





THE  
 QUARTERLY JOURNAL  
 OF  
 CONCHOLOGY.

CONDUCTED BY  
 WM. NELSON AND JOHN W. TAYLOR.

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London :

ROBERT HARDWICKE, 192, PICCADILLY, W.

LEEDS: T. BARMBY, BOOKSELLER, BRIGGATE.

PRICE SIXPENCE.

Free by post, 6½d. Annual Subscription, payable in advance, 2s., Post Free.

THE  
**Quarterly Journal of Conchology.**

THE Introduction, published in the First Number, sufficiently explains the objects the Editors have in view; but it will, perhaps, not be superfluous to hope that every Conchologist who may be in possession of information, will freely communicate it, and thereby contribute his or her share to rendering the Journal a full and accurate record of the progress of the science which it is founded to promote.

Any profits arising from the Journal will be devoted to its improvement: and illustrations will be given when the interests of the Journal, and its pecuniary success, will admit.

It is requested that scientific and proper names be written distinctly and without abbreviation.

No notice will be taken of anonymous contributions; and authors alone will be held responsible for the opinions expressed in their articles.

**LOCAL CATALOGUES.**—The Editors will be happy to receive communications of this nature, and still more so if carefully annotated, with full records of locality, relative abundance or scarcity, and such other information as will tend to give a correct idea of the fauna of the district. Prior to compiling a list of this kind, the Editors would feel much obliged by the author communicating with them with regard to the area and boundaries of the proposed district. This is requested with a view to ultimate tabulation of the records; and attention to this point would prevent much future uncertainty.

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THE  
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ON THE DIFFICULTIES OF RECOGNISING "NAMED VARIETIES" ACCORDING TO THE ACCEPTED AUTHORITIES.

By T. ROGERS.

A knowledge of the species of Land and Freshwater Shells which are naturalised or indigenous to the British Isles is readily acquired by the student of Conchology, and they are readily arranged in the cabinets of collectors under their proper names and typical characters, a few species excepted.

The most difficult and most unsatisfactory part of the subject, however, is that which relates to a proper knowledge of what are known by Conchological authorities as "named varieties." This is especially the case with such varieties as depend upon form or shape for their chief varietal distinction.

In studying the shells alone, as distinct from any variation which may exist in the animals, the aberrant forms may be divided into three or four divisions. First, and perhaps the least important, are those variations which arise from colour or want of colour. This would include the white varieties. The next would be those varieties in which the texture, structure, thickness, and maximum and minimum size of the shells are noticed. This section would contain the crystalline, iridescent, incrassate, and major and minor varieties.

The next division, and that which I venture to think the most important, is the one in which we recognise difference in form or shape, this being the chief character under which specific differences are arranged under generic characters, notwithstanding a great many anomalies, such as the elevated and depressed spires, swollen and compressed whorls of the *helices*, &c., abnormal contortions of the *planorbes* or ventricose shells of the bivalves. It is in this division of variation in which Conchological students find the most difficulty, owing chiefly to the fact of not having some standard of variation which would be understood by such terms used, as *sub-maritima*, *sub-globosa*, *gigaxii*, *conoidea*, *oblonga*, *sub-scalaris*, &c., &c.

Most students, I think, find that the brief technical language given in books is inadequate to convey to the mind that which is intended. If it should be within the means of the Editors of the Conchological

Journal to give from time to time outline sketches of abnormal forms under recognised varietal names—given by such eminent authorities as Jeffreys, for instance—it would be very valuable and interesting, especially to the student subscribers of this interesting Journal.

In the foregoing remarks I have but alluded casually to the variation of the animal which inhabits the shell, which doubtless varies more or less in conformity to the variations in the shell, either in some particular organ which regulates colour or texture or general form combined; but as these particulars are not mentioned by authors generally, except such variation as relates to colour in the animal, we may infer that difference in the shell is chiefly recognised in the naming of varieties of such that are shell-bearing. The fact that when any difference in form is made apparent in any particular organ or combination of organs in the animal which inhabits the shell, it is then placed upon debatable ground as to its rank as species or variety; this shows how important variation in form is to be considered in relation to other varietal differences.

I wish to repeat again that if it was well understood by Conchological students what a "named variety" was according to some recognised standard, what additional value and importance it would give to the combined observances of Conchologists and collectors in noting that such a variety of some particular species had been found on the sea-coast or inland situation, on the mountain or in the valley, in the woods or in the open field, on rocks or in the marsh, in the water, fresh or brackish; in the running stream or standing pool; or water charged with inorganic compounds, as iron and lime; or organic compounds, as vegetable or dead animal matter; or geologically, on chalk, limestone, sandstone, slate, or coal, &c.

Observations made under these circumstances and noted from time to time in this Journal, I venture to think would help to elucidate the causes of variation and the geographical distribution of species.

P.S.—Since writing the preceding remarks in reference to the desirability of student subscribers to the Journal of Conchology exactly understanding what amount of difference from the typical form might be considered sufficient to mark a named variety, it has occurred to me that several small boxes or set of boxes, suitable for posting, might be kept at the office of the Journal, which would contain single specimens of each of the several varieties of single species or group of species, which had been identified as such—say by Mr. Jeffreys—and that these boxes should be lent for a stated period—say a week—to such of your subscribers as might desire to see the same, and would be willing to send—say twelve stamps; these to be returned on the return of the box, after deducting postage, or kept as security for other boxes which he might desire to see, or kept in hand on subscription account. Boxes also might be prepared containing type shells of critical species, which, I think, are not always found correctly named even in good collections.

