inhabit the deeper parts of the Atlantic and Mediterranean seas from 62° to 36° N. lat. The littoral kinds differ much more—a circumstance which may have been occasioned by climatal conditions. To exemplify the former proposition I subjoin a list of 75 species, usually considered northern, which are common to the North Sea and the Mediterranean, with their principal synonyms:—

<i>Names of Species.</i>	<i>Synonyms.</i>
<i>Terebratula caput-serpentis</i> , Linné.	
<i>Argiope lunifera</i> , Philippi .....	<i>Terebratula cistellula</i> , Searles Wood.
<i>Crania anomala</i> , Müller .....	<i>Anomia turbinata</i> , Poli.
<i>Pecten septemradiatus</i> , Müll. ....	<i>Ostrea inflexa</i> and <i>O. clavata</i> , Poli.
<i>P. aratus</i> , Gmelin .....	<i>P. Bruei</i> , Payraudeau.
<i>P. Testæ</i> , Bivona .....	<i>P. furtivus</i> , Lovén.
<i>P. striatus</i> , Müll.	
<i>P. Hoskynsi</i> , Forbes .....	<i>P. imbrifer</i> , Lov.
<i>P. vitreus</i> , Chemnitz .....	<i>P. Gemellarii-filii</i> , Biondi.
<i>P. similis</i> , Laskey .....	<i>P. pygmæus</i> , von Münster.
<i>Lima Sarsii</i> , Lov. ....	Perhaps <i>L. crassa</i> , Forbes.
<i>L. elliptica</i> , Jeffreys.	
<i>L. subauriculata</i> , Montagu.	
<i>Pinna rudis</i> , L. ....	<i>P. pectinata</i> of some authors, not of Linné.
<i>Mytilus phaseolinus</i> , Ph.	
<i>Modiolaria discors</i> , L.	
<i>Nucula nitida</i> , G. B. Sowerby.	
<i>N. tenuis</i> , Mont. ....	<i>N. decipiens</i> , Ph.
<i>Leda pygmæa</i> , v. Münst. ....	Probably <i>Nucula ægeensis</i> , Forb.
<i>Arca obliqua</i> , Ph. ....	<i>A. Korenii</i> , Danielssen.

<i>Names of Species.</i>	<i>Synonyms.</i>
Lepton nitidum, <i>Turton.</i>	
Montacuta ferruginosa, <i>Mont.</i>	
Lucina borealis, <i>L.</i>	
Axinus Croulinensis, <i>Jeffer.</i>	
Cyamium minutum, <i>Fabricius.</i>	
Cardium minimum, <i>Ph.</i> . . . . .	C. suecicum, <i>Lov.</i>
Astarte sulcata, <i>Da Costa</i> . . . . .	Tellina fusca, <i>Poli.</i>
Lucinopsis undata, <i>Pennant</i> . . . . .	Venus incompta, <i>Ph.</i>
Tellina balthica, <i>L.</i> . . . . .	T. rubiginosa, <i>Poli.</i>
T. pusilla, <i>Ph.</i>	
Scrobicularia nitida, <i>Müll.</i> . . . . .	Syndesmya intermedia, <i>Thompson.</i>
Lyonsia Norvegica, <i>Ch.</i> . . . . .	Pandorina coruscans, <i>Scacchi.</i>
Thracia convexa, <i>W. Wood.</i> . . . . .	T. ventricosa, <i>Ph.</i>
Næra rostrata, <i>Spengler</i> . . . . .	N. attenuata, <i>Forb.</i>
Xylophaga dorsalis, <i>Turt.</i>	
Siphonodentalium Lofotense, <i>Sars.</i>	
S. quinquangulare, <i>Forb.</i> . . . . .	S. pentagonum, <i>Sars.</i>
Cadulus subfusiformis, <i>Sars.</i>	
Chiton Hanleyi, <i>Bean.</i>	
C. cancellatus, <i>G. B. Sow.</i>	
C. cinereus, <i>L.</i> . . . . .	C. asellus, <i>Sp.</i>
C. lævis, <i>Mont.</i> . . . . .	C. corallinus, <i>Risso.</i>
Tectura virginea, <i>Müll.</i>	
Propilidium ancyloides, <i>Forb.</i>	
Scissurella crispata, <i>Fleming</i> . . . . .	S. aspera, <i>Ph.</i> , var.
Trochus cinerarius, <i>L.</i> , var. variegata.	
Rissoa reticulata, <i>Mont.</i> . . . . .	R. Beanii, <i>Hanley.</i>
R. cimicoides, <i>Forb.</i> . . . . .	R. sculpta, <i>F. &amp; H.</i> , not of <i>Philippi.</i>
R. Zetlandica, <i>Mont.</i>	
R. abyssicola, <i>Forb.</i>	
R. parva, <i>Mont.</i> , and var. interrupta	R. obscura and R. simplex, <i>Ph.</i>
R. inconspicua, <i>Alder.</i>	
R. albella, <i>Lov.</i> . . . . .	R. Oenensis; <i>Brusina.</i>
R. vitrea, <i>Mont.</i>	
Jeffreysia diaphana, <i>Ald.</i> . . . . .	Rissoa? glabra, <i>Ald.</i> , not of <i>Brown.</i>
J. opalina, <i>Jeffer.</i>	
Scalaria Trevelyana, <i>Leach.</i>	
Aclis Walleri, <i>Jeffer.</i>	
Odostomia clavula, <i>Lov.</i>	
O. albella, <i>Lov.</i>	
O. umbilicaris, <i>Malm.</i>	
O. conspicua, <i>Ald.</i>	
O. Scillæ, <i>Scacchi.</i>	
O. nitidissima, <i>Mont.</i>	
Eulima bilineata, <i>Ald.</i>	
Natica catena, <i>Da C.</i> . . . . .	Probably Nerita helicina, <i>Brocchi.</i>
Velutina lævigata, <i>Penn.</i>	
Cerithium metula, <i>Lov.</i> . . . . .	Mediterranean, <i>fide Hanley</i> ; perhaps Cerithiopsis Barleci.
Purpura lapillus, <i>L.</i>	
Trophon Mörcchi, <i>Malm</i> . . . . .	Bela demersa, <i>Tiberi.</i>
Bulla utriculus, <i>Brocchi</i> . . . . .	B. Cranchii, <i>Leach.</i>
Philine scabra, <i>Müll.</i> . . . . .	Bullæa angustata, <i>Biv.</i>
Aplysia punctata, <i>Cuvier</i> . . . . .	A. hybrida, <i>J. Sowerby.</i>
Spirialis retroversus, <i>Fl.</i> . . . . .	Scæa stenogyra, <i>Ph.</i> ; oceanic.
Clio pyramidata, <i>L.</i> . . . . .	Oceanic.



