

# Recognising Type Specimens in a Dispersed Collection. The Macaronesian Land Mollusca Described by R. T. Lowe

## *Reconnaître les spécimens types dans une collection dispersée. Les mollusques terrestres macaronésiens décrits par R. T. Lowe*

P. GRAHAM OLIVER<sup>(1)</sup>, KLAUS GROH<sup>(2)</sup>, JONATHAN D. ABLETT<sup>(3)</sup>, THIERRY BACKELJAU<sup>(4)</sup>, BRAM VAN DER BIJL<sup>(5)</sup>, AMY GERAGHTY<sup>(6)</sup>, SIGRID HOF<sup>(7)</sup>, LEE ISMAIL<sup>(8)</sup>, HENK K. MIENIS<sup>(9)</sup>, HOLLY MORGENROTH<sup>(10)</sup>, RICHARD C. PREECE<sup>(11)</sup>, SANKURIE PYE<sup>(12)</sup>, GARY ROSENBERG<sup>(13)</sup>, ELLEN E. STRONG<sup>(14)</sup>, JENNIFER TRIMBLE<sup>(15)</sup> & HARRIET WOOD<sup>(16)</sup>

<sup>(1)</sup>National Museum of Wales, Cardiff - graham.oliver@honorary.museumwales.ac.uk

<sup>(2)</sup>Malacologist, Consultant Office Beratender Dipl.-Biol. Klaus Groh, Bad Dürkheim

<sup>(3)</sup>Natural History Museum, London

<sup>(4)</sup>Royal Belgian Institute of Natural Sciences, Brussels

<sup>(5)</sup>Naturalis, Leiden

<sup>(6)</sup>National Museum of Ireland, Natural History, Dublin

<sup>(7)</sup>Senckenberg Naturmuseum Frankfurt

<sup>(8)</sup>Booth Museum of Natural History, Brighton

<sup>(9)</sup>Hebrew University Jerusalem

<sup>(10)</sup>Royal Albert Memorial Museum, Exeter

<sup>(11)</sup>University Museum of Zoology, Cambridge

<sup>(12)</sup>National Museums of Scotland, Edinburgh

<sup>(13)</sup>Academy of Natural Sciences, Philadelphia

<sup>(14)</sup>Smithsonian National Museum of Natural History

<sup>(15)</sup>Museum of Comparative Zoology, Harvard

<sup>(16)</sup>Amgueddfa Cymru, National Museum of Wales, Cardiff

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### KEY-WORDS

*Madeiran archipelago  
Canary Islands  
Museum collections  
Evaluation of type specimens*

**Summary:** A catalogue of the dispersed collection of the land snails of the Macaronesian Islands described by and attributed to R. T. Lowe is presented. The provenance of the material which relates primarily to T. V. Wollaston, his wife Edith Shepherd, Col. L. Worthington-Wilmer and H. B. Preston is discussed. Parts of the dispersed collection have been located in fifteen institutions in the United Kingdom, Ireland, The Netherlands, Germany, Belgium, Israel and the United States of America. The list (Appendix 1) comprises 216 nominal taxa attributable to Lowe of which 9 are infra-subspecific, introduced as subvarieties. In addition 8 manuscript names have been included. Possible type material of all but 21 have been located, these comprising 17 varieties and 4 subvarieties. A total of 9537 specimens have been located. The verification of the type status is discussed and a ranking of the type resources is attempted. Evidence is lacking to either corroborate or dismiss the syntype status of the majority of the material but past nomenclatural acts have selected lectotypes from many parts. Furthermore many museums consider the co-types distributed by H. B. Preston to be of syntype status. Only the shells stated to be figured in the 1831 and 1860 papers can be considered as figured syntypes, and these are figured in Appendix 2.

**MOTS-CLÉS**

*Madeira*  
*îles Canaries*  
*Collections muséales*  
*Évaluation des spécimens types*

**Résumé** : Un catalogue de la collection dispersée des mollusques terrestres de la Macaronésie décrits ou attribué à R. T. Lowe est présenté. La provenance du matériel qui concerne principalement T. V. Wollaston, son épouse Edith Shepherd, le colonel L. Worthington-Wilmer et H. B. Preston. Une partie de la collection dispersée se trouve dans quinze institutions au Royaume-Uni, en Irlande, aux Pays-Bas, en Allemagne, en Belgique, en Israël et aux États-Unis. La liste (Annexe 1) comprend 216 taxons nominaux attribuables à Lowe dont 9 sont infrasubspécifiques, introduits comme sous-variétés. De plus, 8 noms manuscrits ont été inclus. Parmi le matériel type possible, 21 ont été localisés, comprenant 17 variétés et 4 sous-variétés. Au total, 9 537 spécimens ont été localisés. La vérification du statut typique est discutée et un classement des critères de reconnaissance des types est tenté. Les preuves manquent pour corroborer ou rejeter le statut de syntype de la majorité du matériel, mais des lectotypes ont été sélectionnés lors d'anciens actes nomenclaturaux dans de nombreux groupes. En outre, beaucoup de musées considèrent les cotypes distribués par H. B. Preston comme ayant le statut de syntype. Seuls les coquilles qui ont servi aux figures dans les articles de 1831 et 1860 peuvent être considérées comme des syntypes figurés, et ceux-ci sont illustrés en annexe 2.

## Introduction

In a recent paper Oliver, Groh & Ismail (2022) reported the discovery of 103 lots of syntypes of land snail species described by Richard Thomas Lowe from Madeira and the Canary Islands. This collection was donated to the Booth Museum of Natural History in Brighton by Col. Lewis Worthington-Wilmer in 1911 and was stated to be derived from the collections of Lowe. The process of assessing the type status of this material led to a wider ranging review of other material, linked to Lowe, in museums across the UK, Europe, the USA and Israel. This review led to the unexpected discovery of over nine thousand specimens that could possibly represent syntypes in 15 museums.

Both projects arose from the "Mollusca Types in Britain and Ireland" initiative funded by the John Ellerman Foundation to create an online database of all molluscan primary types in UK museums available at <https://gbmolluscatypes.ac.uk> (Ablett *et al.* accessed June 8 2023). This situation has arisen primarily from the initial lack of designation of any type specimens by Lowe, and his failure to deposit any type specimens in museums, a problem exacerbated by his untimely death by drowning in a shipwreck in 1874 (Foote, 2004).

During the assessment we noted that lectotypes had been selected from a number of collections

in the NHM, ANSP, RMNH and SMF (De Mattia, Groh & Neiber, 2018; Gittenberger, 1991; Groh & Hemmen, 1984, 1986; Hutterer & Groh, 1993; Ponte-Lira, Alonso & Ibáñez, 1997; Teixeira, Pokryszko, Cameron, Silva & Groh, 2019), but the entirety of available material in collections associated with R. T. Lowe is not or only sporadically cited. This was probably due to the lack of catalogued material, attributable to R. T. Lowe, present in so many museums.

In this paper we attempt to catalogue the material that is presumed to have been part of Lowe's private collection from which type material has already been recognised or can be derived. Included is material of manuscript or infrasubspecific status and as such neither the names nor the specimens have any nomenclatural status but are included for curatorial convenience.

We do not make any statements that could be considered a nomenclatural act, neither do we give specific type status to any of the material unless previously done so and already published. Material sold by Hugh Berthon Preston and labelled 'co-type' has by many museums been considered to be of syntype status thus suggesting that all of the material originating from Lowe's collection is also of syntype status. The purpose of the paper is to make available to the research and conservation communities the breadth of historical material linked to Lowe's

original collection. Thus, taxonomic revisions will have the full extent of historical material on which to make nomenclatural decisions.

We begin by considering the actions of Lowe himself before reviewing the parts played by other major players responsible for the dispersal of collections of Macaronesian land snails made by Lowe following their acquisition by Thomas Vernon Wollaston in 1874. In the appendix we give a catalogue of the possible type material that we have located noting that more such material may exist especially any further series sold by Preston. In the discussion we consider which of these collections could be given greater type significance based on their provenance.

## Methods

Compiling a list of a dispersed collection relies on a historical perspective of the author, the names introduced and the whereabouts of relevant material. The list of taxa introduced by Lowe can largely be extracted from MolluscaBase but it is not totally comprehensive and intimate knowledge from current researchers, in this case Klaus Groh, is needed. Bibliographies, obituaries and papers on the location of collections give a relatively good idea of where a collection might be. Two sources are good places to start, they are Dance's "A History of Shell Collecting" (Dance, 1986) and "2400 Years of Malacology" (Coan & Kabat, 2023). However, unrecognised holdings can be discovered, such as that here from the Booth Museum of Natural History, Brighton. Ultimately the research relies on the curators and collection managers who are able to recognise the relevant material. A sad decline in specialist malacological curators has made this process more difficult but in the UK and Ireland attempts to overcome this were made via the "Mollusca Types in Britain and Ireland" project (Ablett *et al.*, 2023) and while a global search of museums would be ideal it is not feasible and the approach here was to focus on likely repositories relating to the people who handled the collection.

Confirming the provenance of material can be problematic as, in this case, specimens from the Lowe collection were given to a variety of friends and then from friend to friend distancing the shells from their original ownership.

Given the final scale of this project it was not possible to verify the identity of the specimens

in all of the collections found. Here only the identity of the 1948 accession in the NHM have been confirmed by Klaus Groh and he also verified the identities of the shells in the Booth Museum of Natural History, Brighton. Taxonomists, in defined areas, will be required to verify identifications and it is our hope that they will now consult the entire range of sources of material available.

### Institutional Abbreviations:

ANSP: Academy of Natural Sciences, Philadelphia  
BM(NH): former name of the Natural History Museum London

BOOTH: Booth Museum, Brighton

HUJ MOLL: Hebrew University Museum, Mollusca, Jerusalem

LIV: National Museums Liverpool

LIVCM: registration code for Mollusca collection in National Museums Liverpool

MANCH: University of Manchester Museum

NHM: Natural History Museum, London, formerly British Museum (BM) prior to 1881 and British Museum (Natural History) from 1881 to 1992

NHMUK: registration code for Natural History Museum, London

NMINH: National Museum of Ireland, Natural History, Dublin

NMS: National Museums of Scotland, Edinburgh

NMW: Amgueddfa Cymru, National Museum of Wales, Cardiff

RAMM: Royal Albert Memorial Museum, Exeter

RBINS: Royal Belgian Institute of Natural Sciences, Brussels

RMNH: Rijksmuseum van Natuurlijke Historie, now Naturalis, Leiden

SMF: Senckenberg Museum Frankfurt / Main

UMZC: University Museum of Zoology Cambridge

USNM: United States National Museum, Washington

## Sources of possible type material

### Rev. Richard Thomas Lowe (1802–1874)

A brief biography relevant to Lowe's work on the Mollusca is given in Oliver, Groh & Ismail (2023). Lowe was a prolific naturalist who described some 216 nominal land molluscan taxa from the Macaronesian islands, as well as producing monographs on the botany of Madeira (see Mesquita *et al.*, 2020, 2021, 2022) and the fishes of Madeira (Lowe, 1838, 1843–1860, 1849). Lowe lived on Madeira as a practising clergyman, arriving in 1826 and

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1. Robert McAndrew (1801-1873)