A LIST OF LAND AND FRESHWATER SHELLS  
FOUND IN THE NEIGHBOURHOOD OF ACK-  
WORTH, YORKSHIRE.

By CHARLES ASHFORD.

Ackworth is eight miles from Wakefield and three from Pontefract. The circle in which the following shells were collected is therefore contiguous to the Wakefield district, and as it lies partly upon the magnesian limestone and partly upon sandstone, a number of shells occur in it which appear to be absent from the Wakefield district, as a comparison with the list published in the first number of this Journal will show.

*Sphærium corneum* Linne.—Common throughout the district.

*Sphærium lacustre* Muller.—Sparingly in a stagnant pond near the Wakefield road.

*Pisidium amnicum* Muller.—Common in running streams.

*Pisidium fontinale* Draparnaud.—Common in ponds.

*Pisidium fontinale* var *Henslowana*.—Common in an artificial stream at Ackworth. This variety has the usual umbonal appendage but slightly developed, and the late Mr. Jenyns considered it intermediate between the well-marked variety and the normal form.

*Pisidium fontinale* var *cinerea*.—Common in several ponds.

*Pisidium fontinale* var *pulchella*.—Common in Hensworth reservoir and other places. This is the variety  $\delta$  of Jenyns.

*Pisidium pusillum* Gmelin.—Pond near Hasel Green and elsewhere.

*Pisidium nitidum* Jenyns.—Rare. Large series of shells of this difficult genus were submitted to Messrs. Alder and Jenyns, who kindly determined the species as here recorded.

*Unio tumidus* Phillipson.—Common in the River Went at Went Vale.

*Unio tumidus* var *radiata*.—Not uncommon in the Went.

*Unio pictorum* Linne.—River Went, less common than *tumidus*.

*Anodonta cygnea* Linne.—Plentiful in Hensworth reservoir and the lake at Nostell.

*Dreissena polymorpha* Pallas.—Abundant in Winterset reservoir.

*Bythinia tentaculata* Linne.—Common throughout.

*Valvata piscinalis* Muller.—Common in the mill pond, Ackworth, and in Winterset reservoir.

*Valvata cristata* Muller.—A few specimens found in the Went, attached to the tenement of a caddis worm.

*Planorbis nitidus* Muller.—Once common among duckweed in a roadside pond, but scarce a year or two afterwards.

*Planorbis nautilus* Linne.—Extremely abundant in various ponds.



- Planorbis nautilus* var *cristata*.—Common with the type.
- Planorbis albus* *Muller*.—Common throughout. Fine in Hemsworth reservoir.
- Planorbis glaber* *Jeffreys*.—Abundant in a fishpond in Ackworth park, and there only.
- Planorbis spirorbis* *Muller*.—Common throughout.
- Planorbis vortex* *Linne*.—Common throughout.
- Planorbis carinatus* *Muller*.—Mill pond, Ackworth; not common.
- Planorbis complanatus* *Linne*.—Common in several parts.
- Physa hypnorum* *Linne*.—Moderately common in ditches, but not everywhere.
- Physa fontinalis* *Linne*.—Generally distributed.
- Limnæa peregra* *Muller*.—Common throughout.
- Limnæa auricularia* *Linne*.—Common in Winterset and Hemsworth reservoirs.
- Limnæa palustris* *Muller*.—In small field pools near Hasel Green.
- Limnæa truncatula* *Muller*.—Common throughout.
- Limnæa glabra* *Muller*.—Very local. Abundant in one pond near Hasel Green.
- Ancylus fluviatilis* *Muller*.—River Went and smaller streams.
- Ancylus lacustris* *Linne*.—Common on the stems of the water flag in one or two ponds.
- Arion ater* *Linne*.—Common throughout.
- Arion hortensis* *Férussac*.—Not uncommon in various parts.
- Limax marginatus* *Muller*.—Several found on one occasion upon a stone wall at Ackworth after rain.
- Limax agrestis* *Linne*.—Too common everywhere.
- Limax maximus* *Linne*.—Common in most parts.
- Succinea putris* *Linne*.—Tolerably common, but small.
- Succinea elegans* *Risso*.—In profusion on the banks of Hemsworth reservoir.
- Vitrina pellucida* *Muller*.—Common throughout.
- Zonites cellarius* *Muller*.—Common throughout.
- Zonites alliarius* *Miller*.—Occasional throughout.
- Zonites glaber* *Studer*.—Not yet found within the district. Nearest recorded locality is a wood near Conisbro' Castle, Doncaster.
- Zonites nitidulus* *Draparnaud*.—Common throughout.
- Zonites nitidulus* var *nitens*.—More common than the typical form.
- Zonites purus* *Alder*.—Common throughout.
- Zonites radiatulus*.—Found sparingly with *Z. purus*.
- Zonites nitidus* *Muller*.—Abundant by Hemsworth reservoir.
- Zonites excavatus* *Bean*.—In a wood near Winterset reservoir; rare.
- Zonites crystallinus* *Muller*.—Common throughout.
- Zonites fulvus* *Muller*.—Found occasionally in woods.
- Helix aculeata* *Muller*.—Common in Went Vale; less common elsewhere.
- Helix aspersa* *Muller*.—Common throughout.
- Helix nemoralis* *Linne*.—Common throughout.