How is this concordance to be accounted for? I have carefully read again Forbes's elaborate essay "On the Connexion between the distribution of the existing Fauna and Flora of the British Isles, and the Geological changes which have affected their area, especially during the epoch of the Northern Drift" (Memoirs of the Geological Survey of Great Britain, vol. i. 1846); but I cannot find in it a satisfactory solution of the question. He, indeed, mentions the continuance of some "arctic" species in the British seas, the rest having "retired for ever," and that certain other species which he called "Boreal or Celtic" occurred in a fossil state in Sicily; and he states (p. 390) that "in the deepest of the regions of depth in the Ægean" the same representation of a northern fauna as exists in our own seas is maintained, "partly by identical and partly by representative forms." The instances he gives do not support such a view; and I am not a believer in "representative forms." He evidently was not aware of the fact that boreal (not arctic) species still live in the Mediterranean. I, however, fully agree with him that at some former time (which he designates "the newer pliocene epoch") there was an open communication between the Atlantic (according to him the "North Seas") and the Mediterranean, by which the fauna became diffused. I should be inclined to place the Atlantic point of communication at Bordeaux, and that of the Mediterranean at Narbonne, in the line of the Languedoc Canal, which extends from one coast to the other, and is very little above the present level of the sea. This communication must have been very wide; and it remained open during the glacial epoch, which affected not only the north of Europe but also Naples, Sicily, and probably Rhodes. Dr. Tiberi showed me a fine valve of *Pecten Islandicus* which had lately been fished up in the Gulf of Naples at a depth of 50 fathoms, and with it a valve of *P. opercularis* quite as large as northern specimens; both the valves were in a semifossil state, and the former was covered with the same Greenland species of *Spirorbis* (*S. cancellatus*, Fabr.) as I noticed on valves of *P. Islandicus* dredged in the Shetland seas at depths varying from 75 to 170 fathoms. Sir Charles Lyell has not adverted, in the last edition of his 'Principles of Geology,' to the remarkable occurrence of such glacial fossils in the Shetland sea-bed, to which I called the attention of geologists in my former Reports as well as in the 2nd volume of 'British Conchology,' p. 58; and he seems to have strangely overlooked the observations of Philippi and Seguenza on the fossils of Calabria and Sicily, when he stated (Princ. Geol. i. p. 298) that "deposits filled with arctic species of marine shells are to

be seen in full force on the North American continent ten or more degrees further south than in Europe." Possibly he was misled by one of Forbes's conclusions (Rep. Geol. Surv. p. 402), that "no glacial beds are known in Southern Europe." This, however, was more than twenty years ago. I have myself identified from the Calabrian and Sicilian deposits several high-northern shells (e. g. *Terebratula cranium*, *T. septata*, *Lima excavata*, *Mytilus modiolus*, *Cyprina Islandica*, *Mya truncata*, var. *Uddevallensis*, *Saxicava Norvegica*, *Puncturella Noachina*, *Emarginula crassa*, *Buccinum undatum*, and *Natica affinis* or *clausa*), and from the Rhodian deposits *Terebratula septata* and *Lima Sarsii*.

My old companion, Mr. Waller, picked up on the beach in a small bay on the west coast of Shetland a shell of *Spirula australis*. It is a tropical Cephalopod, and is not unfrequently thrown up by the waves on the southern and western shores of England, Wales, and Ireland, together with exotic species of *Teredo*, *Ianthina*, and *Hyalea* brought from southern latitudes. Dr. Mörch informs me that several shells of the *Spirula* have this year been found in the Faroe Isles. The transport of such tropical productions to northern latitudes has been usually attributed to the Gulf-stream. It now, however, appears more probable that this is the consequence, not of the direct action and course of the Gulf-stream, but of the prevalence of westerly and south-westerly winds, which waft onwards to northern latitudes, in a northerly and north-easterly direction, the floating objects carried to a certain distance by the Gulf-stream. The direct course of the Gulf-stream has not been observed further north than about 45° N. lat.; from that point it would seem to dwindle into a north-easterly surface drift. A chart will shortly be published by the Admiralty in explanation of this view of the case; and the following papers on the subject ought to be consulted by physical geographers:—Dr. Stark "On the Temperature of the Sea around the coasts of Scotland during the years 1857 and 1858, and the bearing of the facts on the theory that the mild climate of Great Britain during winter is dependent on the Gulf Stream" (Trans. R. S. Edin. 1859), and Capt. Thomas's tables and remarks in Mr. Alex. Buchan's Report "On the Temperature of the Sea on the Coast of Scotland" (Journ. Scottish Meteor. Soc. Oct. 1865). See also 'Br. Conch.' vol. i. (Introd.) pp. xeviii and xeix.

I will add a short summary of the observations recorded in my Reports on Shetland dredgings and in the work last cited.

1. The bathymetrical zones have been too much divided by Risso and subsequent authors. There are two principal zones,

littoral and submarine ; the nature of the habitat and the supply of food influence the residence and migration of animals, not the comparative depth of water. *Psammobia costulata* and *Buccinum undatum* are instances in support of this proposition.

2. Specimens or varieties of the same species are larger in the littoral and laminarian zones than in deeper water : e. g. *Macra solida* and its variety *elliptica*, *Solecurtus candidus*, *Pandora inaequalis* and its variety *obtusa* or *pinna*, *Chiton lavis*, *Tectura virginea*, *Trochus zizyphinus*, *Pleurotoma laevigata*, and *Philine aperta*.

3. The size of North-European specimens is usually greater than that of South-European specimens of the same species : e. g. *Pecten septemradiatus*, *P. opercularis*, *Lima hians*, *Mytilus Adriaticus*, *Isocardia cor*, *Astarte sulcata*, *Venus exoleta*, *V. linctata*, *Tellina balaustina*, *Chiton Hanleyi*, *Tectura virginea*, *Natica Alderi*, *Defrancia teres*, *D. purpurea*, and *Bulla utriculus*.

4. The colour of specimens from the greatest depths is not less vivid than of those from shallow water, although each zone has colourless specimens. *Venus ovata*, *Trochus zizyphinus*, *Turritella terebra*, and *Eulima bilineata* may be mentioned as examples.

5. Mollusca inhabiting deep water have consequently a larger supply of oxygen for the aëration of their gills than those which live in shallow water. See my account of *Columbella haliæti*.