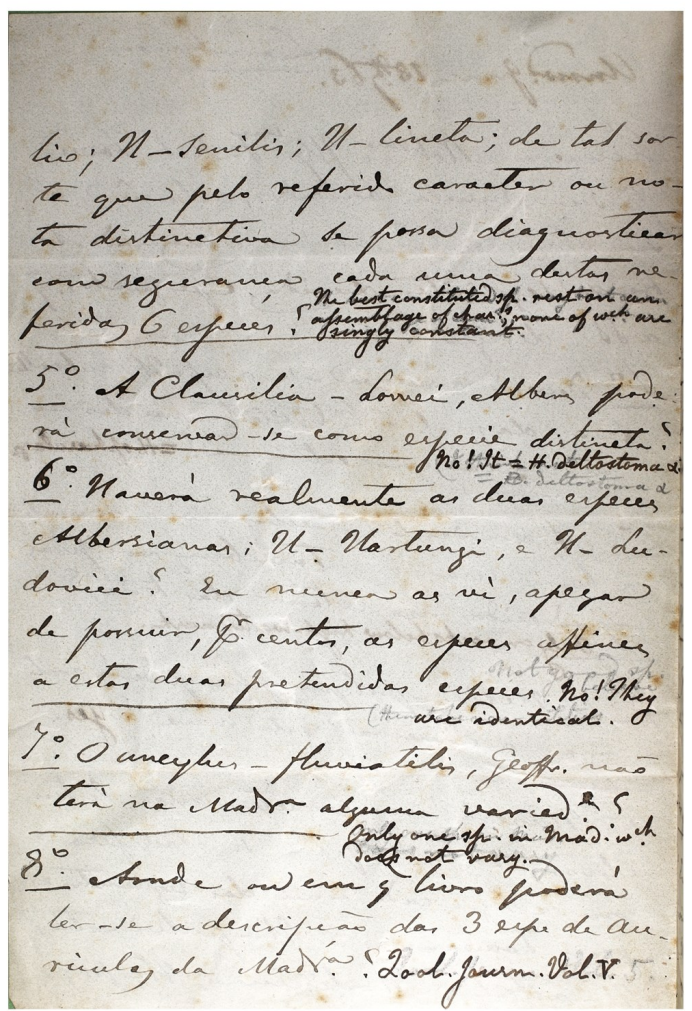
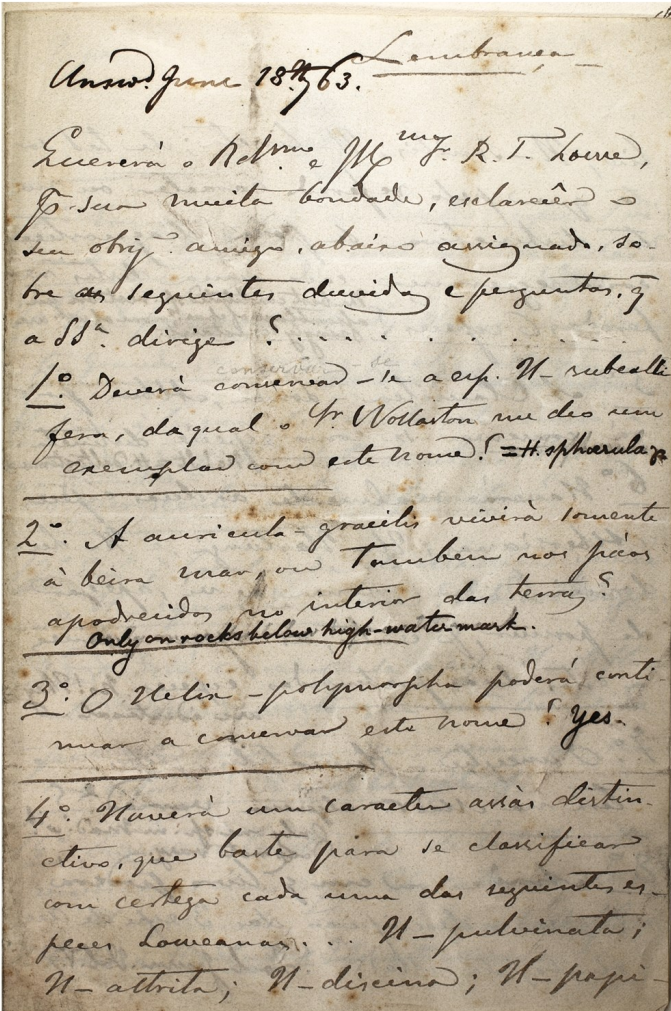
Businessman and avid collector of primarily marine shells. Bequeathed the bulk of his collection to the UMZC in 1873; the Lowe material (via Wollaston) was incorporated by the UMZC in 1875. McAndrew's collection includes land snails that he collected himself from the Canary Islands, Salvages and Madeiran archipelago, including Porto Santo and the Desertas, which he visited on his boat, the Naiad, in 1852. MacAndrew, R. 2002. Robert McAndrew 1801-1873. Richard MacAndrew, Caversham [privately printed, copy in the UMZC]; MacAndrew (2008).

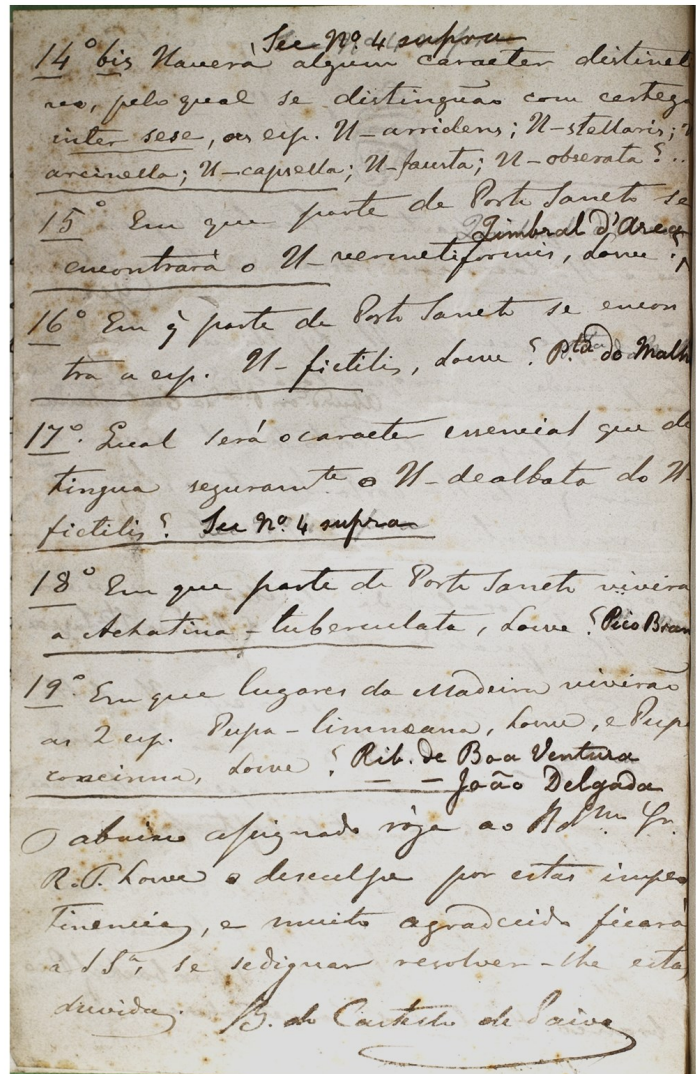
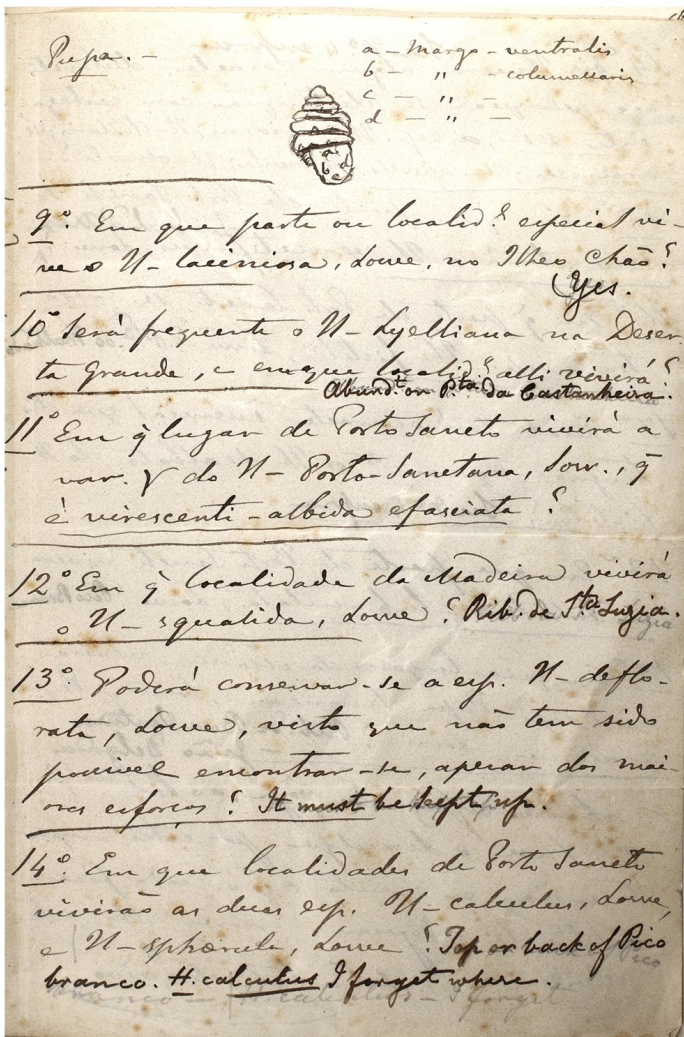
resigning in 1847 but continuing to visit the island until his death in 1874. There is a strong connection with Christ's College, Cambridge as both his friend T. V. Wollaston and his correspondent P. B. Webb were fellow members of the College. Another malacological correspondent was Baron de Paiva (alias Antonio da Costa Paiva and Baron de Castello de Paiva) and inserted in a copy of his monograph (Paiva, 1867) dedicated to Lowe, is a letter to Lowe. This letter (Fig. 1), dated June 18 1863, seeks Lowe's opinion on a number of matters against which Lowe has inserted annotations. Many of these ask for the locations where certain species can be found and Lowe was happy to give such details. In the Shepherd collection in RAMM, Exeter are specimens from Paiva (Fig. 7) to either Lowe or Wollaston. A large collection made by Paiva is held by the Museu da Ciência da Universidade de Coimbra (Breves, Pereira and Girao Da Cruz, 2022) and may well contain specimens given by Lowe and/or Wollaston. Sadly Lowe, Wollaston and Paiva all died within the space of five years.

During his lifetime Lowe did deposit specimens in the then BM now the NHM but very few were molluscs and only three were land snails.

Under 1860.9.5.5-7 (Fig. 2B) he donated shells of *Helix delphinuloides* R. T. Lowe, 1860 (Fig. 2H) and *H. spirorbis* R. T. Lowe, 1852. Why he should have chosen these two species and no more, remains an enigma. From his 1860a paper Lowe was obviously excited by the discovery of *H. delphinuloides*, giving great details of the habitat and a very lengthy description including figures. The labels with these specimens are not in his hand-writing but are museum generated. Although he restricted his published research to land snails he had a much wider interest including marine molluscs. This is evidenced by manuscript notes (Fig. 3) on visits to the BM in September and November 1859 when he was examining marine shells from the Canaries and shells in the R. McAndrew<sup>1</sup> collection. Lowe had collected marine shells at Mogador (now Essaouira) on the west coast of Morocco and was attempting to identify them, which included a discussion with the famous collector Hugh Cuming (see Dance, 1986). These 4 sides of notes were given to Robert Boog Watson by Wollaston in 1876 and are some of the very few examples of Lowe's hand-writing; and are now in the archive of the NMW.

Figure 1. Letter from Baron de Paiva to Lowe requesting localities and opinions on Madeiran land snails and responses annotated by Lowe. In Amgueddfa Cymru, National Museum of Wales.





On Lowe's death his collections were bequeathed to his friend and colleague T. V. Wollaston.

### Thomas Vernon Wollaston (1822-1878)

Wollaston was a long-time friend of Lowe, both having studied at Christ's College, Cambridge and both attended the lectures on natural history given by Henslow (Foote, 2008). Wollaston was primarily an entomologist interested in biogeography but after Lowe's death he became the expert on Macaronesian land snails publishing his *Testacea Atlantica* in the year that he died (Wollaston, 1878). Upon Lowe's death Wollaston acquired Lowe's entire collection which he had intended to donate to museums as well as retain material for his own study (see Wollaston, 1878). Although Wollaston (1878) stated that he would donate collections to museums after Lowe's death in 1874 two earlier donations (Fig. 2A) were made by him in 1849 (NHMUK 1849.6.30) and 1850 (NHMUK 1850.12.31) to then BM. It is likely that these acquisitions represent a single donation

that was registered over the two consecutive years. This collection consists of 221 specimens representing 38 nominal taxa. There is nothing in the museum register to indicate that this material came from Lowe nor are the labels in Lowe's hand (Fig. 2E). Specimens of *Helix (Irus) laciniosa*, *H. (Tectula) lyelliana* and *H. (Leptaxis) vulcania* are named (Fig. 2A) but these were not described by Lowe until 1852 (Lowe, 1852). It therefore seems logical that this material had been given to Wollaston by Lowe or had been identified by Lowe and could be considered as a source of type specimens. Wollaston first visited Lowe in Madeira in 1847 during which he could have made this collection.

After Lowe's death Wollaston donated two collections, one to the BM and the second to the University Museum of Zoology Cambridge (UMZC). Both are noted as posthumous bequests from Lowe.

The collection donated to the BM(NH) is registered under NHMUK 1875.12.31 but as above the labels are not original (Fig. 2C, F).

Figure 1 (end). Letter from Baron de Paiva to Lowe requesting localities and opinions on Madeiran land snails and responses annotated by Lowe. In Amgueddfa Cymru, National Museum of Wales. (Enlarged views available at [reue-colligo.fr](http://reue-colligo.fr))

2. Alfred Hands Cooke (1854-1934)  
Lecturer, Dean and Museum Curator at Cambridge University. Obituaries by Tomlin (1934, 1935).

This collection consists of 2546 specimens representing 120 nominal taxa and is one of the largest in both specimens and species represented.

In the same year Wollaston donated a similar collection to the University Museum of Zoology, Cambridge (UMZC 1875) which was catalogued in 1882 by the Rev. A. H. Cooke <sup>2</sup> (Fig. 4). This collection as catalogued by Cooke contained 96

nominal taxa but due to later activities this was partially mixed with other collections and the provenance has been lost. As a consequence, only 25 species can be directly linked to the Wollaston donation but 796 specimens are present indicating the large number of specimens in each lot. Despite Wollaston's intentions he donated only specimens of 120 taxa out of the 224 described by Lowe.



Figure 2. A, register entry for NHMUK 1850.12.31. B, register entry for NHMUK 1860.9.5. C, register entry for NHMUK 1875.12.31. D, register entry for NHMUK 1895.2.2. E, labels from NHMUK 1850.12.31. F, label from NHMUK 1875.12.31. G, label from NHMUK 1895.2.2. H, Shells of *Helix delphinuloides* donated to the BM in 1860.

(Enlarged views available at [revue-colligo.fr](http://revue-colligo.fr))

These are 71 boxes of Shells sent me by Dr. Vermeil, W. G. Lowe, 1876.  
British Museum, Nov. 13<sup>th</sup> 39

D'Orbigny's Canarian Shells

1. *Voluta porcina* Orb. (2 ex?)  
= *V. rubiginosa* Sw. (my Langerotian species) unquestionably!
2. *Voluta Neptuni* Orb. (1 ex.)  
= a small bleached *V. rubiginosa* Sw. rather more ventricose than or broader and shorter than usual. It is much too thick solid & heavy for *V. Neptuni* besides having a deep narrow external channel with the edge inflexed and shoulder rounded. Pilsen 3-plaited. There can be no doubt of its being merely a dwarf adult state of No. 1 above. It is a watched battered sd ex, bleached & worn perfectly white.
3. *Helix Langerotensis* Orb. (1 ex. placed on the center of its card, on wh. there has never been any other ex.)  
= *H. manicifera* Orb! an adult rather large ex. but dead & partly bleached ex. with the umbil. nearly closed by a reflected thickened plate. Certainly = the above, and not true *H. Langerotensis*.
4. *H. Orbignyi* (Webb) Orb. 5 ex? 1<sup>st</sup> Coaz, Ten.  
Too small for true *H. Orbignyi* Webb and = exactly true *H. Langerotensis* Webb!