- Helix nemoralis** var **hortensis**.—Not so common.  
**Helix nemoralis** var **hybrida**.—Rare in the district.  
**Helix Cantiana** *Montagu*.—Road to Pontefract; common, but local.  
**Helix rufescens** *Pennant*.—Common throughout.  
**Helix rufescens** var **albida**.—Rare.  
**Helix concinna** *Jeffreys*.—(?) Common by repute. I have not found satisfactory specimens myself.  
**Helix hispida** *Linne*.—Common throughout.  
**Helix hispida** var **albida**.—Rare.  
**Helix sericea** *Muller*.—Rare.  
**Helix fusca** *Montagu*.—Not yet found in the district, but occurring in woods near Doncaster.  
**Helix virgata** *Da Costa*.—Abundant on the limestone part of the district.  
**Helix caperata** *Montagu*.—Not uncommon on the limestone.  
**Helix ericetorum** *Muller*.—On the limestone, Went Vale.  
**Helix rotundata** *Muller*.—Common throughout.  
**Helix pygmæa** *Draparnaud*.—Common in Went Vale; occasional elsewhere.  
**Helix pulchella** *Muller*.—Common in Went Vale; found occasionally elsewhere.  
**Helix pulchella** var **costata**.—Common in Went Vale.  
**Helix lapicida** *Linne*.—On the limestone rocks of Went Vale only.  
**Bulimus obscurus** *Muller*.—Found occasionally throughout.  
**Pupa umbilicata** *Draparnaud*.—Common throughout.  
**Pupa marginata** *Draparnaud*.—In the limestone part of the district; not common.  
**Vertigo antivertigo** *Draparnaud*.—Common on the banks of Hemsforth reservoir.  
**Vertigo pygmæa** *Draparnaud*.—Common in Went Vale.  
**Vertigo substriata** *Jeffreys*.—Went Vale; local and rare.  
**Vertigo pusilla** *Muller*.—Very common in Went Vale.  
**Vertigo edentula** *Draparnaud*.—Rather common in Went Vale.  
**Vertigo minutissima** *Hartmann*.—Went Vale; rare. The last five species were found associated.  
**Clausilia rugosa** *Draparnaud*.—Common throughout.  
**Cochlicopa lubrica** *Muller*.—Common in most parts.  
**Achatina acicula** *Muller*.—Empty shells found in Went Vale.  
**Carychium minimum** *Muller*.—Common in most parts.  
 GROVE HOUSE, TOTTENHAM.

**Helix rotundata** var **alba** (*Moquin-Tandon*) at **Conisbro' Castle**.—On the 2nd of June, 1873, I found at Conisbro' Castle a specimen of this rare but widely-distributed variety.—GEORGE TAYLOR, Wakefield.

**Occurrence of Zonites glaber** (*Studer*) near **Leeds**.—During September, last year, whilst shell collecting in the neighbourhood of Collingham, accompanied by my friends, Messrs. Taylor and Whitwham, we found large specimens of this fine *Zonites*.—W. NELSON, Leeds.

A CATALOGUE OF THE LAND AND FRESHWATER  
MOLLUSCA OF NORTHUMBERLAND AND DURHAM.

BY W. D. SUTTON.

In compiling this catalogue, which comprises to a considerable extent the records of locality, the relative abundance or scarcity, and other remarks respecting the fauna of this district, I have been very materially assisted by reference to a "Catalogue of the Land and Freshwater Mollusca of the Vicinity of Newcastle," by the late Joshua Alder, Esq., which was published in the "Natural History Society's Transactions" in 1830, to which a supplement was added in 1838. More recently the contributions of Mr. William King, late curator of the Newcastle-upon-Tyne Museum, and of Mr. Richard Howse to the "Annals of Natural History," have illustrated several of our rarer species. Since, however, these contributions were written, now upwards of a quarter of a century has elapsed, and great transformations have taken place in the district, and localities which then existed and were favourite resorts for Conchologists, botanists, and others, have had their rural character entirely changed, and from various causes either have entirely disappeared or have given place to large manufactories, collieries, or similar other industries, such as railway requirements; or as in the case of the extensive series of small lakes, situated at Prestwick Carr, some seven or eight miles distant from Newcastle, and which comprised several hundred acres of swampy, boggy land, these were all doomed to disappear about fifteen years ago by the Commissioners for Reclaiming Waste Lands. Consequently about the only locality in the district in which were found *Anodonta cygnea* and its varieties, likewise *Limnæa stagnalis*, *Limnæa palustris*, *Planorbis corneus*, and several other species, can no longer be regarded as available, the district now producing good crops of wheat, oats, and turnips, where formerly peat moss and boggy swamps prevailed. In the inland portion of the two counties, and on the east coast, the surface of the country is a good deal diversified, but upon the whole it is rather too hilly, particularly in the western parts, to be very productive of the land and freshwater mollusca, which are generally thinly scattered in upland and exposed situations. The valleys, however, produce a very considerable number of the land species. These abound most on a limestone formation, and a few species are nearly confined to that description of rock, such, for instance, as *Clausilia dubia* and *Clausilia rugosa*. The limestone appears to

predominate more in the north-east corner of the county of Durham, say between Shields and Hartlepool, having Sunderland for its centre, and some of the romantic valleys which lie between the two extremes, such as Castle Eden Dene, Hawthorn Dene, Hetton Dean, and Ryhope Dean, are very favourite resorts for Conchologists and botanists, and abound with many of the rarer species. Owing to the small extent of marshes and ditches, as also to the absence of canals or sluggish rivers, in addition to the lower temperature, the freshwater species are much less abundant than in the south of England. Nearly all the rivers, with but slight exceptions, are rapid in their course, over either stony or rocky beds, partaking more of the character of the Scotch rivers. Such may be said to be the character of the river Reed, in the north-west of Northumberland, where very fine specimens of the *Unio Margaritifera* are to be met with above Otterburn, in the earlier and more precipitous part of its course.