6. The occurrence of the same species in the North Sea and the Mediterranean results partly from former geological or cosmical conditions, and partly from a communication which once existed between the Bay of Biscay and the Gulf of Lyons.

7. Exotic and oceanic shells are carried northwards by westerly winds, and not directly by the Gulf-stream, which does not reach our coasts.

8. Land and freshwater mollusca are scarce in Shetland, owing to the scantiness of succulent vegetation for their food, and of lime for the construction of their shells. These are smaller than southern specimens ; and the same fact is observable with respect to Shetland insects.

9. Semifossil shells of arctic species (such as *Pecten Islandicus*, *Tellina calcarea*, *Mya truncata*, var. *Uldevallensis*, *Mölleria costulata*, *Trochus cinereus*, and *Trophon clathratus*) are met with on the sea-bottom at considerable depths, and at some distance from land. The only explanation I can offer is a former elevation of the sea-bed whereon these mollusks lived (and which was probably in shallow water), and its conversion into dry land, and a subsequent subsidence. Perhaps the sea-bed is still sinking.



10. Species recorded from the Coralline Crag and earlier deposits, and supposed to be extinct, have now been discovered living in the Shetland seas ; e. g. *Limopsis aurita*, *Pleurotoma carinata*, and *Columbella haliæti*. Possibly *Trochus amabilis* is another case, assuming that it originated from *Margarita? maculata* of Searles Wood.

Professor Dickie has been good enough to report on some Diatoms from the insides of a quantity of *Echinus Norvegicus*, which were dredged at a depth of 78 fathoms about forty miles from the east coast of Shetland. He says they are chiefly *Navicula didyma*, *Coscinodiscus excentricus*, *C. minor*, *Actinocyclus undulatus*, and *Melosira sulcata*, with fewer of *M. nummuloides* and *Nitzschia angularis*, all marine ; also a few freshwater *Cocconema lanceolatum*, *Sinciella minuta*, and fragments of a *Pinnularia*. And he adds that long ago he recorded the occurrence of freshwater kinds of Diatomaceæ mixed with marine kinds from the stomachs of *Ascidie* taken in deep water off Aberdeen. The freshwater Diatoms must evidently have been carried by a stream into the sea, and transported by the tide to the place where they sunk to the bottom, and were swallowed by the indiscriminating *Echini* and *Ascidie*. Diatoms inhabit the surface only of the water ; and *Globigerina* and other Foraminifera not of a fixed or sessile nature have been observed by Major Owen to float when alive within a few inches from the surface. Dr. Wallich found the microscopic organisms which he called coccospheres “ profusely in a living, or perhaps it would be more safe to say a recent, condition in material collected at the surface of the open seas of the tropics.” Coccospheres and free Foraminifera cover the bed of the Atlantic at enormous depths. The occurrence, therefore, of such organisms on the floor of the ocean at great depths does not prove that they ever lived there. I should rather be inclined to believe that they dropped to the bottom of the sea when dead or after having passed through the stomachs of other animals which had fed on them.

A few small fishes were caught in the dredge at depths of from 90 to 100 fathoms. Dr. Günther reports that they belong to the undermentioned species :—*Callionymus maculatus* (Bonap.), *Gobius Jeffreysii* (Günth.), young, *Cyclopterus lumpus* (L.), young, *Lepadogaster bimaculatus* (Penn.), and *Rhombus Norvegicus* (Günth.), young. He remarks that the last-named species is new to the British fauna, having been hitherto known from the coast of Norway only.

Mr. Norman will report on the Crustacea, Echinoderms, and Sponges, Dr. M'Intosh on the Annelids, and Mr. Waller on the Foraminifera.



Mollusca inhabiting the Shetland Isles and the adjacent seas.  
(See Tables of distribution in 'British Conchology,' vols.  
i.-iv.)

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
MARINE.			
BRACHIOPODA.			
Terebratula cranium, <i>Müller</i> . . . .	—	—	Vigo (M'Andrew).
caput-serpentis, <i>Linné</i> . . . .	—	—	
†Terebratella Spitzbergensis, <i>Davidson</i> . . . . .	—	—	Possibly fossil.
†Rhynchonella psittacea, <i>L.</i> . . . .	—	—	Possibly fossil.
Argiope lunifera, <i>Philippi</i> . . . . .	—	—	<i>Terebratula cisteliula</i> , S. Wood.
Crania anomala, <i>Müller</i> . . . . .	—	—	<i>Anomia turbinata</i> , Poli.
	6	6	4
CONCHIFERA.			
Anomia ephippium, <i>L.</i> . . . . .	—	—	
patelliformis, <i>L.</i> . . . . .	—	—	
Ostrea edulis, <i>L.</i> . . . . .	—	—	
Pecten pusio, <i>L.</i> . . . . .	—	—	
opercularis, <i>L.</i> . . . . .	—	—	
septemradiatus, <i>Müll.</i> . . . . .	—	—	
†aratus, <i>Gmelin</i> . . . . .	—	—	<i>P. Bruei</i> , Payraudeau.
tigrinus, <i>Müll.</i> . . . . .	—	—	
†Testæ, <i>Bivona</i> . . . . .	—	—	
striatus, <i>Müll.</i> . . . . .	—	—	
†Hoskynsi, <i>Forbes</i> . . . . .	—	—	<i>P. imbrifer</i> , Lovén.
similis, <i>Laskey</i> . . . . .	—	—	
maximus, <i>L.</i> . . . . .	—	—	
†Lima Sarsii, <i>Lov.</i> . . . . .	—	—	
†elliptica, <i>Jeffreys</i> . . . . .	—	—	
subauriculata, <i>Mont.</i> . . . . .	—	—	
Loscombii, <i>G. B. Sowerby</i> . . . . .	—	—	
Pinna rudis, <i>L.</i> . . . . .	—	—	<i>P. pectinata</i> of some authors, not of Linné.
Mytilus edulis, <i>L.</i> . . . . .	—	—	
modiolus, <i>L.</i> . . . . .	—	—	Fossil in Calabria and Sicily.
Adriaticus, <i>Lamarck</i> . . . . .	—	—	
phaseolinus, <i>Ph.</i> . . . . .	—	—	
Modiolaria marmorata, <i>Forbes</i> . . . . .	—	—	
discors, <i>L.</i> . . . . .	—	—	
nigra, <i>Gray</i> . . . . .	—	—	
Crenella decussata, <i>Mont.</i> . . . . .	—	—	
Nucula nucleus, <i>L.</i> . . . . .	—	—	
nitida, <i>G. B. Sow.</i> . . . . .	—	—	
tenuis, <i>Mont.</i> . . . . .	—	—	