The Rosette Orb. (2 ex., one in the middle, the other at left side.)  
The central ex. = true *H. Rosetta* Webb, Orb.  
The other = without a doubt *H. Lemniscata* Webb and I think must have been struck on the card of *H. Lemniscata* wh. has lost one of the 2 ex? wh. had been plainly originally affixed to it, and then been struck on by mistake to the card of *H. Rosetta* instead of being restored to its right place!  
Nor from its position on the card there seem to have been originally only one ex. of *H. Rosetta*.

Mogador  
Mr Cuming considers my *Cymbium* to be *C. C.* It is very distinct from *C. proboscidale* Lam. wh. is always a much larger light & thin in-plated shell, though it agrees with it in the peculiarly watted surface; it also differs in the remarkably tumid inner lip of wh. there is no trace in *C. proboscidale* or indeed in any other *Cymbium* except *C. rubiginosum* Sw. It comes nearest on the whole to *C. rubig.* Sw.; then to *C. procerum* Lam. with wh. it agrees in the sharp angle of the shoulder but differs in the thickness of the greater ribs of wh. there is no trace in *C. procerum* wh. is all a thinner lighter shell and certainly comes very near *C. proboscidale* Lam. to wh. of *C. procerum* I think Mr. Cuming's shell had better be recorded as a var. of *C. rubig.*

Shells at Brit. Mus. Sept. 8<sup>th</sup> 39/59.

Mr. M. Andrews's Shells.

*Cymbium*  
*Murex rosacea* = *Mog. M. rosacea* Sw.  
*Columbella Brandisii* = *Mog. C. Brandisii* Sw.  
*Columbella cribraria* = *Mog. decollata* Sw.  
*Sipurrella reticulata*, blackish-plate regular flat even = *Mog.*  
" *gibba*, white gibbous more finely reticulate, when placed on a flat surface touching it only at each end.  
*Natica bicallata* = *Mog. N. maroccana*  
" *lagra*? with fine, hemispherical & lines divided by a plain white band into 2 sets.  
*Helix peltis* La. = *Presc. = fossil H. malleata* Sw. (*H. bidentata* Lam.)  
*Madracis* (Pils.)  
*Patella tenuis* = *P. crenata* Gm. = *P. caerulea* Lam.  
Mogador  
*Trochus lineatus* = *T. crispus* Pult. (Mog.)  
*Murex rosacea* = *M. griseus* Sw. (Mog.) var.  
*Columbella Brandisii* = *C. Brandisii* Sw. (Mog.)  
*Siphanaria concinna* = *S. pectinata* (L.)  
I. of Spain  
*Nafre yvona* = a long-unnamed *Nafre* in my coll.  
*Melanopsis proserosa*, Cartagena = *Mog. M. proserosa*  
" *cariosa*, Guadalquivir = *Mog. M. cariosa* Sw.  
n. s. sutures in both flat & obsolete.

D'Orbigny's Can. Shells at B.M. Sept. 8<sup>th</sup> 39/59

*Voluta proserosa* (2 old bad worn spec<sup>ns</sup>)  
= *V. rubiginosa* Swans.  
" *proserosa* (no example)  
" *Neptuni* = a watched sd bleached and battered small ex. of *V. rubiginosa* or perhaps of *V. Olia* Lam.  
*Trochus crispus* Mat. & Rask., Pto. 1<sup>st</sup> = *T. edulis* L.  
Public Coll<sup>n</sup> at B.M.  
1. *Voluta proserosa* - Lip of aperture turned outward.  
2. " *rubiginosa* - 3<sup>o</sup>. 8<sup>o</sup>. turned inward.  
3. " *porcina* - 3<sup>o</sup>. 8<sup>o</sup>. erect, shallow.  
1. and 3 agree in breadth of natural space, but it is concave in 1, flat in 3.  
*Melanopsis costata* - Syria - texture unperfected  
" *proserosa* Raf. - Boussa - Suture flat = my *Mog. M. proserosa*.  
" *acicularis* Ber. Not my turritid *Mog.* shell. Most like my *M. proserosa*, but small.  
" *buccinoides* - Egypt & Mesopot. Scarcely distinct from *M. proserosa*, but more slender with pillar longer & straighter as a Syrian shell. *Melanopsis lineata* Gray, wh. is certainly a *Melanopsis* wh. the pillar very distinctly striated.  
*Trochus lineatus* - Nigeres - Mr W.C. Townsend = my *Mog. T. osilinus* Desh. exactly! It comes nearest to *T. articulatus* Lam.  
" *Pharaonis* L. - Senegal - young = Le Vefpet Adams!

Figure 3. Manuscript notes by Lowe on visits to the BM in 1859. In Amgueddfa Cymru, National Museum of Wales. (Enlarged views available at [revue-colligo.fr](http://revue-colligo.fr))

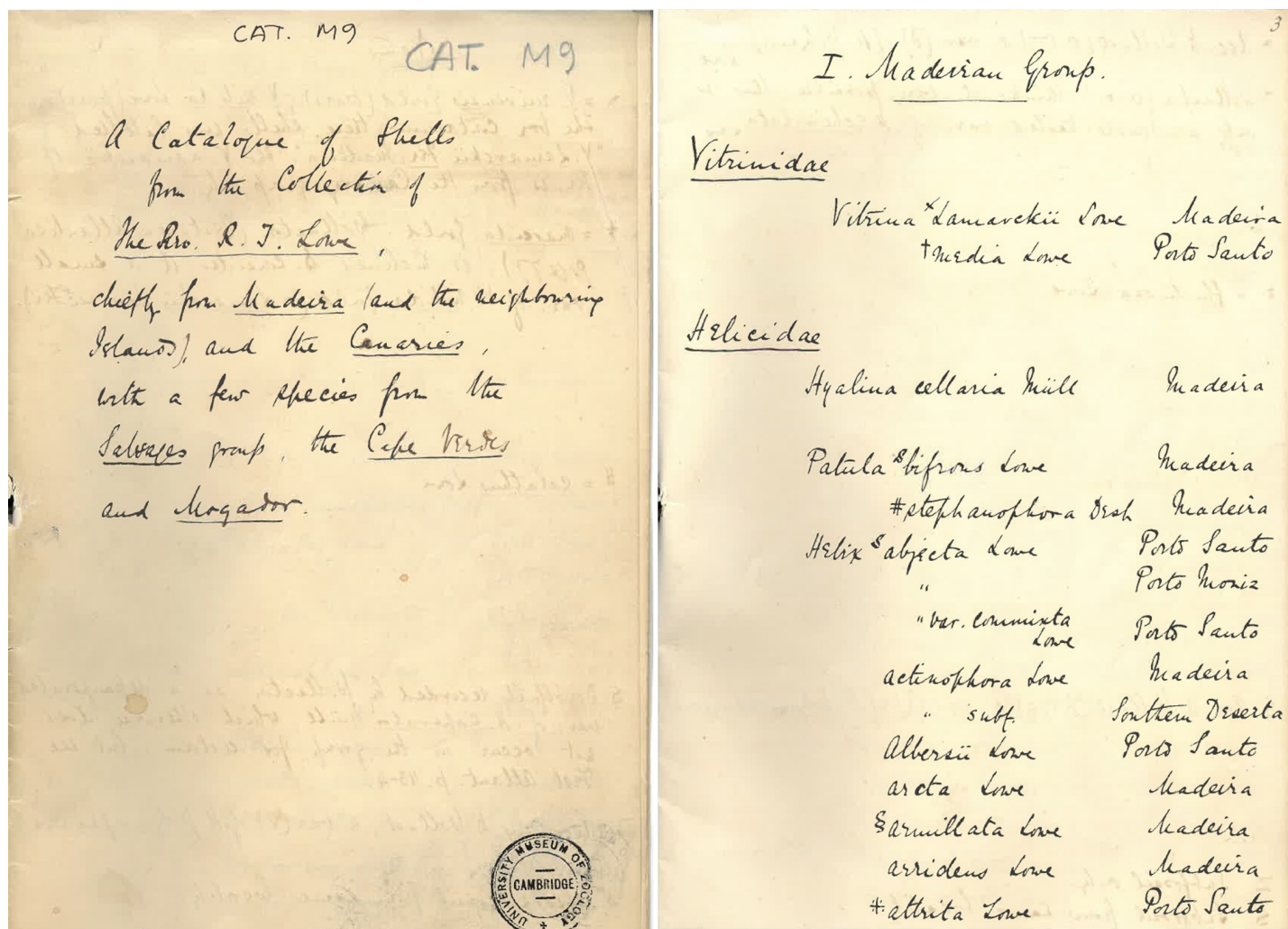


Figure 4. Title page and one other from AH Cooke's hand-written manuscript catalogue of the 1875 donation of Lowe material via TV Wollaston to the University Museum of Zoology, Cambridge.

### 3. Edith Wollaston (1849-1911)

Edith Shepherd the youngest daughter of Joseph Shepherd and Esther Weil of Teignmouth married T. V. Wollaston in 1869. After her husband's death she returned to Teignmouth where she lived for the rest of her life. At the time of her death she had two surviving spinster sisters, one of whom would have been the Miss Shepherd who donated the collection to the museum in Exeter.

In the intervening years between acquiring Lowe's collection and his death in 1878, Wollaston did disperse specimens from Lowe's collection but regarded them as duplicates. In a letter (NMW archives) dated Sept. 19, 1877 Wollaston wrote to Robert Boog Watson "The second parcel, and which I sent up to Mr. Rye by train about a week ago, contains only such few Canarian species as I was able to muster for you, from my own and Mr Lowe's duplicates, - for you to retain. I am sorry that I could not lay my hands on more ..... I have not managed to get you together much over 50 species, - the names of wh[ic]h you will find on the enclosed memorandum". Watson was primarily interested in marine Mollusca but wrote three papers on Macaronesian land and freshwater snails (Watson 1876; 1877; 1892). Material in the Watson collection may be Lowe's duplicates but Wollaston also secured new material for Watson as stated in Watson, 1877. Parts of the Watson collection can be found in the National Museum of Wales probably acquired by J. R. le B. Tomlin.

Wollaston died only four years after Lowe in 1878 and the entire Lowe/Wollaston material remained with Wollaston's wife Edith.

### Edith Wollaston (née Shepherd) (1849<sup>est</sup>-1911)

Edith Wollaston <sup>3</sup> was, like her husband, an entomologist and accompanied him on his collecting expeditions. In 1879 she published on the Lepidoptera of St. Helena describing 37 species new to science (Wollaston E, 1879a, b, c). Although she retained the Mollusca collection little is mentioned of it by others but after a decade she began selling parts of it. In 1895 Edith sold a collection to the BM(NH) (NHMUK 1895.2.2) (Fig. 2D, G) that consisted of 146 specimens representing 18 species of which 13 were not in her husband's 1875 donation. At some time during the 1890's Edith sold or gave to the private collector Juliana Linter (Morgenroth *et al.*, 2018) 164 specimens representing 65 species. This material remained within Linter's collection which was



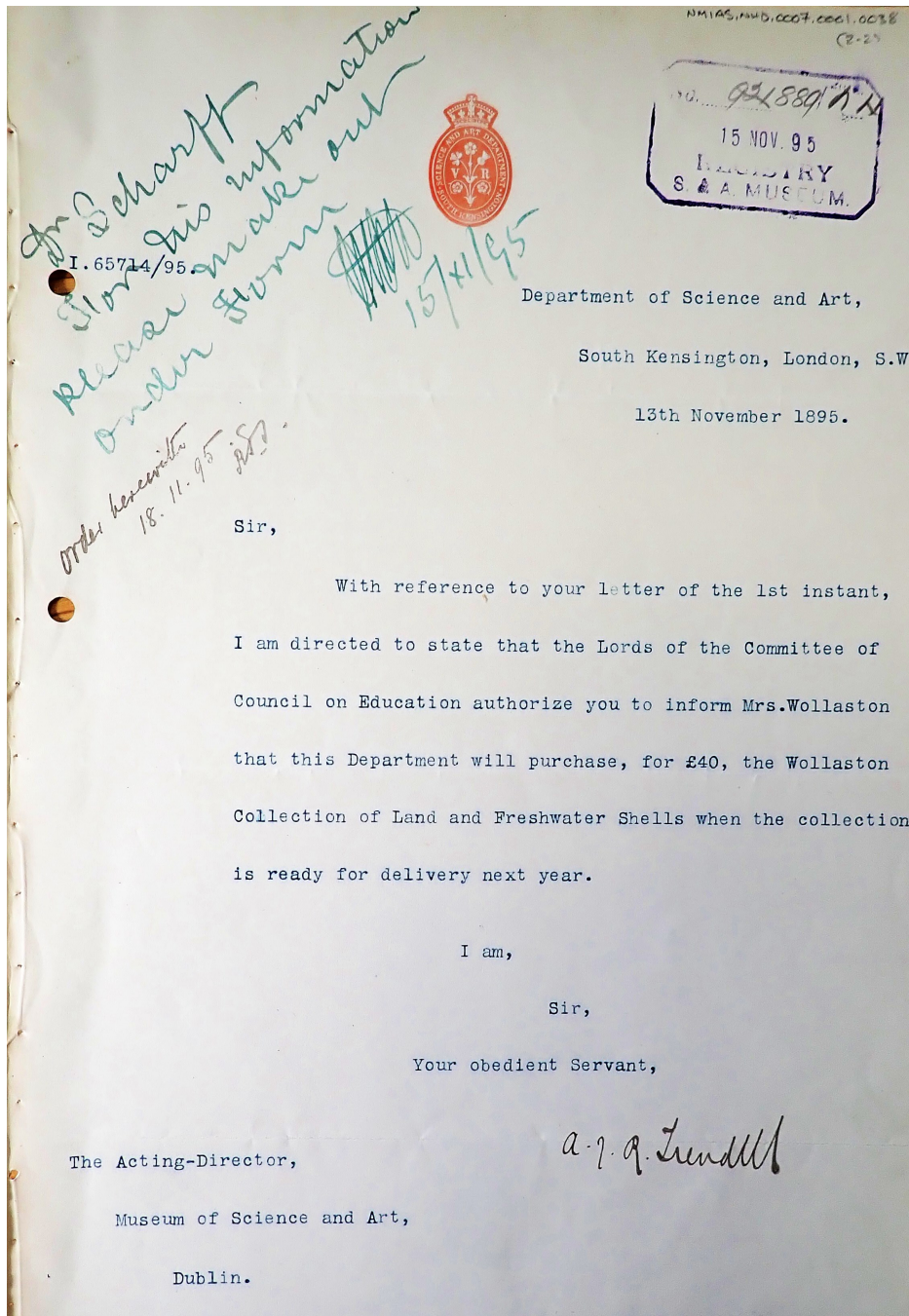


Figure 5. Letter of agreement from the National Museum Ireland to purchase shells from Mrs Wollaston for £40.