**Sphærium corneum** *Linne.* — In ponds and ditches; common throughout the country.

**Sphærium lacustre** *Muller.* — In ponds; by no means common throughout the district. It occurs in a pond at Kenton, near Newcastle, likewise a pond on the Town Moor, the Keel Quarry pond, near Benton, and a pond near Marsden, county of Durham. This may possibly be the *Tellina lacustris* of Muller, but as Continental authors consider it distinct, Draparnaud's name has been adopted.

**Pisidium amnicum** *Muller.* — Rather rare; in slow streams. Occurs near Stockton-on-Tees and the Mill Race in Jesmond Dean.

**Pisidium fontinale** var **pulchella** *Jenyns.* — In ponds and ditches; tolerably plentiful throughout the district. Occurs at Keel Quarry pond, near Benton.

**Pisidium fontinale** var **cinerea** *Alder.* — Plentiful in a pond near Castle Eden Dean, near Hartlepool; also at Whitley reservoir, near Cullercoats. A more ventricose variety is found in ditches near to Brandling village.

**Pisidium pusillum** *Gmelin.* — In ponds and ditches; frequent throughout the district.

**Pisidium pusillum** var **obtusalis** *Pfeiffer.* — Occurs in some ponds near Darlington.

**Pisidium nitidum** *Jenyns.* — This likewise occurs in some ponds near to Darlington.

**Unio margaritifer** *Linne.* — In mountain streams and rivers in the early and more precipitous part of their course. Very fine specimens occur in the river Reed, above Otterburn, in Northumberland.

**Anodonta cygnea** *Linne.* — In ponds, only occasionally. Occurs in the Black Pool, near Dinnington, Northumberland.

**Neritina fluviatilis** *Linne.* — This has been frequently met with on our coast, but as it is a common ballast shell, must be attributed to

this source. Found also in the neighbourhood of Stockton-on-Tees, in the county of Durham. Rather doubtful in a live state.

*Paludina vivipara* Linne.—Though dead, specimens of these occur on our coasts. There is little doubt but that they have been brought in ballast from the south of England, and to that source are attributed.

*Bythinia tentaculata* Linne.—In ponds and ditches; not common near Newcastle and its district, but abundant near Stockton-on-Tees and that locality.

*Valvata piscinalis* Muller. — Rather rare, in ponds and slow streams. The Mill Race, Jesmond Dean. More plentiful in streams near Stockton-on-Tees.

*Valvata cristata* Muller.—Rare, in ditches near Ponteland, in Northumberland.

*Planorbis nitidus* Muller.—Rather rare; occurs in ponds at Redheugh and Benwell, near Newcastle, also near Middleton One Row, and Stockton-on-Tees, county of Durham.

*Planorbis nautilus* Linne.—In ponds in the neighbourhood of Newcastle frequently, and generally in abundance where it occurs. In a pond near Whitburn, in the county of Durham.

*Planorbis nautilus* var *cristata* Draparnaud.—Occurs with the type, but only sparingly.

*Planorbis albus* Muller.—Not common, but is to be met with occasionally in ponds and slow streams throughout the district.

*Planorbis glaber* Jeffreys.—Not common; is found in a pond near Benwell, at Ryton Haughs, and in a pond near the sea banks, near Whitburn, county of Durham, and also more plentifully, and fine specimens, on the Haughs of the River Coquet, near Rothbury, Northumberland.

*Planorbis spirorbis* Muller.—Frequently throughout the district. Occurs in a pond near Marsden, county of Durham.

*Planorbis carinatus* Muller.—Rare; is found in the neighbourhood of Stockton-on-Tees, county of Durham.

*Planorbis complanatus* Linne.—Moderately plentiful throughout the district. Occurs at Ryton Haughs and near Stockton-on-Tees, county of Durham, and at Rothbury, in Northumberland.

*Planorbis corneus* Linne.—Rare; is to be met with in the vicinity of Darlington.

*Planorbis contortus* Linne.—Not common. Occurs at Ryton Haughs, and near Stockton, county of Durham, and at Gosforth Lake, Rothbury, and near Wooler, in Northumberland.

*Physa hypnorum* Linne.—In ditches and ponds occasionally, but like *P. fontinalis*, generally plentiful when it does occur. Found in ponds near Kenton, Northumberland.

*Physa fontinalis* Linne.—In ponds and ditches; generally tolerably plentiful when it does occur. Is found at Ryton Haughs, Marsden, and near Stockton-on-Tees, in Durham, and at Gosforth Lake and Rothbury, on the haughs of the river Coquet.

*Limnæa peregra* Muller.—Common throughout the district, in ponds, ditches, and slow streams. The numerous varieties of this

common species, in size, form, and consistency, are very perplexing to the Conchologist. Specimens found at Redheugh and on Holy Island have rather a strong shell and the spire much produced, whilst some from the locality of Darlington possess the opposite extreme, and have a very thin, delicate shell, and scarcely any spire. The latter comes very near to the form got by Mr. Thompson in Lough Neagh, Ireland, which is the *Gulvaria lacustris* of Leach.