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Leda pygmæa</i> , von Münster . . . .	—	—	Possibly fossil. Fossil in the Coralline Crag, and in miocene and pliocene beds on the Continent. Perhaps an arctic species.
<i>minuta</i> , Müll. . . . .	—	—	
† <i>pernula</i> , Müll. . . . .	—	—	
† <i>Limopsis aurita</i> , Brocchi . . . . .	—	—	
<i>Pectunculus glycymeris</i> , L. . . . .	—	—	A Coralline Crag fossil.
<i>Arca pectunculoides</i> , Scacchi . . . .	—	—	
† <i>obliqua</i> , Ph. . . . .	—	—	
<i>tetragona</i> , Poli . . . . .	—	—	
<i>Lepton nitidum</i> , Turton . . . . .	—	—	
<i>Clarkiæ</i> , Clark . . . . .	—	—	
<i>Montacuta substriata</i> , Mont. . . . .	—	—	
† <i>donacina</i> , S. Wood . . . . .	—	—	
<i>bidentata</i> , Mont. . . . .	—	—	
† <i>tumidula</i> , Jeffr. . . . .	—	—	
<i>ferruginosa</i> , Mont. . . . .	—	—	
<i>Lasæa rubra</i> , Mont. . . . .	—	—	Coralline Crag.
<i>Kellia suborbicularis</i> , Mont. . . . .	—	—	
† <i>cycladia</i> , S. Wood . . . . .	—	—	
<i>Lucina spirifera</i> , Mont. . . . .	—	—	
<i>borealis</i> , L. . . . .	—	—	
<i>Axinus flexuosus</i> , Mont. . . . .	—	—	
† <i>Croulinensis</i> , Jeffr. . . . .	—	—	
<i>ferruginosus</i> , Forb. . . . .	—	—	
<i>Cyamium minutum</i> , Fabricius . . . .	—	—	
<i>Cardium echinatum</i> , L. . . . .	—	—	
<i>exiguum</i> , Gmelin . . . . .	—	—	Fossil at Nice and in Sicily.
<i>fasciatum</i> , Mont. . . . .	—	—	
<i>nodosum</i> , Turt. . . . .	—	—	
<i>edule</i> , L. . . . .	—	—	
<i>minimum</i> , Ph. . . . .	—	—	
<i>Norvegicum</i> , Spengler . . . . .	—	—	
<i>Isocardia cor</i> , L. . . . .	—	—	
<i>Cyprina Islandica</i> , L. . . . .	—	—	
<i>Astarte sulcata</i> , Da Costa . . . . .	—	—	
<i>compressa</i> , Mont. . . . .	—	—	
<i>triangularis</i> , Mont. . . . .	—	—	
<i>Circe minima</i> , Mont. . . . .	—	—	Probably not <i>Venus virginea</i> of Linné.
<i>Venus exoleta</i> , L. . . . .	—	—	
<i>lincta</i> , Pulteney . . . . .	—	—	
<i>fasciata</i> , Da C. . . . .	—	—	
<i>Casina</i> , L. . . . .	—	—	
<i>ovata</i> , Pennant . . . . .	—	—	
<i>gallina</i> , L. . . . .	—	—	
<i>Tapes virgineus</i> , auct. . . . .	—	—	
<i>pullastra</i> , Mont. . . . .	—	—	

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Tapes decussatus</i> , <i>L.</i> .....	—	—	Fossil in Sweden and Norway.
<i>Lucinopsis undata</i> , <i>Penn.</i> .....	—	—	
? <i>Gastrana fragilis</i> , <i>L.</i> .....	?—	—	Zetlandic on the authority of Forbes, and Norwegian on that of M'Andrew.
<i>Tellina balaustina</i> , <i>L.</i> .....	—	—	
<i>crassa</i> , <i>Penn.</i> .....	—	—	
<i>balthica</i> , <i>L.</i> .....	—	—	
<i>tenuis</i> , <i>Da C.</i> .....	—	—	
<i>fabula</i> , <i>Gronovius</i> .....	—	—	
<i>donacina</i> , <i>L.</i> .....	—	—	
<i>pusilla</i> , <i>Ph.</i> .....	—	—	
<i>Psammobia tellinella</i> , <i>Lam.</i> ....	—	—	
<i>costulata</i> , <i>Turt.</i> ....	—	—	
<i>Ferröensis</i> , <i>Chemnitz</i> .....	—	—	
<i>Mactra solida</i> , <i>L.</i> .....	—	—	
<i>subtruncata</i> , <i>Da C.</i> .....	—	—	
<i>stultorum</i> , <i>L.</i> .....	—	—	
<i>Lutraria elliptica</i> , <i>Lam.</i> .....	—	—	
<i>Scrobicularia prismatica</i> , <i>Mont.</i> ..	—	—	
<i>nitida</i> , <i>Müll.</i> .....	—	—	
<i>alba</i> , <i>W. Wood</i> ..	—	—	
<i>Solecurtus candidus</i> , <i>Renier</i> ....	—	—	Boulder-clay of Caithness (Peach).
<i>antiquatus</i> , <i>Pult.</i> ....	—	—	
<i>Solen pellucidus</i> , <i>Penn.</i> .....	—	—	
<i>ensis</i> , <i>L.</i> .....	—	—	
<i>siliqua</i> , <i>L.</i> .....	—	—	
<i>Pandora inæquivalvis</i> , <i>L.</i> .....	—	—	The northern and deep-water variety is <i>Solen pima</i> of Montagu = <i>P. obtusa</i> , Leach.
<i>Lyonsia Norvegica</i> , <i>Ch.</i> .....	—	—	
<i>Thracia prætenuis</i> , <i>Pult.</i> .....	—	—	
<i>papyracea</i> , <i>Poli</i> .....	—	—	<i>Amphidesma phaseolina</i> , Lam.
<i>convexa</i> , <i>W. Wood</i> ....	—	—	
<i>distorta</i> , <i>Mont.</i> .....	—	—	
<i>Poromya granulata</i> , <i>Nyst</i> and <i>Westendorp</i> .....	—	—	
<i>Neæra abbreviata</i> , <i>Forb.</i> .....	—	—	
<i>costellata</i> , <i>Deshayes</i> .....	—	—	
† <i>rostrata</i> , <i>Sp.</i> .....	—	—	
<i>cuspidata</i> , <i>Olivi</i> .....	—	—	
<i>Corbula gibba</i> , <i>Ol.</i> .....	—	—	
<i>Mya truncata</i> , <i>L.</i> .....	—	—	Fossil in Sicily.
† <i>Panopea plicata</i> , <i>Mont.</i> .....	—	—	
<i>Saxicava Norvegica</i> , <i>Sp.</i> .....	—	—	Shetland (M'Andrew). Fossil in Sicily.