bequeathed to the Royal Albert Memorial Museum, Exeter (RAMM) in 1909 under the acquisition **EXEMS:1720/1909**. Then in 1896 Edith sold (Fig. 5) a collection to the National Museum of Ireland (**NMINH 1896.42**). The sale was brokered by Edgar L. Layard<sup>4</sup> and consisted of both Lowe and Wollaston species. This portion of Lowe species consisted of 293 specimens representing 40 taxa for which she received £40, equivalent to £4900 today.

In 1907 Edith sold most of the remaining Lowe/Wollaston material to H. B. Preston, a shell dealer based in London. Preston had started to sell series of Lowe and Wollaston type material in 1907 but became concerned when he discovered that another collection had been

donated to the Royal Albert Memorial Museum in Exeter in 1911, which might undermine the status of his material. In 1912 Preston wrote to the curator in Exeter "*I don't think that Lowe and Wollaston ever actually described from a single type as is the custom today, but used a whole set for their description, thus there were never any actual types, but a number of Co-types for each species*". This conclusion is somewhat questionable as Wollaston, on page 269 of his *Testacea Atlantica*, wrote "*It is surprising to me that Mr Lowe in his original description of the species should have failed to notice this tendency for spiral striae but as I happen to be aware that many of his earlier diagnoses were drawn out of a very limited number of individuals* ---". This collection was donated by a Miss

4. Edgar Layard (1824–1900)  
Preece et al. (2022: 16-17).  
[https://en.wikipedia.org/wiki/Edgar\\_Leopold\\_Layard](https://en.wikipedia.org/wiki/Edgar_Leopold_Layard)

Shepherd and registered under EXEMS:338-477/1911. Miss Shepherd was one of Edith Wollaston's sisters and this collection was a portion kept by Edith and not sold to Preston. When this collection was acquired, it came with the statement that it contained a number of specimens figured by or for Lowe in his 1831 paper (Lowe, 1831). These specimens (EXEMS:338-398/1911) were subsequently transferred to the BM(NH) in 1948 while the remaining material, consisting of over 1000 specimens representing 45 species, was retained in Exeter. The transferred material is registered in London under NHMUK 1948.7.8 while the Exeter material remains under RAMM 399-477/1911. The 1948 transfer as listed in the Exeter register (Fig. 6) consisted of 52 specimens representing 46 taxa and these have been located in the NHM. Lowe (1831) introduced 70 new nominal taxa in 1831 and illustrated 65 so it appears that not all were painted or not isolated before being donated to RAMM. The figured shells from the 1948 accession are illustrated here in Appendix 2 (Plates 1-7) and have been identified by Klaus Groh. While these match the species illustrated in Lowe (1831) (Plates 8-11) one

cannot say with certainty that the photographed shells are those figured by Lowe (1831) mostly these are very small and individual markings cannot be discerned. In a letter dated April 1991 to the then curator of natural history in RAMM, Fred Naggs of the NHM cast doubt on the authenticity of these specimens being those actually figured but did consider them to be syntypes. Doubt stems from the lack of any original labels linked to these specimens, those present were added after the collection was transferred to the BM(NH) (Fig. 8H, I). However, among the material remaining in RAMM there are labels that can be identified as those of Lowe (Fig. 8) although the majority are by Wollaston (Fig. 7). RAMM possesses a hand-written manuscript pertaining to Wollaston's *Testacea Atlantica* in which most species are listed and thus direct comparison can be made with the labels in the collection (Fig. 7). It should be noted that Wollaston's hand-writing does not have a consistent style being cursive in sentences but less looped, more rounded on labels and in lists. His abbreviation of "P<sup>o</sup> S<sup>o</sup>" for Porto Santo is distinctive and quite different from that used by Lowe (see below).

Type specimens of Mollusca figured in the Monograph on the SHELLS OF MADEIRA, by R.T.Lowe. Presented by Miss Shepherd. 338-98/1911.

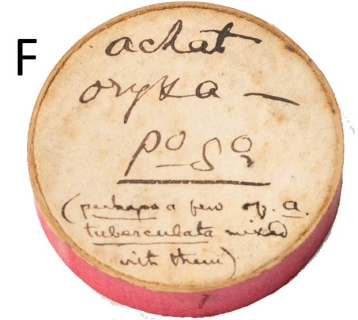
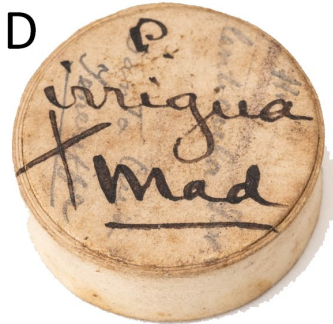
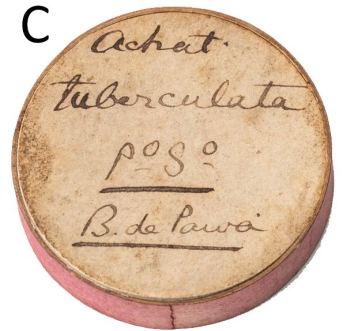
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- Vitrina (Callandia) Lamarckii, Fer. (= Vitrina Lamarckii) 2.
- Leptaxis Furva, Lowe. (= Helix furva). 1.
- Leptaxis Erubescens, Lowe. (= Helix erubescens). 1.
- Leptaxis undata, Lowe. (= Helix undata). 1.
- Leptaxis nivosa, Sow. Variety. (= Helix phlebobophora). 1.
- Geomitra (Actinella) Arcta, Lowe. (= Helix arcta). 1.
- Geomitra (Actinella) Arridens, Lowe. (= Helix arridens). 1.
- Geomitra (Calleria) Fausta, Lowe. (= Helix fausta). 1.
- Geomitra (Discula) Bulveriana, Lowe. (= Helix bulveriana). 1.
- Geomitra (Discula) Tectiformis, Sow. (= Helix tectiformis). 1.
- Helicodonta (Caracollina) Subtilis, Lowe. = Lenticula, Fer. var. Virilis, Mous. (= Helix subtilis). 1.
- Geomitra (Actinella) Actinophora, Lowe. (= Helix actinophora). 1.
- Leptaxis (Pseudocamptysa) Porto-sanctana, Sow. (= Helix porto-sanctana). 1.
- Zonites (Janulus) Bifrons, Lowe. (= Helix bifrons). 1.
- Geomitra (Heterostoma) Paupercula, Lowe. (= Helix paupercula). 1.
- Geomitra (Spirorbula) Oblecta, Lowe. (= Helix oblecta). 1.
- Geomitra (Disculella) Dealbata, Lowe. (= Helix dealbata). 1.
- Geomitra (Disculella) Maderensis, Wood. (= Helix maderensis). 2.
- Geomitra (Disculella) Compar, Lowe. (= Helix compar). 1.
- Geomitra (Disculella) Leptosticta, Lowe. (= Helix leptosticta). 1.
- Geomitra (Actinella) Lentiginosa, Lowe. (= Helix lentiginosa). 1.
- Geomitra (Lemniscia) Calva, Lowe. (= Helix calva). 1.
- Geomitra (Caseolus) Abjecta, Lowe. (= Helix abjecta). 2.
- Geomitra (Caseolus) Compacta, Lowe. (= Helix compacta). 1.
- Geomitra (Caseolus) Consors, Lowe. (= Helix consors). 1.
- Geomitra (Spirorbula) Depauperata, Lowe. (= Helix depauperata). 1.
- Geomitra (Plebecula) Lurida, Lowe. (= Helix lurida). 1.
- Geomitra (Plebecula) Nitidiuscula, Sow. (= Helix nitidiuscula). 1.
- Geomitra (Plebecula) Punctulata, Sow. var.a. (= Helix punctulata, var.a.) 1.
- Geomitra (Plebecula) Punctulata, Sow. var.b. (= Helix punctulata, var.b.) 1.
- Geomitra (Callina) Rotula, Lowe. (= Helix rotula). 1.
- Geomitra (Discula) Polymorpha, Lowe. var.a. Irrasa, Lowe. (= Helix polymorpha, var.a., irrasa). 1.
- Geomitra (Discula) Polymorpha, Lowe. v.b. Depressiuscula, Lowe. (= Helix polymorpha. var.b. Depressiuscula). 1.

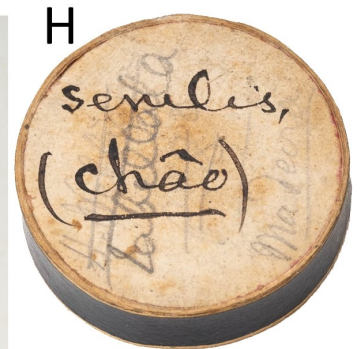
2.

- Geomitra (Discula) Polymorpha, Lowe. var.d. Attrita, Lowe. (= Helix polymorpha, var.d.attrita. subv. 1.) 1.
- Geomitra (Discula) Polymorpha, Lowe. var.c. Arenicola, Lowe. (= Helix polymorpha, v.c.arenicola, subv.1.) 1.
- Geomitra (Discula) Polymorpha, Lowe. var.e. Calcigena, Lowe. (= Helix polymorpha, v.e.calcigena, subv.1.) 2.
- Geomitra (Discula) Polymorpha, Lowe. var.f. Pulvinata, Lowe. (= Helix polymorpha, var.f.pulvinata, subv.2.) 1.
- Geomitra. (Discula) Cheiranthicola, Lowe. (= Helix cheiranthicola). 1.
- Geomitra (Hystricella) Oxytropis, Lowe. (= Helix oxytropis). 1.
- Geomitra (Hystricella) Echinulata, Lowe. (= Helix echinulata). 1.
- Geomitra Duplicata, Lowe. = Bicarinata, Sow. (= Helix duplicata). 1.
- Geomitra (Hystricella) Turricula, Lowe. (= Helix turricula). 1.
- Geomitra (Lemniscia) Bicolor, Lowe. = Michaudii, Desh. (= Helix bicolor). 1.
- Ferussacia (Amphorella) Tornatellina, Lowe. (= Helix tornatellina). 1.
- Ferussacia (Amphorella) Melampoides, Lowe. (= Helix melampoides). 2.
- Ferussacia (Fusillus) Triticea, Lowe. var.a. (= Helix triticea, var.a.) 1.
- Ferussacia (Fusillus) Triticea, Lowe. var.b. (= Helix triticea, var.b.) 1.
- Ferussacia (Cyllichnidia) Ovuliformis, Lowe. (= Helix ovuliformis). 2.
- Ferussacia (Hypsella) Gracilis, Lowe. (= Helix gracilis, var.1.) 2.
- Cochlicopa Lubrica, Müll. (= Helix lubrica). 1.
- Jaminia (Gastrodon) Umbilicata, Drap. var. Anconostroma, Lowe. (= Pupa anconostroma). 3.
- Jaminia (Liostyla) Cheillogona, Lowe. (= Pupa cheillogona). 2.
- Jaminia (Liostyla) Sphinctostoma, Lowe. (= Pupa sphinctostoma). 1.
- Jaminia (Craticula) Monticola, Lowe. (= Pupa monticola). 2.
- Jaminia (Craticula) Calathiscus, Lowe. (= Pupa calathiscus). 2.
- Jaminia (Scarabella) Cassida, Lowe. (= Pupa cassida.) 1.
- Clausilia Grispa, Lowe. 1.
- Clausilia Deltostoma, Lowe. var.a. subv.1. 1.
- Clausilia Deltostoma, Lowe. 1.
- Clausilia Exigua, Lowe. 1.
- Craspedopoma Lucidum, Lowe. 1.

Figure 6. List of 'type and figured' shells transferred to the BM(NH) in 1948. Held in the RAMM Exeter.



Catalogue  
of  
The Land-Shell  
of the  
Azores,  
Madeiras, Salvages,  
Canaries, Cape Verdes,  
and  
Saint-Helena.