*Limnæa auricularia* Linne.—Rather rare in the district; is to be met with at Gosforth Lake, in Northumberland, and in ponds near Darlington, county of Durham.

*Limnæa palustris* Muller.—Not common. Those found in marshes and still water in the district grow to a large size, but at the margins of rivers they are much stunted in growth, and have the aspect of a distinct species. On the shores of the Tyne, where they are more abundant, they are not larger than the common-sized *L. truncatula*, and might be taken for that species but for the less ventricose whorls, and that the latter species is also found in the same situations in an equally dwarfed condition.

*Limnæa trunculata* Muller.—Common in ponds and ditches throughout the district. Occurs in a pond near Kenton, and at Whitley reservoir, near Cullercoats, where the specimens are good and well defined.

*Limnæa glabra* Muller.—In ponds and ditches; not uncommon near Newcastle.

*Ancylus fluviatilis* Muller.—Of frequent occurrence throughout the district. Is met with in the rivulet in Scotswood Dean, stream near Brockley Whins, the river Coquet at Rothbury, and sundry other places.

*Ancylus lacustris* Linne.—Rather rare, on aquatic plants in ponds and ditches. Occurs in ponds near Benwell and Crag Lake, Northumberland; at near Middleton One Row, in the county of Durham.

*Arion ater* Linne (common black slug).—In fields, woods, and hedges very common. Férussac considers the black head and tentacles, and the transverse black lines round the margin of the foot, to be the only permanent distinctive characters in this very variable species. The varieties occurring in this neighbourhood are the following:—

1. Entirely black.
2. Black, with the sides of the foot yellow or orange.
3. Blackish above, with a black band on each side of the body, and the sides yellowish white.
4. Yellowish or greenish white, with black tentacles. The young are always much paler than the adults, and are sometimes of a transparent white. The Rufous variety is not met with in this district.

*Arion flavus* Férussac.—Occasionally found on the moors near Haltwhistle, in Northumberland. M. Bouchard-Chantreaux considers this species distinct from *A. ater*, and it has not the characters of the

latter pointed out by Férussac. It is too difficult a genus, however, to give a decided opinion upon.

**Arion hortensis** Férussac.—In gardens, &c., common. A variety, or possibly a species, nearly allied to this is found in woods. It is about twice the size of the garden slug, and its colour invariably yellowish fawn, inclined to amber, with a brown band on each side. The two kinds are not found mixed, the one inhabiting the woods and the other cultivated grounds.

**Limax marginatus** Muller.—Occasionally at Benwell, near Newcastle.

**Limax flavus** Linne.—In cellars, &c.; not very common.

**Limax agrestis** Linne.—In fields and gardens; very common throughout the district.

**Limax brunneus** Draparnaud.—In damp woods, frequent.

**Limax tenellus** Muller.—Occasionally occurs in a wood at Allansford, county of Durham. The specimen referred to was of a pale, dull yellow colour, very transparent and lubricous, with an obscure band on each side of the shield and back; the posterior part of the shield rounded; the tentacles black, length rather more than an inch; the mucus orange-coloured. In all these particulars it agrees with the description of *Limax tenellus* given by Nilsson in his excellent little work, called "Historia Molluscorum Sueciæ." Nilsson's description is as follows:—"Animal parvum, vix,  $1\frac{1}{4}$  unc. longum. Clypeus lineis subtilibus concentricis striatus, apertura lateribus postica. Collum supra linea longitudinali elevata, lateribus subreticulatis. Dorsum postice compressum. Color clypei et dorsi postici luteus: dorso supra luteovirescente levissime cinerascens, subtus albo. Tentacula, caput, et linea colli utrinque, humida, rarius."

**Limax arborum** Bouchard-Chantereaux.—Occurs occasionally, and is to be met with in woods at Wolsingham and Shotley Bridge, in the county of Durham.

**Limax maximus** Linne.—In woods and fields; common throughout the district.

**Succinea putris** Linne.—Common on aquatic plants in marshy places, and at the borders of rivulets.

**Succinea elegans** Risso.—Of frequent occurrence; rather local. To be met with in the neighbourhood of Wark, North Tyne.

**Vitrina pellucida** Muller.—Common amongst decayed leaves and under stones in woods; more plentiful on the sea banks. Very abundant near St. Mary's Island, near Hartley, where, in some states of the weather, it is difficult to walk without crushing numbers of them.

**Zonites cellarius** Muller.—Common throughout the district; found generally in yards and cellars and under stones.

**Zonites alliaris** Miller.—Common throughout the district, in woods or amongst moss.

**Zonites nitidulus** Draparnaud.—Common through the district.

**Zonites purus** Alder.—Occurs occasionally in woods in the district, at Rothbury and Gibside Woods.

**Zonites radiatulus** *Alder*.—In wet moss; not very plentiful. The variety occurs in Gibside Woods, Durham.

**Zonites nitidus** *Muller*.—Occurs occasionally; not common.

**Zonites excavatus** *Bean*.—Rather rare. Occurs at Stella Dean, also in Gibside Woods, where there is a white variety occasionally found, but sparingly.

**Zonites crystallinus** *Muller*.—Common throughout the district.

**Zonites fulvus** *Muller*.—Occurs occasionally, but only sparingly.

The variety is found in a marshy spot in Heaton Dean, near Newcastle.

**Helix lamellata** *Jeffreys*.—Rather rare. It is met with occasionally in Gibside Woods, Durham, Walbottle Dean, Northumberland, and Tanfield Woods, Durham, but sparingly.