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Saxicava rugosa</i> , <i>L.</i> .....	—	—	Marseilles (Matheron, <i>vide</i> Philbert).
<i>Pholas crispata</i> , <i>L.</i> .....	—	?—	
<i>Xylophaga dorsalis</i> , <i>Turt.</i> .....	—	—	
<i>Teredo norvegica</i> , <i>Sp.</i> .....	—	—	
<i>megotara</i> , <i>Hanley</i> .....	—	—	
119	108	106	
SOLENOCONCHIA.			
<i>Dentalium entalis</i> , <i>L.</i> .....	—	?—	
† <i>Siphonodentalium Lofotense</i> , <i>Sars</i> .....	—	—	
† <i>Cadulus subfusiformis</i> , <i>Sars</i> .....	—	—	
3	3	3	
GASTROPODA.			
<i>Chiton fascicularis</i> , <i>L.</i> .....	—	—	Dredged by Capt. Acton in the Gulf of Naples.
<i>Hanleyi</i> , <i>Bean</i> .....	—	—	
<i>cancellatus</i> , <i>Leach</i> ? .....	—	—	
<i>cinereus</i> , <i>L.</i> .....	—	—	
<i>albus</i> , <i>L.</i> .....	—	—	
<i>marginatus</i> , <i>Penn.</i> .....	—	—	
<i>ruber</i> , <i>Lowe</i> .....	—	—	
<i>lævis</i> , <i>Mont</i> .....	—	—	
<i>marmoreus</i> , <i>Fabr.</i> .....	—	—	
<i>Patella vulgata</i> , <i>L.</i> .....	—	—	
<i>Helcion pellucidum</i> , <i>L.</i> .....	—	—	
<i>Tectura testudinalis</i> , <i>Müll.</i> .....	—	—	
<i>virginea</i> , <i>Müll.</i> .....	—	—	
<i>fulva</i> , <i>Müll.</i> .....	—	—	
† <i>Lepeta cæca</i> , <i>Müll.</i> .....	—	—	
<i>Propilidium ancyloides</i> , <i>Forb.</i> ..	—	—	
<i>Puncturella Noachina</i> , <i>L.</i> .....	—	—	Fossil in Sicily.
<i>Emarginula fissura</i> , <i>L.</i> .....	—	—	
<i>crassa</i> , <i>J. Sowerby</i> ..	—	—	Fossil in Calabria as <i>E. decussata</i> (Ph.), and in Sicily (Seguenza).
? <i>Fissurella græca</i> , <i>L.</i> .....	—	—	Zetlandic on Forbes's authority.
<i>Capulus Hungaricus</i> , <i>L.</i> .....	—	—	
<i>Scissurella crispata</i> , <i>Fleming</i> ....	—	—	<i>S. aspera</i> , Ph., appears to be the southern form or variety.
<i>Cyclostrema nitens</i> , <i>Ph.</i> .....	—	—	
<i>serpuloïdes</i> , <i>Mont.</i> ..	—	—	
<i>Trochus helcinus</i> , <i>Fabr.</i> .....	—	—	
<i>Groenlandicus</i> , <i>Ch.</i> .....	—	—	
<i>amabilis</i> , <i>Jeffr.</i> .....	—	—	



Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Trochus magus</i> , <i>L.</i> . . . . .	—	—	The southern form is the variety <i>variegata</i> .
<i>tumidus</i> , <i>Mont.</i> . . . . .	—	—	
<i>cinerarius</i> , <i>L.</i> . . . . .	—	—	
<i>Montacuti</i> , <i>W. Wood</i> . .	—	—	
<i>millegranus</i> , <i>Ph.</i> . . . . .	—	—	
<i>zizyphinus</i> , <i>L.</i> . . . . .	—	—	Probably arctic. Gulf of Gascony. Corunna and Vigo (M'Andrew).
<i>occidentalis</i> , <i>Mighels</i> . .	—	—	
<i>Lacuna crassior</i> , <i>Mont.</i> . . . . .	—	—	
<i>divaricatus</i> , <i>Fabr.</i> . . . . .	—	—	
<i>puteolus</i> , <i>Turt.</i> . . . . .	—	—	
<i>pallidula</i> , <i>Da C.</i> . . . . .	—	—	Arcachon (Fischer).
<i>Littorina obtusata</i> , <i>L.</i> . . . . .	—	—	North of Spain, and Vigo; the Mediterranean localities are doubtful.
<i>neritoides</i> , <i>L.</i> . . . . .	—	—	Corunna and Lisbon (M'Andrew); Algiers (J. W. Flower).
<i>rudis</i> , <i>Maton</i> . . . . .	—	—	
<i>littorea</i> , <i>L.</i> . . . . .	—	—	Corunna and Lisbon (M'Andrew); the Mediterranean and Adriatic localities are doubtful.
<i>Rissoa reticulata</i> , <i>Mont.</i> . . . . .	—	—	Shetland, <i>vide</i> Barlee.
<i>cinicoïdes</i> , <i>Forb.</i> . . . . .	—	—	
† <i>Jeffreysi</i> , <i>Waller</i> . . . . .	—	—	
<i>punctura</i> , <i>Mont.</i> . . . . .	—	—	
<i>abyssicola</i> , <i>Forb.</i> . . . . .	—	—	
<i>Zetlandica</i> , <i>Mont.</i> . . . . .	—	—	
<i>costata</i> , <i>Adams</i> . . . . .	—	—	
<i>parva</i> , <i>Da C.</i> . . . . .	—	—	
<i>inconspicua</i> , <i>Ald.</i> . . . . .	—	—	
† <i>albella</i> , <i>Lov.</i> . . . . .	—	—	
<i>membranacea</i> , <i>Ad.</i> . . . . .	—	—	
<i>violacea</i> , <i>Desmarests</i> . . . .	—	—	
<i>striata</i> , <i>Ad.</i> . . . . .	—	—	
<i>proxima</i> , <i>Ald.</i> . . . . .	—	—	
<i>vitrea</i> , <i>Mont.</i> . . . . .	—	—	Shetland, <i>vide</i> Fleming.
<i>soluta</i> , <i>Ph.</i> . . . . .	—	—	Shetland, <i>vide</i> Barlee.
<i>semistriata</i> , <i>Mont.</i> . . . . .	—	—	
<i>cingillus</i> , <i>Mont.</i> . . . . .	—	—	<i>Turbo stagnalis</i> , <i>L.</i>
<i>Hydrobia ulvæ</i> , <i>Penn.</i> . . . . .	—	—	
<i>Jeffreysia diaphana</i> , <i>Ald.</i> . . . .	—	—	
<i>opalina</i> , <i>Jeffr.</i> . . . . .	—	—	
<i>globularis</i> , <i>Jeffr.</i> . . . . .	—	—	
<i>Skenea planorbis</i> , <i>Fabr.</i> . . . . .	—	—	
<i>Homalogyra atomus</i> , <i>Ph.</i> . . . .	—	—	
<i>rota</i> , <i>F. &amp; H.</i> . . . . .	—	—	