(Placentula, Lowe)	_____	m
compax, Lowe	_____	m
teniata, W. et B.	_____	m
maderensis, Wood	_____	m
spirorbis, Lowe	_____	m
leptosticta, Lowe	_____	m
micromphala, Lowe	_____	m
dealbata, Lowe	_____	m
fictilis, Lowe	_____	m

Figure 7. Examples of pill-boxes, labels and hand-written text by T.V. Wollaston from materials held in the RAMM, Exeter. A, EXEMS 460/1911. B, EXEMS 453/1911. C, EXEMS 423/1911 D, EXEMS 460/1911. E, EXEMS 418/1911. F, EXEMS 436/911G, EXEMS 461/1911. H, EXEMS 470/1911. I, extracts from a manuscript of *Testacea Atlantica* (Wollaston, 1878).

ZOOLOGIE



Figure 8. A–E, labels on collection boxes in the hand of R.T. Lowe from the Shepherd Collection in RAMM. A, EXEMS 473/1911. B, EXEMS 417/1911. C, EXEMS 477/1911. D, EXEMS 422/1911. E, EXEMS 475/1911. F, details of hand-writing from a letter (G) from Lowe to P.B. Webb in 1829 by permission of Università degli Studi di Firenze, Biblioteca di Scienze. H–I, labelling on the type and figured shells transferred from RAMM to the NHM in 1948; none original. H, 1948 BM (NH) label. I, 1911 label from RAMM.

The few that can be linked directly to Lowe can be identified by comparison with the handwriting in Lowe's letters to Webb (Fig. 8). Very distinctive is the form of the abbreviation for Porto Santo, the forward leaning style and similarity in individual letters such as the p, sp, and the capital H with the bold complete horizontal element. The use of Greek letters to denote varieties is also typical of Lowe as seen in Lowe (1831) for "*ζ pulvinata*" as on the label illustrated here (Fig. 8E). Unlike most other collections, that retained in RAMM also has a selection of original containers some with more detailed locality information and date of collection. Figure 8D is of *Pupa fusca* from R. da Janella, a locality not mentioned in any of Lowe's papers. Those labelled with dates such as 1828 or 1832 (Figs 8A, C, E) must have been collected by Lowe because Wollaston who did not make his first visit to Madeira until 1847 whereas Lowe first visited in 1826. The parts of the Shepherd collection that remained in pill-boxes are probably the best representation we have of the collection as it was when acquired by Preston. The majority of labels are by Wollaston with only a few by Lowe and collection details are rare throughout. Of added interest are those indicating that they were given by Baron de Paiva to Lowe or Wollaston (Fig. 7b). Some of the lots in RAMM contain many hundreds of specimens and if Preston was selecting his "co-types" from such lots it throws considerable doubt on the possible type status of some shells distributed by Preston.

#### Col. Lewis Worthington-Wilmer (1838–1923)

After Edith Wollaston's death only two sources of possible Lowe type material remain, those dispersed by L. Worthington-Wilmer and Preston. Oliver *et al.* (2022) reported on the 1188 specimens in 111 lots representing 103 taxa present in the Booth Museum, Brighton. This material was originally donated to the Brighton Museum in 1911 under the accessions R1138 and R1145 and has been recently item catalogued by Oliver *et al.* (2022). They considered these to be of syntype status in keeping with the donation to the BM(NH) in 1968 which was also linked to Worthington-Wilmer. That collection (NHMUK 1968.536 – 1968.588) comprised 42 specimens representing 33 species. Lectotypes have been selected from this collection including one (NHMUK 1968.586) for *Hystricella echinula*

(Lowe, 1831) selected by De Mattia *et al.*, (2018). Material linked to Worthington-Wilmer is also present in the National Museums of Scotland contained within the A. E. Salisbury<sup>5</sup> accession NMS Z.1961.61. Forty-five specimens representing 25 taxa are present and labelled "Col. Wilmer ex Lowe" (Fig. 9J) and these therefore have the same status as the Worthington-Wilmer donations to the BM(NH) and Booth Museum.

Other lots are a mixture of shells attributed to Col. Worthington-Wilmer, Tomlin<sup>6</sup> and or Watson<sup>7</sup>. We will return to latter collectors under the review of material originating from Preston<sup>8</sup>. Oliver *et al.* (2022) were unable to locate the source of the shells acquired by Worthington-Wilmer but the Brighton Museum accession archive states that the shells were selected from the Lowe collection. This leaves only three possibilities, directly from Lowe before 1874 from Wollaston before 1878 or from Edith Wollaston before she sold the collection to Preston in 1907.

#### Hugh Berthon Preston (1871–1945)

Once the bulk of the collection passed into the possession of Preston he immediately began to sell series of Lowe and Wollaston types to collectors and museums. These he regarded as co-types and in many museums, these are now accepted as syntypes. Within the United Kingdom and especially centred around the BM(NH) were a cohort of private collectors who exchanged and bought and sold shells. These collectors included Tomlin, J. C. Melvill<sup>9</sup> and Salisbury, and it is through these people that Preston's co-types are now found in Cardiff (NMW.1955.158), Edinburgh (NMS 1961.61), Manchester and Liverpool. The provenance of the historical material in the NMW, Cardiff is particularly complex as it includes Preston co-types; material labelled 'ex auct Lowe' by Tomlin; ex TV Wollaston indicated by Melvill and material from Watson's collection also labelled as from Wollaston. A selection of labels is given in Figure 9. Preston, himself, was part of this cohort of collectors and may have exchanged specimens especially with Tomlin who subsequently exchanged with others such as is seen in the Salisbury collection in Edinburgh. Tomlin and Melvill would have been very aware of the Lowe/Wollaston collection residing with Edith and may well have received shells directly from her in the same manner that Juliana Linter acquired material.

#### 5. Albert Edward Salisbury (1876–1964)

Electrical engineer and avid collector of shells. Friends included J. R. le B. Tomlin and R. Winckworth, he bequeathed his collection the Royal Scottish Museum, now National Museums of Scotland. Obituary by Badcock (1964).

#### 6. John Read le Brockton Tomlin (1864–1954)

Salisbury (1955); Trew (1990).

Amassed the second largest collection in private hands which forms the core of the mollusc collection in Amgueddfa Cymru, National Museum of Wales.

#### 7. Robert Boog Watson (1823–1910)

Clergyman in Madeira, published mainly on marine shells. Author of the Challenger report on the Gastropods.

#### 8. Hugh Berthon Preston (1871–1945)

Preston was a conchologist who was persuaded by the likes of E. A. Smith of the BM(NH) to start up his own shell dealership as direct competition with Sowerby and Fulton. Preston sold many apparently new species under manuscript names. Winckworth (1946).

#### 9. James Cosmo Melvill (1845–1929)

Trew (1987).

Private collector and conchologist, his collection was passed to Tomlin and now in Amgueddfa Cymru, National Museum of Wales, Cardiff.



Figure 9. A-E, Labels from the NMW; A-C Pill-boxes with HB Preston labelling on reverse, A marked co-type by Preston, B,C marked Wollaston coll. by JC Melvill. D, Tomlin label indicating from the author Lowe. E, JC Melvill label indicating ex TVW = Wollaston. F, Preston's disc label with that of Sig. Ehrmann in the SMF. G, Preston's disc label with that of the ANSP. H, Dautzenberg label of a Preston co-type acquired in 25/03/1907 in the RBINS. I, two labels from the Edith Wollaston purchase in the National Museum of Ireland. J, label from the Salisbury collection in the NMS indication source as Col. Wilmer (= Worthington - Wilmer). K, label on reverse of box from the Worthington-Wilmer donation.

Melville who was born in 1845 could have in his early days as a collector corresponded directly with T. V. Wollaston who died when Melville was aged 33. We have therefore listed as possible syntypes all of the material in the Tomlin collection that carries ex Lowe or ex Wollaston indications as well as those coming directly from Preston. Of the UK museums holding material from Preston are Cardiff (144 taxa), Edinburgh (20 taxa), Manchester (19 taxa) and Liverpool (12 taxa).

Preston also sold co-type series to museums and collectors in Europe and the USA with the largest series going to ANSP (234 specimens in 125 taxa), Smithsonian (234 specimens in 118 taxa) and Leiden (275 specimens in 119 taxa). Smaller series have been found in the Dautzenberg<sup>10</sup> collection in RBINS and the Ehrmann<sup>11</sup> collection in SMF. The MCZ in Boston holds a considerable collection of Madeiran land snails but these were acquired from Baron de Paiva (1806-1879)<sup>12</sup>, a contemporary of Lowe and Wollaston; at this time we do not know if any were acquired directly from Lowe or Wollaston or were collected by himself. Labels in the Shepherd collection in RAMM, Exeter indicate that shells were exchanged between Paiva and Lowe/Wollaston

and this provenance was probably passed on by Preston. The archives of the ANSP and Leiden hold offers of sale, dated 25/2/1907, (Fig. 10) from Preston in which he was initially offering up to 280 species including 160 co-types of species or varieties described by Lowe and Wollaston. To Leiden he was later to change his offer to 320 species including 205 co-types after stating "In my original offer only 280 species & varieties were enumerated but when going carefully through the collection I found there were more than this number". The sale price of £25 or 125\$ equates to between 4,500\$ and 8,000\$ in today's money (<https://www.measuringworth.com/aboutus.php>). Preston ceased trading in 1915 and his stock was sold at Steven's auction house on 6th December of that year (Winckworth, 1947). Arthur Blok (1882-1974)<sup>13</sup>, a private collector bought at this sale and acquired many co-types that were subsequently bequeathed to the Hebrew Museum in Jerusalem (Mienis, 2021). Mienis also reports that Blok received co-types from other collectors such as J. R. le B. Tomlin. Mienis (2021) states the Italian collector G. S. Coen (1873-1951)<sup>14</sup> also bought shells from Preston and these too are in the Hebrew Museum. In total in the Hebrew museum are 74 specimens representing 33 taxa.

10. Philippe Dautzenberg (1849-1935)

Tomlin (1938).  
A prolific collector and conchologist describing over 500 new species.

11. Paul H. F. Ehrmann (1868-1937)

Bentham Jutting (1938).  
Teacher and conchologist, especially land molluscs. Collection in the Senckenberg Institution.

12. António da Costa Paiva, (Baron De Castello De Paiva) (1806-1879)

Portuguese conchologist who amassed a large collection from the Macaronesian islands.

13. Arthur Blok (1882-1974)

Pain (1976).  
Private collector who purchased shells from many sales. Bequeathed his collection to the Hebrew Museum in Israel.

14. Giorgio Silvio Coen (1873-1951)

Engineer and conchologist who worked closely with Monterosato. Bequeathed his collection to the Hebrew Museum in Israel.

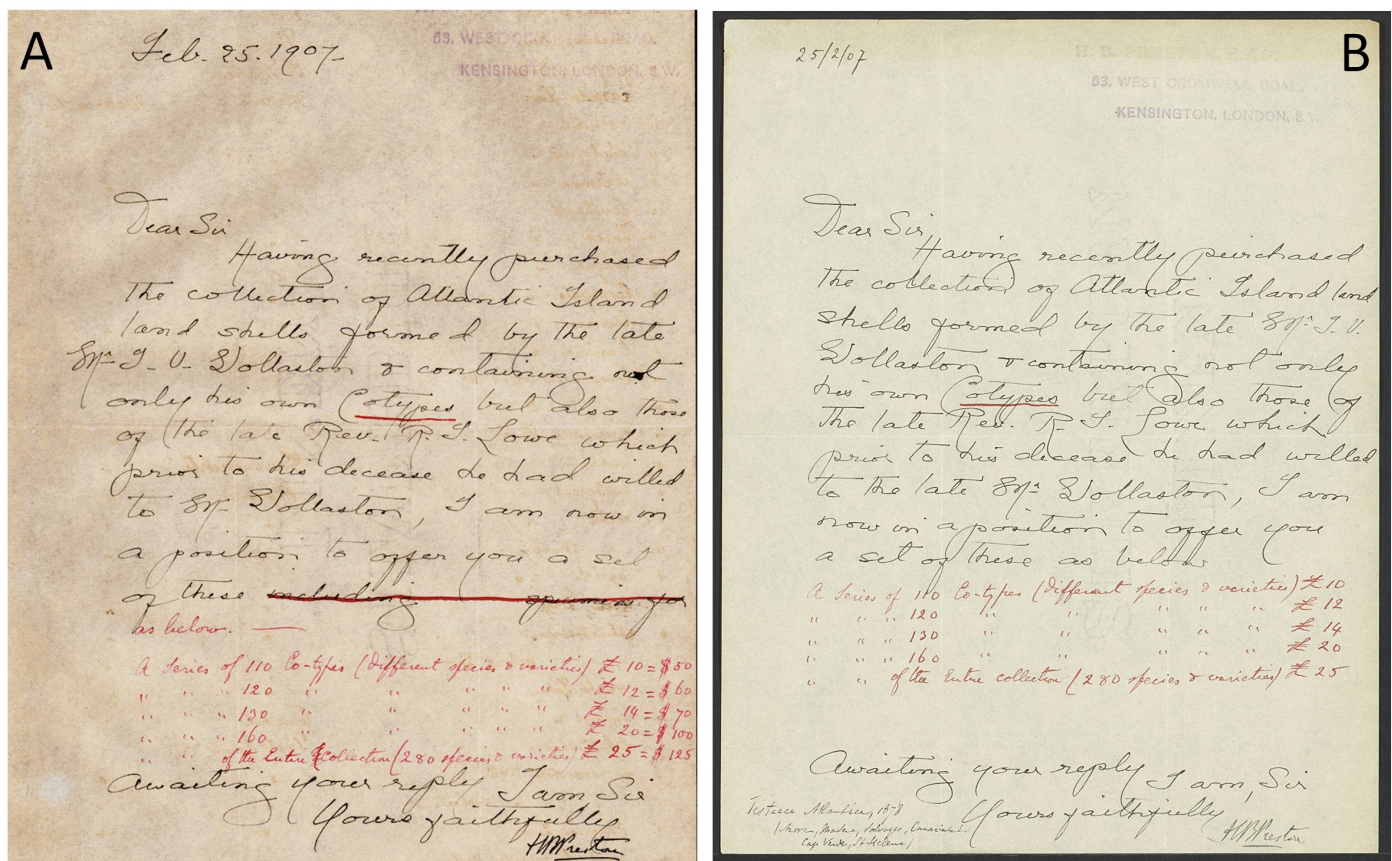


Figure 10. Offers of sales of co-types from the Lowe and Wollaston collection by H. B. Preston to A, ANSP and B-D the RMNH Leiden.