**Helix aculeata** *Muller*.—Rather rare throughout the district. Occurs at Ryhope Dean and Castle Eden Dean, Durham.

**Helix aspersa** *Muller*.—In gardens and on hedge sides, common. Very abundant on the sea banks on a limestone soil.

**Helix nemoralis** *Linne*.—Common throughout the district.

**Helix nemoralis** var **hortensis** *Muller*.—In woods and hedge banks, occasionally.

**Helix nemoralis** var **hybrida** *Poiret*.—This species occurs at Stella Dean, but is not generally met with throughout the district.

**Helix arbustorum** *Linne*.—Frequent in woods and on hedge sides amongst nettles.

**Helix Cantiana** *Montagu*.—Not very common. More plentiful nearer Sunderland and on the sea banks adjacent.

**Helix rufescens** *Pennant*.—Does not occur in the district round about Newcastle, but is found occasionally near Sunderland and other parts of the magnesian limestone district.

**Helix concinna** *Jeffreys*.—Common on nettles and other plants by hedge sides about Newcastle, where it takes the place of *H. rufescens*.

**Helix hispida** *Linne*.—Common throughout the district.

**Helix sericea** *Muller*.—In woods, rare. Occurs in woods at Tanfield, and in Bath Wood, Dinsdale, county of Durham. In the vicinity of Rothbury, Northumberland, it occurs somewhat more abundantly.

**Helix virgata** *Da Costa*.—Occurs occasionally; more frequently on the sea banks near Sunderland.

**Helix caperata** *Montagu*.—Common throughout the district, more especially on a limestone soil. Very abundant on the hills near Rothbury, Northumberland.

**Helix ericetorum** *Muller*.—Not very common. Occurs at West Boldon, Durham, on a limestone soil, and at various parts of the sea coast between Shields and Sunderland.

**Helix rotundata** *Muller*.—Common throughout the district. The beautiful greenish white variety has occasionally been found in Benwell Lane and Tanfield, in the county of Durham.

**Helix rupestris** *Studer*.—In old limestone quarries and old walls. Local, and apparently confined to limestone. Tolerably abundant at Byer's Quarries, near Marsden, in the county of Durham.



*Helix pygmæa* *Draparnaud*.—Rather rare; under decayed leaves and in woods, but sparingly.

*Helix pulchella* *Muller*.—In tolerable abundance throughout the district. Plentiful at West Boldon, in the county of Durham, occasionally met with on St. Mary's Island, near Hartley, and also on the sea banks between Tynemouth and the previously-named place. More plentiful, however, on a limestone soil.

*Bulinus obscurus* *Muller*.—Only occasionally; occurring more plentifully on a limestone soil.

*Pupa ringens* *Jeffreys*.—Rare; found occasionally at Walbottle Dean and Castle Eden Dean, and on the sea banks near Ryhope, also sea banks near to Cullercoats.

*Pupa umbilicata* *Draparnaud*.—On the sea banks, frequent. Very plentiful at Byer's Quarry, near Marsden, and also at West Boldon, county of Durham.

*Pupa marginata* *Draparnaud*.—Rare; occurs occasionally in the vicinity of Sunderland and Ryhope, and other districts on the limestone formation. The animal is pale, transparent grey, with two black lines along the back; in other respects agreeing with the character of the genus.

*Vertigo pygmæa* *Draparnaud*.—Under stones and on old walls, generally in dry situations. Not particularly rare.

*Vertigo substriata* *Jeffreys*.—Rare; in wet moss and in woods. Occurs at Heaton Dean, Tanfield, Gibside, and Stella.

*Vertigo pusilla* *Muller*.—Rather rare; occurs at Tanfield and near to Crowhall Mill; generally found in damp moss in woods.

*Vertigo edentula* *Draparnaud*.—Rather rare; occurs at Castle Eden Dean and Ryhope Dean, county of Durham.

*Balia perversa* *Linne*.—Frequently met with in moss and on old walls. Occurs in Castle Eden Dean and Ryhope Dean, both in the county of Durham.

*Clausilia rugosa* *Draparnaud*.—Not uncommon throughout the district, in woods and rocky places. The variety occurs in Tanfield and Castle Eden Dean.

*Clausilia rugosa* var *dubia* *Draparnaud*.—Frequently occurs in the district; more plentiful, however, on a limestone formation. Found at Marsden and West Boldon, both in the county of Durham.

*Clausilia laminata* *Montagu*.—In woods throughout both counties, but not very plentiful.

*Cochlicopa tridens* *Pulteney*.—Rather rare; on mossy banks and in woods. Rather local, but generally plentiful where it does occur. At Scotswood and Meldon, Northumberland, and at Stella, Castle Eden, and Tanfield, county of Durham.

*Cochlicopa lubrica* *Muller*.—Common throughout the district.

*Achatina acicula* *Muller*.—Rare. One specimen was found alive in the gardens at Whitley House, also at the roots of an *Ornithogalum* in a garden at Darlington. The shell occurs sometimes on the sands at Tynemouth, probably washed from the banks.

**Carychium minimum** *Muller*.—Occurs frequently throughout the district, amongst moss and decayed leaves in woods, &c.

**Cyclostoma elegans** *Muller*.—Found sparingly on sea banks between Cullercoats and Whitley, Northumberland.

**Acme lineata** *Draparnaud*.—Rare; occurs occasionally in wet moss in Castle Eden Dean, county of Durham.

GOSFORTH GROVE, NEAR NEWCASTLE-UPON-TYNE,  
March 10, 1874.