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Cæcum glabrum</i> , <i>Mont.</i> . . . . .	—	—	
<i>Turritella terebra</i> , <i>L.</i> . . . . .	—	—	
<i>Scalaria Trevelyana</i> , <i>Leach.</i> . . . .	—	—	
<i>clathratula</i> , <i>Ad.</i> . . . . .	—	—	
<i>Aclis unica</i> , <i>Mont.</i> . . . . .	—	—	
<i>ascaris</i> , <i>Turt.</i> . . . . .	—	—	Dalmatia (Brusina).
<i>supranitida</i> , <i>S. Wood.</i> . . . .	—	—	
† <i>Walleri</i> , <i>Jeffr.</i> . . . . .	—	—	Gulf of Naples (Stefanis).
<i>Gulsonæ</i> , <i>Cl.</i> . . . . .	—	—	Vigo Bay (M'Andrew).
† <i>Odostomia minima</i> , <i>Jeffr.</i> . . . .	—	—	
<i>nivosa</i> , <i>Mont.</i> . . . . .	—	—	
<i>clavula</i> , <i>Lov.</i> . . . . .	—	—	Gulf of Naples (Tiberi and Acton).
† <i>Lukisi</i> , <i>Jeffr.</i> . . . . .	—	—	Dalmatia (Brusina); Sicily (Tiberi).
† <i>albella</i> , <i>Lov.</i> . . . . .	—	—	Dalmatia (Brusina).
<i>pallida</i> , <i>Mont.</i> . . . . .	—	—	<i>O. Novegradensis</i> , Brus.
<i>conoidea</i> , <i>Brocchi</i> . . . . .	—	—	
† <i>umbilicaris</i> , <i>Malm</i> . . . . .	—	—	Gulf of Naples (Acton).
<i>acuta</i> , <i>Jeffr.</i> . . . . .	—	—	
<i>conspicua</i> , <i>Ald.</i> . . . . .	—	—	
<i>unidentata</i> , <i>Mont.</i> . . . . .	—	—	Loire-Inférieure (Cailliaud).
<i>turrita</i> , <i>Hanl.</i> . . . . .	—	—	
<i>inseulpta</i> , <i>Mont.</i> . . . . .	—	—	Brittany (Cailliaud and Taslé).
† <i>diaphana</i> , <i>Jeffr.</i> . . . . .	—	—	
<i>obliqua</i> , <i>Ald.</i> . . . . .	—	—	Dalmatia (Brusina); Naples (Stefanis).
<i>Warreni</i> , <i>Thompson</i> . . . . .	—	—	
<i>indistincta</i> , <i>Mont.</i> . . . . .	—	—	
<i>interstincta</i> , <i>Mont.</i> . . . . .	—	—	
<i>spiralis</i> , <i>Mont.</i> . . . . .	—	—	Adriatic (Stossich).
<i>eximia</i> , <i>Jeffr.</i> . . . . .	—	—	
<i>scalaris</i> , <i>Ph.</i> . . . . .	—	—	
<i>rufa</i> , <i>Ph.</i> . . . . .	—	—	
<i>Scillæ</i> , <i>Scacchi</i> . . . . .	—	—	Gulf of Naples (Stefanis); Madeira and Canaries (M'Andrew).
<i>acicula</i> , <i>Ph.</i> . . . . .	—	—	
<i>nitidissima</i> , <i>Mont.</i> . . . . .	—	—	Adriatic and Mediterranean.
<i>Stilifer Turtoni</i> , <i>Broderip</i> . . . . .	—	—	Canary Isles (M'Andrew).
<i>Eulima polita</i> , <i>L.</i> . . . . .	—	—	
<i>intermedia</i> , <i>Cantraine</i> . . . . .	—	—	
<i>distorta</i> , <i>Desh.</i> , sec. <i>Ph.</i> . . . .	—	—	<i>E. Philippii</i> , Weinkauff.
† <i>stenostoma</i> , <i>Jeffr.</i> . . . . .	—	—	
? <i>subulata</i> , <i>Donovan</i> . . . . .	? —	—	Shetland, <i>vide</i> Forbes; Norway, <i>vide</i> Lovén and Danielssen.
<i>bilineata</i> , <i>Ald.</i> . . . . .	—	—	Adriatic and Mediterranean.