(Enlarged views available at [revue-colligo.fr](http://revue-colligo.fr))

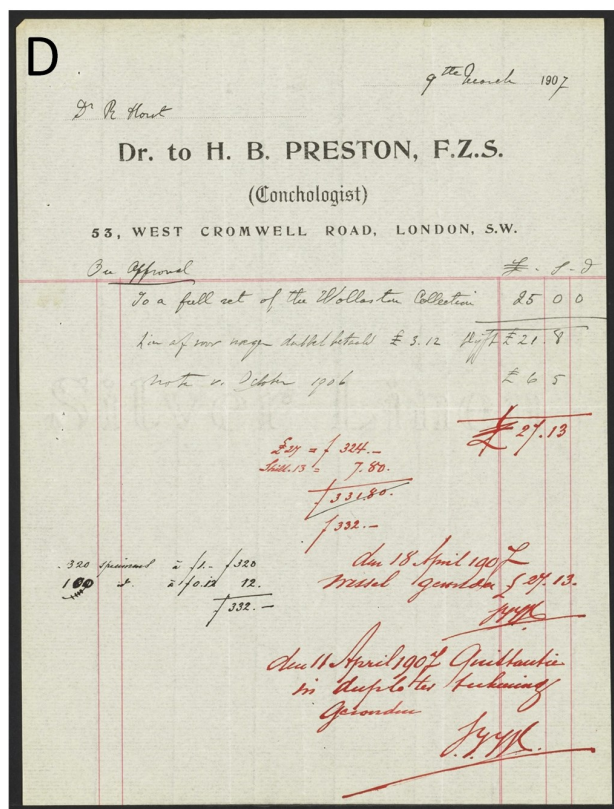
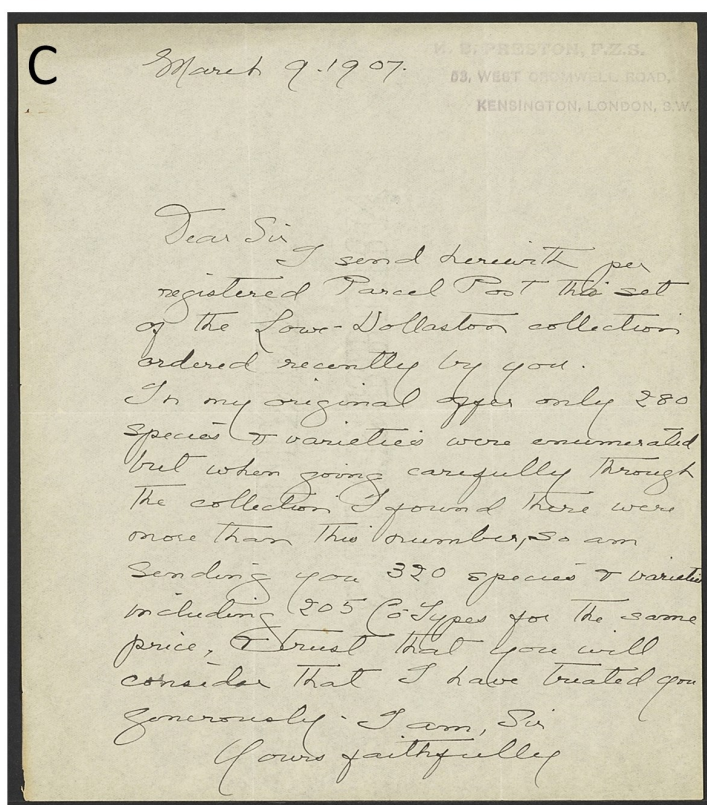


Figure 10 (end). Offers of sales of co-types from the Lowe and Wollaston collection by H. B. Preston to A, ANSP and B-D the RMNH Leiden. (Enlarged views available at revue-colligo.fr)

### Summary

Fifteen museums have been found to hold material from the dispersed Lowe collection in which there are possible type specimens. This amounts to 9537 specimens that were derived from 21 different donations (Fig. 11), the largest in numbers of specimens being that made by T. V. Wollaston to the BM in 1875. Of similar size was the donation that Wollaston made in the same year to the UMZC but the number of specimens included in this donation is now difficult to determine. The large collection in the Melvill-Tomlin collection, Cardiff came primarily from H. B. Preston whereas the large collection in Brighton came from Worthington-Wilmer. On a museum basis the largest collection in the UK is in the NHM followed by the NMW, RAMM, Booth Museum, Brighton and UCZM.

The number of specimens representing a taxon is very variable ranging from 1 to 200 (Fig. 12), although, occasionally in RAMM, there are lots with many hundreds of specimens (Fig. 7B). Of the 216 nominal taxa described by Lowe only 4 species are not represented by possible type material although a further 21 varieties or subvarieties are also lacking named specimens. Forty-six taxa are represented by less than 10

specimens while 74 are represented by more than 50 specimens.

The missing nominal species are *Helix lauta* Lowe, 1831, which was listed as unique; *Helix poromphala* Lowe, 1852; *Craspedopoma annulatum* Lowe, 1860 and *Helix concinna* Lowe, 1861. Lectotypes have already been designated for 17 nominal taxa.

The most representative series (Fig. 13) with over 100 taxa present are in the NHM London, NMW Cardiff, ANSP Philadelphia, USNM Washington, Booth Museum of Natural History Brighton and RMNH, Naturalis Leiden. Of these the NHM has most taxa with 146 but no museum has a complete representation.

The material came from four primary sources, T. V. Wollaston, his wife Edith, H. B. Preston and Col. Worthington-Wilmer. The largest number of specimens were donated by Wollaston but Preston distributed the largest number of lots but with only a few (1-4) specimens in each. The largest representation of taxa is the material sold by Preston as co-types (Fig. 14). While the size of the collection bought from Edith Wollaston by Preston is unknown it is probable that there were other buyers and that yet more possible type material exists in museum collections.



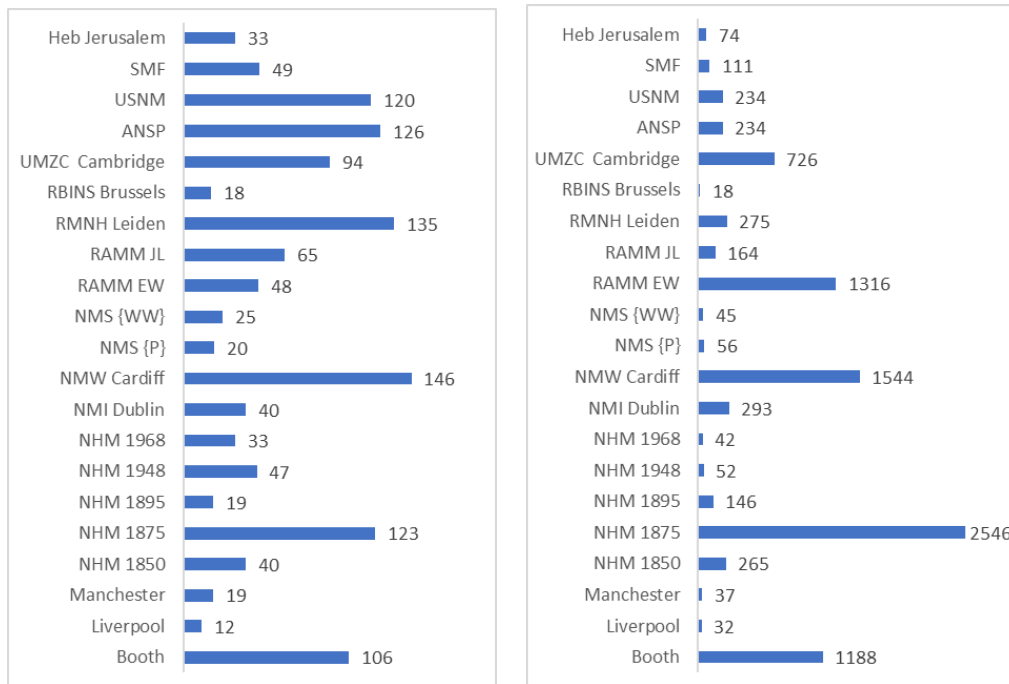


Figure 11. Number of taxa (left) and number of specimens (right) in the major accessions.

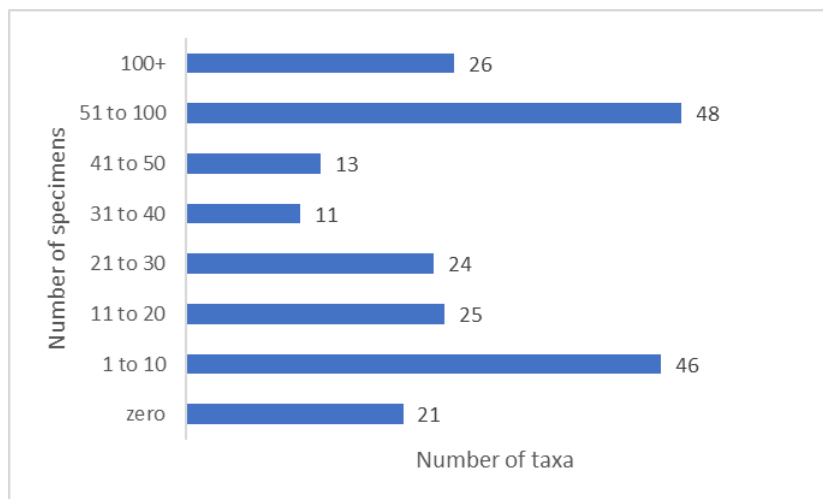


Figure 12. The number of taxa represented by the number of specimens.

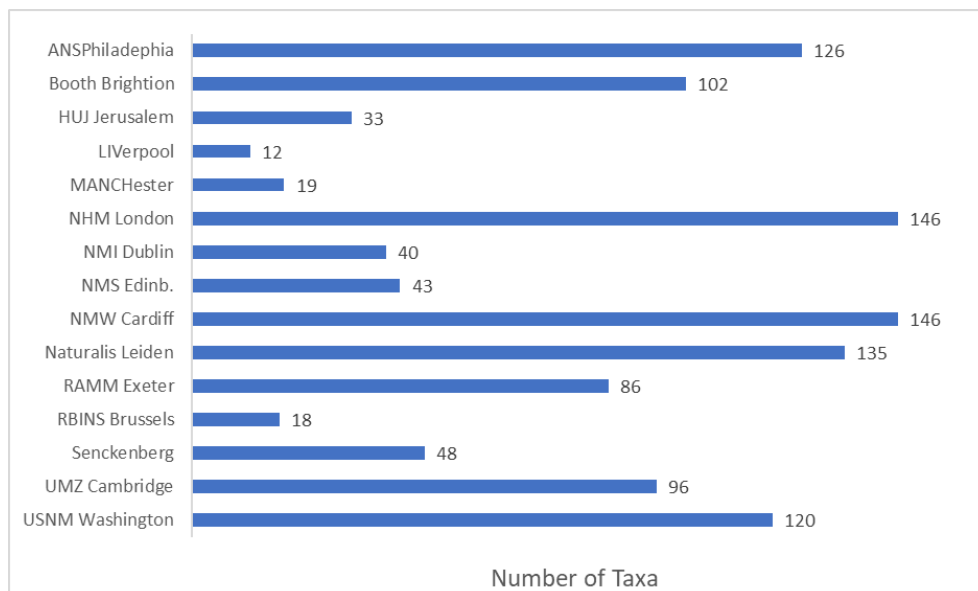


Figure 13. Number of taxa present per museum.