**Cochlicopa tridens** var *crystallina* (*Dupuy*) near Leeds.—A short time ago a young collector brought me for identification a specimen of this variety, taken in Bolton Woods.—JOHN W. TAYLOR, 9, Freehold Street, Leeds.

**A White Variety of *Limnæa palustris*** (*Muller*) near Leeds.—Amongst a quantity of freshwater shells collected at Swillington, near Leeds, and brought to me, was an *albino* of *Limnæa palustris*. This form must be very rare, as it is the only white shell of this species I have seen.—J. W. TAYLOR, 9, Freehold Street, Leeds.

**Cochlicopa tridens** var *crystallina* (*Dupuy*) at Petersfield, Hants.—I have taken this variety near Petersfield, Hants. The specimen, which was a good one, was found in moss on a bank in a wood, a spot which will long be remembered by me, as I took *Clausilia Rolphii* and *Helix obvoluta* alive for the first time in the same place.—C. ASHFORD, Grove House, Tottenham.

**Zonites excavatus** var *vitrina* (*Férussac*) near Huddersfield.—In November, 1872, I found specimens of this variety at Golcar, near Huddersfield, inhabiting exclusively heaps of stones, cinders, and other refuse. All specimens taken since that time have evinced an invariable partiality for a similar habitat.—J. WHITWHAM, Cross Lane, Marsh, Huddersfield.

**Helix lamellata** (*Jeffreys*) at Huddersfield.—I first met with this species in March, 1870, in Roydas Wood, near Farnley Tyas, about two and a half miles from Huddersfield, and have taken it regularly since that time. It is invariably found among dead beech leaves, and is very local in its distribution, having only been found in two places of limited area within the precincts of the wood up to the present time.—J. WHITWHAM, Cross Lane, Marsh, Huddersfield, March, 1874.

**Occurrence of *Zonites glaber*** (*Studer*) at Folkestone.—Having been fortunate enough to find *Zonites glaber* within the last month in an old hedge in the immediate neighbourhood of Folkestone, I thought it might be interesting to your readers to be informed of the fact, as I do not think it has been mentioned as having been found in Kent before. The specimens have been kindly identified for me by T. Rogers, Esq., of Manchester, the original discoverer of the species. The neighbourhood of Folkestone is very rich in Conchological treasures, and during the past year I have constantly been adding to the supposed list of local species by fresh discoveries. Besides *Zonites glaber*, I have found *Acme lineata* and the variety *alba* within the last few days.—[MRS.] J. FITZGERALD, 10, West Terrace, Folkestone, April 14.

LIST OF SHELLS TAKEN AT TENBY, PEMBROKE-SHIRE, AT THE END OF SEPTEMBER, 1872.

By G. S. TYE.

*HELIX PISANA*, *Muller*.—Common. Varied in markings and shade of colour; very fine.

*HELIX PISANA* var *ALBA*, *Shuttleworth*.—Common. More plentiful in some places than others, and finer.

*HELIX VIRGATA* var *SUB-GLOBOSA*, *Jeffreys*.—Black Rock only. Plentiful, but not a very good type of this variety.

*HELIX VIRGATA* var *SUB-MARITIMA*, *Des Moulins*.—Common. Of every style of marking and shade of its usual colours, the pale brown predominating here, as in other localities.

*HELIX CAPERATA*, *Montagu*.—Common. Of good size, a dark variety; occurring very distinct and peculiar.

*HELIX CAPERATA* var *ORNATA*, *Picard*.—Not very common, but large and decided in marking.

*HELIX CAPERATA* var *SUB-SCALARIS*, *Jeffreys*.—Occasionally. Not common; of good size.

*HELIX CAPERATA* var *MAJOR*, *Jeffreys*.—Occasionally. Five only, but inferior type.

*HELIX SERICEA*, *Muller*.—Narberth road. Plentiful on ivy in a hedge-row after a shower.

*HELIX SERICEA* var *CORNEA*, *Jeffreys*.—Castle cliff. Moderately plentiful under herbage.

*HELIX SERICEA* var *ALBIDA*.—Narberth road; not very common. This variety, so far as I know, is not noticed by Jeffreys: it may be new. I found one specimen among some shells sent from Cornwall a year ago.

*HELIX ERICETORUM*, *Muller*.—Gumfrieston road, The Burrows, and The Ridgeway. Plentiful.

*HELIX RUFESCENS*, *Pennant*.—Here and there. Small, and for the most part unfinished.

*HELIX ASPERSA* var *CONOIDEA*, *Picard*.—Castle Hill, &c. Plentiful, but not all of good form.

*HELIX NEMORALIS*, *Linne*.—Hedge rows; not common.

*HELIX NEMORALIS* var *HORTENSIS*, *Muller*.—Hedge rows; not common.

*HELIX CONCINNA*, *Jeffreys*.—Giltar, near the shore. Only about twelve shells occurred to me (some dead), but of good character.

*HELIX RUPESTRIS*, *Studer*.—Old walls, &c.; moderately common.

*BULIMUS ACUTUS*, *Muller*.—Most places. Varied in marking, form, and size.

*BULIMUS ACUTUS* var *BIZONA*, *Jeffreys*.—Fields between Tenby and Penally. Moderately common.

*BULIMUS ACUTUS* var *INFLATA*, *Jeffreys*.—Fields between Tenby and Penally. Not so common as *bizona*.