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Natica Islandica</i> , Gm. ....	—		
<i>Greenlandica</i> , Beck. ....	—		
<i>sordida</i> , Ph. ....		—	Perhaps <i>N. fusca</i> , De Blainville.
<i>catena</i> , Da C. ....	—	—	
<i>Alderii</i> , Forb. ....	—	—	
<i>Montacuti</i> , Forb. ....	—	—	Fossil in Sicily.
<i>Lamellaria perspicua</i> , L. ....	—	—	
<i>Velutina plicatilis</i> , Müll. ....	—	—	
<i>lævigata</i> , Penn. ....	—	—	
† <i>Torellia vestita</i> , Jeffr. ....	—	—	
<i>Trichotropis borealis</i> , Brod. & Sow.	—	—	
<i>Aporrhais pes-pelecani</i> , L. ....	—	—	
<i>Macandreeæ</i> , Jeffr. ....	—	—	Fossil in Sicily.
<i>Cerithium metula</i> , Lov. ....	—	?—	Villafranca (Hanley); perhaps <i>Cerithiopsis Barleei</i> .
<i>perversum</i> , L. ....	—	—	
<i>Cerithiopsis tubercularis</i> , Mont. ...	—	—	
<i>Metaxa</i> , Delle Chiaje	—	—	Shetland, <i>fide</i> Barlee.
† <i>costulata</i> , Möller ..	—	—	
<i>Purpura lapillus</i> , L. ....	—	—	
<i>Buccinum undatum</i> , L. ....	—	—	Gulf of Lyons (Martin). Fossil in Sicily and Calabria.
<i>Humphreysianum</i> , <i>Bennett</i> ....	—	—	Fossil in Sicily and Calabria.
<i>Buccinopsis Dalei</i> , J. Sow. ....	—	—	
<i>Trophon Barvicensis</i> , Johnston ..	—	—	
<i>truncatus</i> , Ström ....	—	—	
<i>Fusus antiquus</i> , L. ....	—	—	
<i>Norvegicus</i> , Ch. ....	—	—	
<i>Turtoni</i> , Bean ....	—	—	An embryo capsule only in Shetland.
† <i>Islandicus</i> , Ch. ....	—	—	
<i>gracilis</i> , Da C. ....	—	—	Bay of Biscay.
<i>propinquus</i> , Ald. ....	—	—	Brittany (Taslé).
<i>Berniciensis</i> , King ....	—	?—	Arcachon (Fischer).
<i>Nassa reticulata</i> , L. ....	—	—	
<i>incrassata</i> , Str. ....	—	—	
† <i>Columbella haliæti</i> , Jeffr. ....	—	—	Fossil in the Sicilian and other tertiary beds. Genus <i>Thesbia</i> .
<i>nana</i> , Lov. ....	—	—	
<i>Defrancia teres</i> , Forb. ....	—	—	
<i>gracilis</i> , Mont. ....	—	—	
<i>Leufroyi</i> , Michaud ....	—	—	
<i>linearis</i> , Mont. ....	—	—	
† <i>reticulata</i> , Ren. ....	—	—	
<i>purpurea</i> , Mont. ....	—	—	
<i>Pleurotoma costata</i> , Don. ....	—	—	
<i>brachystoma</i> , Ph. ....	—	—	

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Pleurotoma nebula</i> , Mont. ....	—	—	The variety <i>elongata</i> is the Shetland form.
† <i>nivalis</i> , Lov. ....	—	—	Fossil in the Coralline Crag.
† <i>carinata</i> , Biv. ....	—	—	Fossil in Calabria and the Suffolk Crag.
<i>turricula</i> , Mont. ....	—	—	North of France.
<i>Trevelyana</i> , Turt. ..	—	—	
<i>Marginella lævis</i> , Don. ....	—	—	
<i>Cypræa Europæa</i> , Mont. ....	—	—	
<i>Cylichna acuminata</i> , Bruguière ..	—	—	
<i>nitidula</i> , Lov. ....	—	—	Gulf of Naples (Stefanis).
<i>umbilicata</i> , Mont. ....	—	—	
<i>cylindræa</i> , Penn. ....	—	—	
† <i>alba</i> , Brown. ....	—	—	
<i>Utriculus mammillatus</i> , Ph. ....	—	—	
<i>truncatulus</i> , Brug. ....	—	—	
<i>obtus</i> , Mont. ....	—	—	Bay of Biscay and the Adriatic.
† <i>expansus</i> , Jeffr. ....	—	—	
<i>hyalinus</i> , Turt. ....	—	—	
† <i>globosus</i> , Lov. ....	—	—	
<i>Acera bullata</i> , Müll. ....	—	—	
<i>Actæon tornatilis</i> , L. ....	—	—	
<i>Bulla utriculus</i> , Brocchi. ....	—	—	
<i>Scaphander lignarius</i> , L. ....	—	—	
† <i>librarius</i> , Lov. ....	—	—	
<i>Philine scabra</i> , Müll. ....	—	—	
<i>catena</i> , Mont. ....	—	—	Shetland, <i>vide</i> Barlee.
† <i>angulata</i> , Jeffr. ....	—	—	
<i>quadrata</i> , S. Wood. ....	—	—	
<i>punctata</i> , Cl. ....	—	—	
<i>pruinosa</i> , Cl. ....	—	—	Dalmatia (Brusina).
† <i>nitida</i> , Jeffr. ....	—	—	
<i>aperta</i> , L. ....	—	—	
<i>Aplysia punctata</i> , Cuv. ....	—	—	<i>A. hybrida</i> , J. Sow.
<i>Doris tuberculata</i> , Cuv. ....	—	—	
<i>Zetlandica</i> , Alder & Hancock	—	—	
<i>Johnstoni</i> , A. & H. ....	—	—	
<i>repanda</i> , A. & H. ....	—	—	
? <i>muricata</i> , Müll. ....	—	—	Alder.
<i>bilamellata</i> , L. ....	—	—	<i>D. fusca</i> , Müll.
<i>pilosa</i> , Müll. ....	—	—	
<i>Goniadoris nodosa</i> , Mont. ....	—	—	
<i>Triopa claviger</i> , Müll. ....	—	—	
<i>Polycera quadrilineata</i> , Müll. ..	—	—	
<i>Ancula cristata</i> , Ald. ....	—	—	
<i>Idalia Leachii</i> , A. & H. ....	—	—	Norman.
<i>inaequalis</i> , Forb. ....	—	—	
<i>Tritonia Hombergi</i> , Cuv. ....	—	—	
<i>plebeia</i> , Johnst. ....	—	—	



Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<i>Ægires punctilucens</i> , <i>D'Orbigny</i>	—	—	
<i>Dendronotus arborescens</i> , <i>Müll.</i> ...	—	—	
<i>Doto fragilis</i> , <i>Forb.</i> .....	—	—	
<i>coronata</i> , <i>Gm.</i> .....	—	—	
<i>cuspidata</i> , <i>A. &amp; H.</i> .....	—	—	
<i>Eolis papillosa</i> , <i>L.</i> .....	—	—	
<i>coronata</i> , <i>Forb.</i> .....	—	—	
<i>rufibranchialis</i> , <i>Johnst.</i> .....	—	—	
<i>pellucida</i> , <i>A. &amp; H.</i> .....	—	—	Norman. Not <i>Doris pellucida</i> , <i>Risso</i> .
<i>alba</i> , <i>A. &amp; H.</i> .....	—	—	
<i>olivacea</i> , <i>A. &amp; H.</i> .....	—	—	
<i>aurantiaca</i> , <i>A. &amp; H.</i> .....	—	—	Norman.
? <i>tricolor</i> , <i>Forb.</i> .....	—	—	Alder.
<i>picta</i> , <i>A. &amp; H.</i> .....	—	—	Norman.
<i>despecta</i> , <i>Johnst.</i> .....	—	—	
<i>Hermæa bifida</i> , <i>Mont.</i> .....	—	—	
<i>Embletonia minuta</i> , <i>Forbes &amp; Goodsir</i> .....	—	—	
<i>Antiope cristata</i> , <i>Delle Ch.</i> .....	—	—	Norman.
<i>Limapontia nigra</i> , <i>Johnst.</i> .....	—	—	
<i>Melampus bidentatus</i> , <i>Mont.</i> .....	—	—	
218	185	140	
PTEROPODA.			
<i>Spirialis retroversus</i> , <i>Fl.</i> .....	—	—	
<i>Macandrei</i> , <i>F. &amp; H.</i> .....	—	—	Query if distinct from last?
† <i>Clio pyramidata</i> , <i>L.</i> .....	—	—	
† <i>infundibulum</i> , <i>S. Wood</i> .....	—	—	Coralline Crag.
4	3	3	
CEPHALOPODA.			
<i>Octopus vulgaris</i> , <i>Lam.</i> .....	—	—	
<i>Rossia macrosoma</i> , <i>Delle Ch.</i> .....	—	—	
†? <i>glaucopis</i> , <i>Lov.</i> .....	—	—	Lovén.
<i>Sepia officinalis</i> , <i>L.</i> .....	—	—	
4	4	3	
And probably an undescribed species of <i>Rossia</i> or an allied genus, Lovén.			
LAND AND FRESHWATER.			
CONCHIFERA.			
<i>Pisidium nitidum</i> , <i>Jenyns</i> .....	—	—	
<i>roseum</i> , <i>Scholtz</i> .....	—	—	
2	2	2	