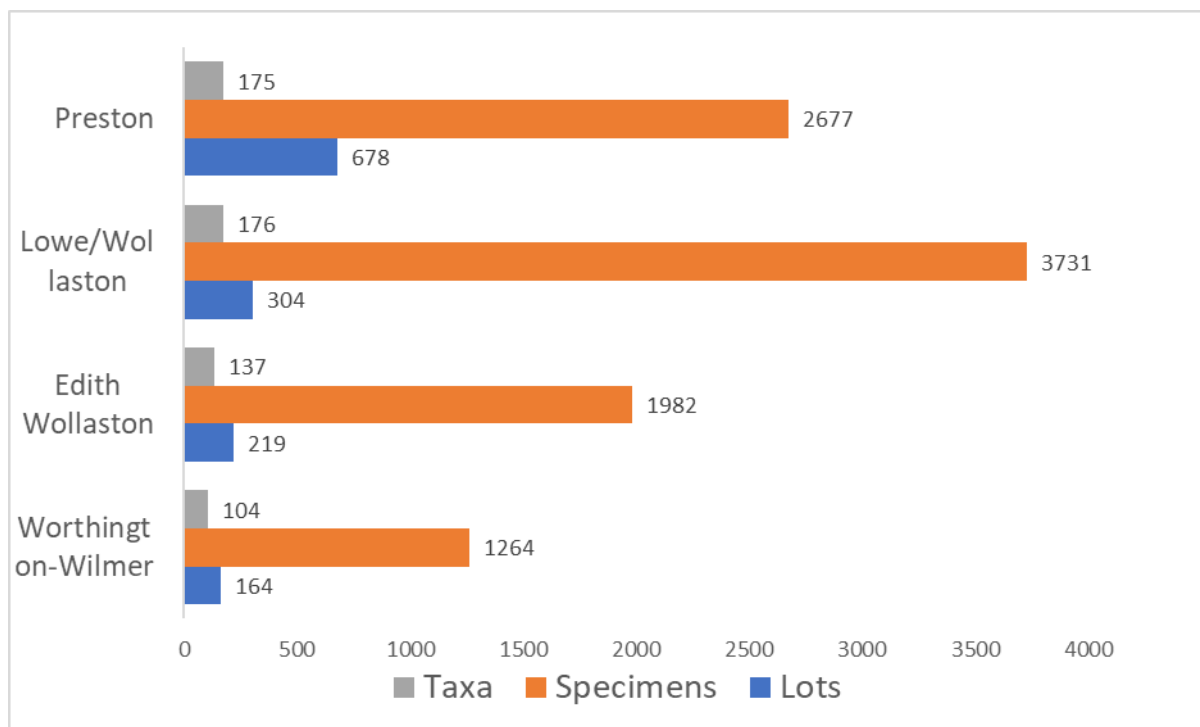


Figure 14. Number of taxa, specimens and lots originating the four major sources.

## Discussion

The dispersal of the Lowe collection and the lack of defined type material has arisen initially from the failure by Lowe to detail type material when describing new taxa. This was exacerbated by his lack of figures in all but his 1831 and 1860a papers and probably by his untimely death. The situation was not clarified by his friend Wollaston who inherited Lowe's collection as he did not give any indication of type status to the material that he bequeathed to the BM and UMZC. Wollaston also died soon after Lowe in 1878 and the collection passed to his wife Edith and then on the collection was dispersed by her and lastly by H. B. Preston who had acquired the collection from Edith. The entirety of the dispersal is illustrated in Figure 15 where fifteen museums are recognised as holding possible type material.

Recognition of type status is normally done at the description stage of a taxon but here this was not done. A similar case is that of the taxa described by William Benson (Preece *et al.* 2022) in which a lengthy discussion is made on the evaluation of possible type material. Benson like Lowe did not designate types as we understand them today and also much of the original information associated with the Benson collection was lost as the collection changed hands. In such cases a set of criteria can be applied and Preece *et al.* (2022) included: association with authors collection,

adherence to original description, matching figured specimen, matching given dimensions, matching type locality.

- Provenance of Lowe's Collection

Lowe left examples of only two species directly to the BM in 1860. Of these the specimens of *H. delphinuloides* can most definitely be regarded as syntypes linked by the description and figures given by Lowe. All subsequent links to Lowe are based on the transfer of his collection to T. V. Wollaston and the continuation of this link as the collection passed to Edith Wollaston, L. Worthington Wilmer and H. B. Preston. The only stated Lowe material was that bequeathed to the BM and UCZM by Wollaston in 1875. The figured shells in the 1948 transfer from RAMM to the NHM are said to be from Lowe but the documentary evidence is second hand.

- Do the specimens agree with the original description especially in numbers examined and dimensions given?

In Lowe's papers (1831, 1852, 1855) he does not state how many specimens were used for each description. For many of the descriptions the dimensions are exact but for others they are given as ranges. Even where a single dimension is given for the species no dimensions are given for the varieties. We cannot therefore conclude that only a single specimen was used when only a single dimension is given. An exception is that of *Helix fausta* Lowe, 1831

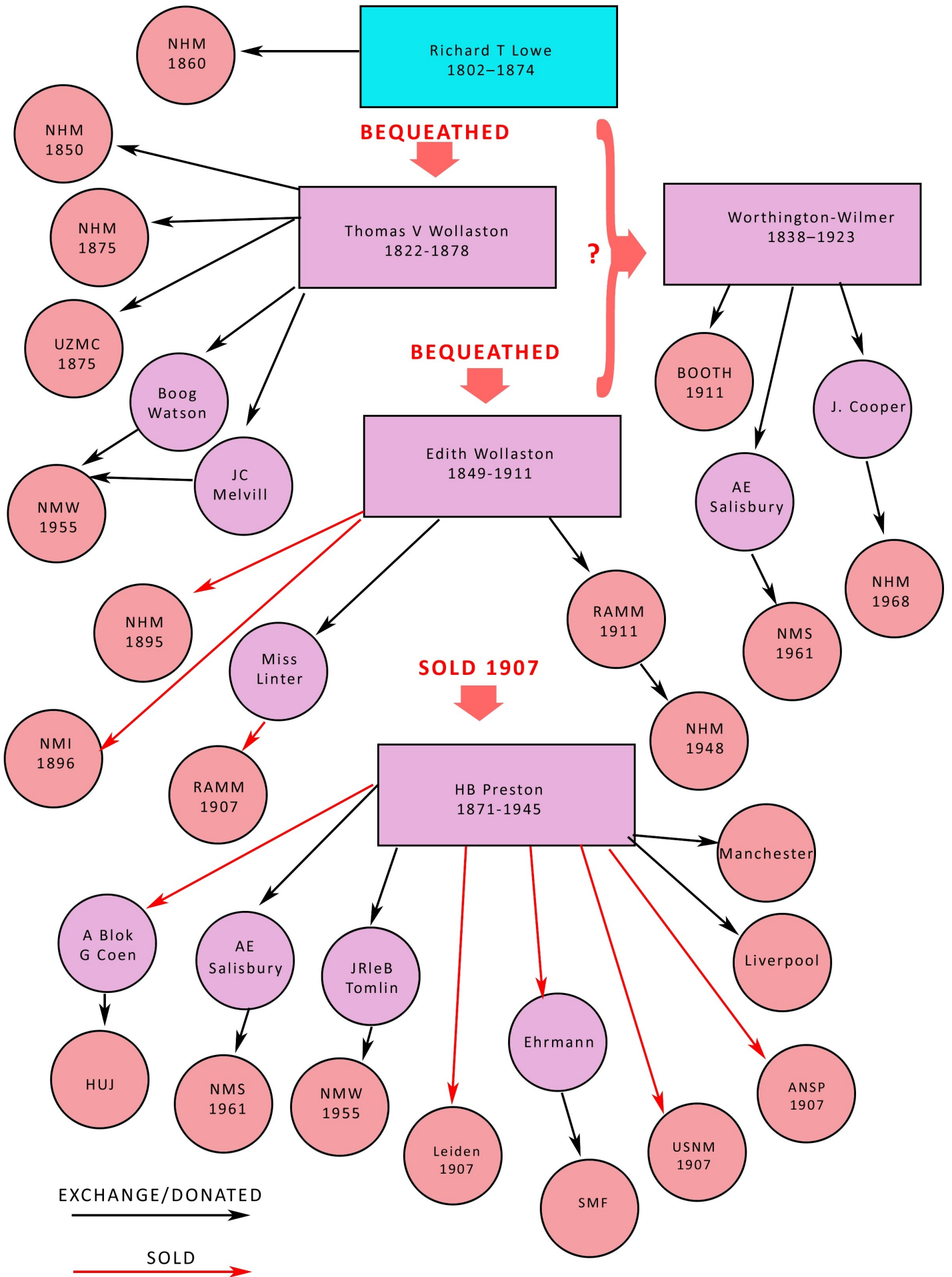


Figure 15. Diagram of the dispersal of the Lowe collection to individuals and to museums.

where Wollaston (1878) states that only a single specimens was found by Lowe in 1828 and it was not found again for another twenty-six years. Given this, none but the single shell said to be a figured specimen NHMUK 1948.7.8.32 (Pl. 3 fig. 3) can be regarded as having any type status. Given that H.B. Preston sold co-types of this species brings into question his assertion that Lowe must always have had a number of specimens from which he made his description. A similar situation exists for *Pupa wollastoni* Lowe, 1867 where again only a single specimens was mentioned in the description.

- Do the specimens match the figures in the original description?

Other than *H. delphinuloides* described and figured in 1860 only those described in the 1831 paper were figured and that amounted to 65 taxa out of the remaining 218 nominal taxa that Lowe introduced. Of these 65, 56 specimens are listed in RAMM as being those figured but only 36 are present in the NHM following their transfer in 1948. On transfer this material was placed in new boxes and labels but no labels attributable to Lowe remain. Given the poor definition and small size of the figures it is not possible to positively link them to the specimens in the 1948 accession except where the illustration is given as life size.

- Does the material carry labels in the author's hand?

Very few samples carry labels in Lowe's hand and these are to be found in the Shepherd collection in RAMM. Neither the figured shells nor the 1875 bequests to the NHM and UMZC carry original labels. All of Preston's material is labelled by him and the material in Dublin and the 1948 accession in the NHM has been labelled after accession.

- Do the labels agree with the type locality?

Lowe frequently gave only the vaguest of type localities very often just "Madeira", "Porto Santo" or the smaller islands of the Deserta group. In some instances especially for rare species more exact locations are cited such as "Ponta São Laurenço", "Pico de Facho" and "Pico Branco". His paper describing *H. delphinuloides* is very detailed but there are none of these appended to the shells in the NHM. Preston material sometimes carries the more exact localities than those given in the original

descriptions but we do not know if Preston added these himself or were on any of the original labels in the Lowe collection.

- Are the specimens correctly identified?

We are not capable of verifying the identification of all 9537 specimens isolated but when investigating any one species or genus this should be done.

- Does the provenance lead back to the author of the new taxon name?

In most cases there is a direct link to Lowe through T. V. Wollaston, then to Edith Wollaston and then to Preston. The Worthington-Wilmer link is not known although the accession documents in RAMM clearly state that the material was derived from the Lowe collection and this has been accepted also for the 1968 donation to the NHM.

Preston's assertion that the entirety of the Lowe collection can be considered as co-types and therefore used by Lowe in his descriptions seems untenable. Much of the Lowe material may well have been collected by him but added to his collection after the original description had been published as surely was the case for *Helix fausta*.

We do not know how Lowe ordered his collection but from the surviving label in RAMM (Fig. 6E) he did have detailed information with his specimens. We have no idea of how many lots of each taxon were labelled like this or the number of lots that Edith Wollaston and H. B. Preston had to create the subsets that they sold The series in the Booth Museum, Brighton appears to be correctly identified but Worthington-Wilmer was no expert in this group of shells so he must have copied the data from the original set that he extracted material from. It is possible that Worthington-Wilmer received the named series directly from Lowe or Wollaston, he was aged 40 when Wollaston died. However, Worthington-Wilmer was an active soldier at that time and we do not know when he started to collect shells or when he acquired the Macaronesian shells (Oliver *et al.*, 2022).

Of the over 200 nominal taxa described by Lowe only that of *H. delphinuloides* is represented by unequivocal type material having been figured and then deposited by Lowe himself. If one accepts that the 1948 material transferred from RAMM to the NHM is a set of figured syntypes then these carry most support and following Preece *et al.* (2022) could be

considered suitable as lectotypes perhaps even as holotypes. For the remaining material we know it was derived from the Lowe collection once it was left to T. V. Wollaston but we cannot link Lowe directly to any one shell or group of shells. We then come to Preston's supposition that all material derived from the Lowe collection could be considered as co-types. We have recognised 9537 specimens which can be considered as, at least, the same status as the Preston co-types but could Lowe really have had all of these before him when describing his taxa? Without proof we cannot challenge Preston's assumption but some museums have already considered Preston's co-types to be equivalent to syntypes. However, Preece *et al.* (2022) would perhaps take a more conservative approach of using neotypes if specimens could not be substantiated as syntypes.

Without further evidence we have to accept that these 9537 specimens are a source from which type material can be selected as already done in a number of studies cited above. If we accept the authenticity of the 1948 accession in the NHM then these can be considered figured syntypes. Lectotypes have been selected from a variety of this dispersed material suggesting that those responsible considered the material to be of syntype status. Until now the extent of possible type material has not been recognised resulting in revisionary taxonomy not having the full resource available. Given the uniqueness of the Macaronesian land snail fauna and the historic significance of the Lowe material we hope that this study will encourage taxonomists to employ the total extent of material available. Given the era in which Lowe collected many taxa are now endangered or even extinct and such a collection has a value to biodiversity and biogeographical studies.

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## Appendices

### Appendix 1. A list of dispersed material linked to the R. T. Lowe collection

Appendix 1 summarises the material found in fifteen museums that can be linked to the dispersed collection of R. T. Lowe. Much but not all can be regarded as a source of possible type material for the 218 nominal taxa introduced by R. T. Lowe. Included are specimens with manuscript names or are infra subspecific taxa, neither have nomenclatural status and the associated specimens have no type status. These are included to clarify the status of material carrying such names and to aid proper curation. Other museums may have similar material that is yet to be recognised or confirmed. Also included are lots obviously not from the type locality as given in the publications but have been dispersed from the Lowe collection mainly by Preston. These lots may be useful in assessing both Lowe and Wollaston's species concepts.

The list is in alphabetical order of species or subspecific names with the original genus; current nomenclature can be found in MolluscaBase. Following the taxon name each major accession is listed starting with the holding institution and registration number, followed by the locality on the label, the number of specimens in [ ] and the origin of the material in { }. Where there is no locality data on the label this is indicated by (no loc).