PUPA UMBILICATA, *Draparnaud*.—Castle Hill and Black Rock. Fairly plentiful.

PUPA MARGINATA, *Draparnaud*.—Castle Hill and Black Rock. Not very plentiful.

CYCLOSTOMA ELEGANS, *Muller*.—Giltar; somewhat plentiful.

#### MARINE.

ANOMIA EPHIPIUM, *Linne*.—Deep water; dredged.

ANOMIA EPHIPIUM VAR ACULEATA, *Linne*.—Deep water; dredged.

PECTEN OPERCULARIS, *Linne*.—Deep water; from the dredgers.

PECTEN VARIUS, *Linne*.—Deep water; from the dredgers.

MYTILUS EDULIS VAR INCURVA, *Pennant*.—Along the shore. In holes in the rocks.

CYPRINA ISLANDICA, *Linne*.—Deep water; from the dredgers.

CALYPTREA CHINENSIS, *Linne*.—Deep water; from the dredgers.

TAPES VIRGINEUS, *Linne*.—Deep water; from the dredgers.

TAPES PULLASTRA, *Montagu*.—Deep water; dredged.

CHITON (? species).—Deep water; dredged.

PATELLA VULGATA VAR INTERMEDIA, *Jeffreys*.—North Shore; common.

PATELLA VULGATA VAR CÆRULEA, *Linne*.—Giltar; common.

LITTORINA NERITOIDES, *Linne*.—On rocks near Merlin's Cave. Plentiful here.

LITTORINA RUDIS, var.—North Shore. On rocks; common.

LITTORINA LITOREA, *Linne*.—Giltar and North Shore. On rocks; common.

PURPURA LAPILLUS, *Linne*.—North Shore and Giltar; very plentiful.

### A PARTIAL COMPARISON OF THE CONCHOLOGY OF PORTIONS OF THE ATLANTIC AND PACIFIC COASTS OF NORTH AMERICA.

BY ROBERT E. C. STEARNS.

[From the PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES, Oct. 7, 1872.]

A striking feature in the Conchological fauna of that part of the Pacific coast included in the Californian and Vancouver zoological province, when compared with the molluscan fauna of the Atlantic coast from the Arctic seas to Georgia, is the preponderance in the former of those forms of molluscan life which are embraced in the order of Scutibranchiata.\*

The Scutibranchiate Gasteropods, or shield-gilled crawlers, comprise a great number of mollusks, all of which are marine, and which inhabit the sea shore, principally the littoral and laminarian zones, subsisting on marine vegetation. Thus we find the beautiful group of *Calliostoma* upon the larger algæ, as well as the unique *Trochiscus*

\* *Vide Adams' "Genera of Recent Mollusca,"* vol. i., p. 376.

(*T. Sowerbyi*), and *Chlorostoma* crawling over the sedimentary rocks, upon which grows the green *Cladophora*, or some allied vegetable form upon which it feeds, and which also is the favourite food of several species of limpets.

The order of Scutibranchiata, according to the Adams's, includes the families of *Neritidæ* (none of which are found in the Californian and Oregonian province, though they begin to appear on the coast of Lower California); and the *Trochidæ*, which is largely represented by the following genera: *Eutropia*, one species; *Lepothyra*, three species; *Pachypoma* and *Pomaulax*, one species each; *Liotia*, one (perhaps two) species; *Thalotia* and *Trochiscus*, one species each; *Calliostoma*, *Chlorostoma*, *Omphalius*, *Margarita*, and *Gibbula*, each by several species.

The family of *Haliotidæ*, which is represented by several species all of large size, widely distributed, and exceedingly numerous in individuals; *Fissurella* including *Lucapina*, *Glyphis*, and *Clypidella*, also *Puncturella* and *Emarginula*.

*Dentaliadæ* by two or more species; *Tecturidæ* by several species of *Acmaea*, also by *Scurra*; *Gadinia* by one, and *Nacella* by six or more species.

*Chitonidæ* by numerous species and great numbers of individuals.

It may be that some of the groups included by the Messrs. Adams in the order referred to, as our knowledge increases will require to be separated or removed, but so far as the purposes of comparison as made herein are considered, the result will not be materially impaired.

The total number of marine molluscan species and well-marked varieties within the Californian and Oregonian province, so far as known and determined, is not far from 630, of which 200 are bivalves; and of the remaining 430, 123 are included within the Scutibranchs. Of this latter number, about 40 belong to the *Chitonidæ*, and the same number to the *Trochidæ*.

Of the 247 gasteropods enumerated by the late Dr. Stimpson in the Smithsonian Institution Check-list, as found from the Arctic Seas to Georgia, 32 only, or less than one-eighth, come within the order mentioned. Of this comparatively small number, seven (7) are *Chitons*, and fourteen (14) belong to the *Trochidæ*, while *Haliotis*\* is without a representative. The *Trochidæ* within this province are not represented by such marked or unique characters as distinguish their relatives on the west coast.

Some revision may be required hereafter in the number of Scutibranchiate species credited to the west coast province, as forms now catalogued as distinct may in some instances be united; but, on the other hand, it is not unlikely that new forms undoubtedly distinct will be detected when the coast is more thoroughly explored.

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\* A solitary specimen of *Haliotis*, of small size, was obtained through dredging in the Gulf Stream, four or five years ago, by Count L. F. Pourtales, of the U. S. Coast Survey, but south of Georgia.

THE HISTORY OF THE UNITED STATES OF AMERICA

BY CHARLES A. BEAN

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