Name of Species.	Northern.	Southern.	Remarks as to distribution and synonymy.
<b>GASTROPODA.</b>			
<i>Planorbis nautilus</i> , <i>L.</i> .....	—	—	<i>L. brunneus</i> , F. & H.; not Draparnaud's species of that name. <i>L. arborum</i> , Bouchard-Chantereaux.
<i>glaber</i> , <i>Jeffr.</i> .....	—	—	
<i>contortus</i> , <i>L.</i> .....	—	—	
<i>Limnæa peregra</i> , <i>Müll.</i> .....	—	—	
<i>truncatula</i> , <i>Müll.</i> .....	—	—	
<i>Arion ater</i> , <i>L.</i> .....	—	—	
<i>Limax agrestis</i> , <i>L.</i> .....	—	—	
<i>lævis</i> , <i>Müll.</i> .....	—	—	
<i>marginatus</i> , <i>Müll.</i> .....	—	—	
<i>maximus</i> , <i>L.</i> .....	—	—	
<i>Succinea putris</i> , <i>L.</i> .....	—	—	
<i>elegans</i> , <i>Risso</i> .....	—	—	
<i>Vitrina pellucida</i> , <i>Müll.</i> .....	—	—	
<i>Zonites cellarius</i> , <i>Müll.</i> .....	—	—	
<i>allarius</i> , <i>Miller</i> .....	—	—	
<i>Helix nemoralis</i> , <i>L.</i> , var. <i>hortensis</i>	—	—	
<i>arbustorum</i> , <i>L.</i> .....	—	—	
<i>rotundata</i> , <i>Müll.</i> .....	—	—	
<i>Pupa umbilicata</i> , <i>Draparnaud</i> ..	—	—	
<i>Clausilia rugosa</i> , <i>Dr.</i> .....	—	—	
<i>Cochlicopa lubrica</i> , <i>Müll.</i> .....	—	—	
21	21	20	

## Summary.

	Shetland.	Northern.	Southern.	Total British.	Remarks.
MARINE.					
Brachiopoda .....	6	6	4	8	The last figure is thus made up:— Testaceous .... 289 Nudibranchs .. 110 <hr/> 399
Conchifera .....	119	108	106	168	
Solenocoenchia .....	3	3	3	4	
Gastropoda .....	218	185	140	399	
Pteropoda .....	4	3	3	4	The number of marine species in Lovén's 'Index' of Scandinavian mollusca is 345, including 40 Nudibranchs.
Cephalopoda .....	4	4	3	15	
	354	309	259	598	
LAND AND FRESHWATER.					
Conchifera .....	2	2	2	47	
Gastropoda .....	21	21	20	75	
	377	332	281	720	

*Obs.* The Shetland Nudibranchs and Cephalopods have not been sufficiently investigated. Lovén's 'Index' and a further list of Swedish Nudibranchs which he lately sent me contain 60 species of that order, out of which 22 only have been identified as Zetlandic. He also gives 9 species of Cephalopods, of which 3 only are Zetlandic. The southern distribution of our Nudibranchs is very little known. For the preparation of the present list of Nudibranchs I am in a great measure indebted to the late Mr. Alder and to Mr. Norman. Forty-five species of mollusca (marked †) have been discovered in the Shetland seas since the publication of Forbes & Hanley's 'History of British Mollusca and their Shells.'

### MISCELLANEOUS.

*On a new Class of Echinodermata.*

By C. SEMPER.

M. SEMPER has made an anatomical investigation of the genus *Rhopalodina* of Gray, which has led him to rather remarkable results. The animal had been classed by Dr. Gray, because of the form of its body, among the Holothuriæ. This body is formed of an anterior part having the form of a cylindrical peduncle, and of a spherical posterior part or abdomen. In this hinder region, at the point opposed to the insertion of the peduncle, are seen ten ambulacra, to which correspond in the interior, as in the Holothuriæ, ten radiating muscles, ten aquiferous canals with their ampullæ, and ten nerves. These ten rays of the abdomen, moreover, are prolonged into the peduncle, but without bearing any feet.

At the free extremity of the peduncle are the mouth and the anus, side by side. The margin of the mouth is entire; that of the anus is formed by a circle of ten papillæ. The tentacular crown of the pharynx is formed of ten pennated tentacles, which, in the two individuals studied by M. Semper, were hidden in the buccal cavity. The pharynx and the terminal part of the intestine consequently pass side by side in the interior of the peduncle. At the point where the peduncle enlarges to form the spherical abdomen, the anal intestine bears four long cæca, like the lungs of the Holothuriæ. At the corresponding point of the pharynx, between that organ and the intestine, appears a little swelling, serving as the point of attachment of a crowd of little blind tubes. These are the generative organs, constructed on the type of those of the Holothuriæ. The stomach forms in the abdomen a spiral with numerous turns and a double loop.

Of the ten rays above mentioned, five correspond with the pharynx and five with the intestine. The five radial muscles of the pharynx are attached, as in the Holothuriæ, to five radial pieces of the calcareous pharyngeal ring, which is formed of ten pieces in all. In this place there ought to exist a circular aquiferous vessel, as follows from the existence of two vesicles of Poli. Round the anus,