The Shepherd collection in RAMM Exeter has been restructured since its deposition such that it is apparent that lots have been split, part has remained in the original pill-boxes and part transferred to glass topped boxes and the data transcribed. There are no original labels in the glass-topped boxes. For this collection two counts are given the first for the original container and the second for the glass-topped box. Where material is known to have been deposited in UMZC by Wollaston as indicated in Cooke's catalogue but no longer recognisable then no number of specimens is given. In some museums the relevant collections remain to be fully documented such that details such as locality and number of specimens is not currently available, these are marked as data deficient "dat. def."

Where type material has been cited in published papers these are indicated here, some lectotype selections were found but apparently never published, these have been ignored.

#### Abbreviations

ANSP: Academy of Natural Sciences, Philadelphia  
 BOOTH: Booth Museum, Brighton  
 EXEMS: Royal Albert Memorial Museum, Exeter  
 HJ MOLL: Hebrew University Museum, Mollusca, Jerusalem  
 LIVCM: National Museums Liverpool  
 MANCH: University of Manchester Museum  
 NHMUK: Natural History Museum, London  
 NMINH: National Museum of Ireland, Natural History, Dublin  
 NMS: National Museums of Scotland, Edinburgh  
 NMW: Amgueddfa Cymru, National Museum of Wales, Cardiff  
 RBINS: Royal Belgian Institute of Natural Sciences, Brussels

RMNH: Rijksmuseum van Natuurlijke Historie, now Naturalis, Leiden

SMF: Senckenberg Museum, Frankfurt/M.

UMZC: University Museum of Zoology, Cambridge

UMZC in CC: Cited in Cooke's catalogue, present but no longer recognisable in collection

USNM: United States National Museum, Washington D. C.

{E/P} coll. Ehrmann/ Preston

{EW} coll. Edith Wollaston

{EW/EL} coll. Edith Wollaston/E. Layard

{JL/EW} coll. J. Linter/ Edith Wollaston

{L} coll. R. T. Lowe

{L/Tomlin} "ex auct" in Tomlin coll in NMW

{L/W} leg. Lowe/ R. V. Wollaston

{P} coll. HB Preston

{S/NHM} coll. Shepherd in Natural History Museum London

{S/Ex} coll. Shepherd in Exeter

{TVW} leg. TV Wollaston

{TVW/Tomlin} leg. TV Wollaston in JRleB Tomlin coll. in NMW

{TVW/Watson} leg. TV Wollaston in R Boog Watson coll. in JRleB Tomlin coll. in NMW

{W-W} coll. Worthington Wilmer

† subfossil shell

#### **abbreviata** R. T. Lowe, 1852 *Pupa* (*Alvearella*)

Type locality: "*semifossilis in Maderae*" [= semifossil, Madeira]

NHMUK 1895.2.2.288-90 Madeira [3] {EW}

NHMUK 1895.2.2.323-5 Madeira [3] {EW}

NMINH 1896.42.173 Caniçal [2] {EW/EL}

NMINH 1896.42.173 Madeira [2] {EW/EL}

#### **abjecta** R. T. Lowe, 1831 *Helix* (*Caseolus*)

Type locality: "*in Insulâ Portu S<sup>ti</sup>*" [= Porto Santo]

ANSP 97070 Porto Moniz, Madeira [2] {P}

BOOTH 406714-406734 Porto Santo [21] {W-W}

EXEMS 1720/1909/D39/67 Madeira [2] {JL/EW}

EXEMS 429/1911 Porto Santo [A:139, B:17] {S/Ex}

EXEMS 443/1911 Porto Santo [A:15, B:26] {S/Ex}

NHMUK 1850.12.31.228-233 Porto Santo [6] {TVW}

NHMUK 1875.12.31.35 Porto Santo [33] {L/W}

NHMUK 1875.12.31.237 Porto Santo [15] {L/W}

NHMUK 1875.12.31.186 Porto Santo [15†] {L/W}

NHMUK 1968545 Porto Santo [1] {W-W}

NMW.1955.158.27758 Porto Moniz, Madeira [7] {P}

NMW.1955.158.27754 Porto Santo [6] {P}

NMW.1955.158.24277 Southern Deserta [6] {P}

NMS Z.1961.61 Porto Moniz [1] {W-W}

RMNH.MOL.337546 Porto Santo [3] {?}

SMF 139450/3 Porto Moniz [3] {E/P}

UMZC in CC Porto Santo {L/W}

USNM 197896 Porto Moniz [2] {P}

#### **actinophora** R. T. Lowe, 1831

*Helix* (*Helicogena*) Type locality: "*in Maderae sylvaticus*" [= woods of Madeira]

ANSP 97072 S. Deserta [1] {P}

BOOTH 406743-406750 [8] {W-W}



EXEMS 1720/1909/60 Madeira [1] {JL/EW}  
 NHMUK 1875.12.31.11 [16] {L/W}  
 NHMUK 1875.12.31.187 N. Deserta [17†] {L/W}  
 NHMUK 1875.12.31.211 Madeira [16†] {L/W}  
 NHMUK 1948.7.8.4 Madeira [1] {S/nhm}  
 NMW.1955.158.24283 Madeira [2] {P}  
 NMW.1955.158.27934 Madeira [16] {L/Tomlin}  
 RMNH.MOL.2954411 Madeira [1] {P}  
 UMZC in CC Madeira {L/W}  
 USNM 197958 S. Deserta [1] {P}

*aenostoma* R. T. Lowe, 1855 [nom. nud.] *Helix* (*Macularia*)

***aequalis* R. T. Lowe, 1832 *Melampus***

Type locality: "*infra lapides, ad littus septentrionale Insulae Maderae*" [= beneath rocks on the northern shore of Madeira]

ANSP 97230 Madeira [1] {P}  
 EXEMS 453/911 Slavages [1000+] {S/Ex}  
 NHMUK 1875.12.31.104 Madeira [28] {L/W}  
 NHMUK 1895.2.2.460-3 Gt. Salvage [4] {EW}  
 NMW.1955.158.12745 Madeira [10] {W/Tomlin}  
 NMW.1955.158.12747 Madeira [16] {W/Watson} as var. *rufocastanea* Wollaston  
 NMW.1955.158.12748 Selvages [2] {P}  
 NMW.1955.158.12751 Salvages [10] {W/Tomlin} as var. *vulcani* Morelet of var. *albescens* Wollaston  
 UMZC in CC Madeira {L/W}  
 USNM 197907 Madeira [1] {P}  
 USNM 197976 Madeira [1] {P}

***alba* MS var. of *pulvinata* R. T. Lowe, 1831 *Helix* (*Helicella*)**

EXEMS 475/1911 Porto Santo, May 1828 [B:23] {S/Ex}

***albersii* R. T. Lowe, 1852 *Helix* (*Tectula*)**

Type locality: "*in Portu S<sup>to</sup>.*" [= Porto Santo]

BOOTH 406751-406755 Porto Santo [5] {W-W}  
 EXEMS 437/1911 Porto Santo [A:11, B:9] {S/Ex}  
 EXEMS 438/1911 Porto Santo [A:11] {S/Ex}  
 EXEMS 473/1911 Porto Santo, 1828 [A: 5] {S/Ex}  
 NHMUK 1875.12.31.23 Porto Santo [18] {L/W}  
 NHMUK 1968536 Porto Santo [1] {W-W}  
 NMS Z.1961.61 Porto Santo [1] {W-W}  
 UMZC in CC Porto Santo {L/W}

***albida* R. T. Lowe, 1831 subvar. 3 of *cheiranthicola* *Helix* (*Helicella*)**

Type locality: Not differentiated from *cheiranthicola*.

***anconostoma* R. T. Lowe, 1831 *Helix* (*Cochlodon*)**

Type locality: "*in Madera*" [= Madeira]

BOOTH 407713-407746 Madeira [33] {W-W}  
 EXEMS 402/1911/1-37 (dat. def.) [37] {S/Ex}  
 NHMUK 1948.7.8.1-3 Madeira [3] {S/nhm}  
 NHMUK 1875.12.31.82 Madeira [34] {L/W}  
 NHMUK 1850.12.31.136-141 Madeira [6] {RTW}  
 NMW.1955.158.01048 Madeira [21] {P}  
 NMW.1955.158.27894 Madeira [6] {P}  
 NMW.1955.158.27922 Deserta Grande [3] {P}  
 NMW.1955.158.27926 Teneriffe [7] {P}

NMW.1955.158.27927 Hierro [4] {P}

USNM 197809 Teneriffe [2] {P}

***annulata* R. T. Lowe, 1855 var.  $\alpha$  of *pusilla* *Helix* (*Euromphala*)**

Type locality: Not differentiated from *pusilla*

***annulatum* R. T. Lowe, 1860 *Craspedopoma***

Type locality: "*in declivibus rupibusve humidis sylvarum Insularum Canariensium Ferri (Hierro) ad locum "El Golfo" dictum, necnon Palmae in convallibus "Barranco de Agua" et "Barranco de Galga" dictis*" [on the slopes or moist cliffs of the forests of the Canary Islands. El Hierro at the place called "El Golfo", as well as Las Palma in the valleys of "Barranco de Agua" and "Barranco de Galga"]

***arborea* R. T. Lowe, 1855 var.  $\beta$  of *sphinctostoma* *Pupa* (*Leiostyla*)**

Type locality: "*inter muscos in truncis Laurorum in convallibus Maderae*" [among the mosses on the trunks of the laurels in the valleys of Madeira]

ANSP 97301 Madeira [2] {P}  
 HUIJ MOL 56248/2 Madeira [2] {P}  
 NHMUK 1875.12.31.73 Madeira [21] {L/W}  
 NMW.1955.158.01056 Madeira [15] {P}  
 NMW.1955.158.27915 No loc [5] {TVW/Tomlin}  
 RBINS IG10591-MT4018 Madeira [2] {P}  
 RMNH.MOL.334873 Madeira [3] {?}  
 SMF 52124/3 Madeira [3] {E/P}  
 USNM 197845 Madeira [2] {P}

***arcinella* R. T. Lowe, 1855 *Helix* (*Rimula*)**

Type locality: "*fossilis ad Caniçal Maderae*" [fossil at Caniçal, Madeira]

ANSP 97073 Madeira [2] {P}  
 MANCH.EE.1721 (dat. def.) [2] {P}  
 NHMUK 1875.12.31.227 Madeira [5†] {L/W}  
 NMW.1955.158.27790 Madeira [1] {P}  
 NMW.1955.158.27791 Caniçal [1] {P}  
 NMW.1955.158.27792 Caniçal [6] {P}  
 NMS Z 1961.61.576 Caniçal [6] {P}  
 RMNH.MOL.295412 Madeira [3] {P}  
 SMF 139574/2 Caniçal [2] {E/P}  
 USNM 197884 Madeira [2] {P}

***arcta* R. T. Lowe, 1831 *Helix* (*Helicodon*)**

Type locality: "*in Maderae collibus aridis maritimus*" [= Madeira, on dry maritime hills]

ANSP 97074 Madeira [2] {P}  
 BOOTH 406756-406779 Madeira [24] {W-W}  
 EXEMS 1720/1909/56 Madeira [2] {JL/EW}  
 EXEMS 419/1911/1-30 (dat. def.) [30] {S/Ex}  
 HUIJ MOL 546172/1 Madeira [1] {P}  
 NHMUK 1948.7.8.6 Madeira [1] {S/nhm}  
 NHMUK 1875.12.31.153 Madeira [38] {L/W}  
 NHMUK 1850.12.31.114-121 Madeira [8] {TVW}  
 NMW.1955.158.27789 Madeira [8] {P}  
 NMS Z.1961.61 Madeira [2] {W-W}  
 RMNH.MOL.295415 Madeira [3] {P}  
 SMF 139551/3 Madeira [3] {E/P}  
 USNM 197911 Madeira [2] {P}

**arenicola** R. T. Lowe, 1831 var.  $\gamma$  of *polymorpha* *Helix* (*Helicella*)

Type locality: "*promontorium St Laurentii Maderae*" [= headland of Ponta São Lourenço, Madeira]

NHMUK 1948.7.8.19 Madeira [1] {S/nhm}

**armillata** R. T. Lowe, 1852 *Helix* (*Xerophila*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97130 Madeira [2] {P}

BOOTH 406780–406791 Madeira [12] {W-W}

NHMUK 1875.12.31.167 Madeira [15] {L/W}

NMW.1955.158.24296 Funchal, Madeira [9] {P}

RMNH 56265 Madeira [1] {P?} **Lectotype** selected by Gittenberger, 1991

RMNH 56266/3 Madeira [3] {P?} **Paralectotypes** selected by Gittenberger, 1991

UMZC in CC Madeira {L/W}

USNM 197903 Funchal, Madeira [2] {P}

**armitageana** R. T. Lowe, 1852 *Helix* (*Hispidella*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97075 Madeira [1] {P}

BOOTH 406792–406798 Madeira [7] {W-W}

NHMUK 1968567 Madeira [1] {W-W}

NHMUK 1875.12.31.138 Madeira [15] {L/W}

NHMUK 1850.12.31.80-82 Madeira [3 as *armitagii*] {TVW}

NMINH 1896.42.78 Madeira [5] {EW/EL}

NMW.1955.158.27803 Madeira [2] {P}

NMS Z.1961.61 Madeira [1] {W-W}

RMNH.MOL.295436 Madeira [1] {P}

USNM 197906 Madeira [1] {P}

**arridens** R. T. Lowe, 1831 *Helix* (*Helicodon*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97110 Madeira [2] {P}

BOOTH 406799–406811 Madeira [13] {W-W}

EXEMS 1720/1909/59 Madeira [4] {JL/EW}

EXEMS 416/1911/1-18 [18] {S/Ex}

NHMUK 1850.12.31.89-93 Madeira [5] {TVW}

NHMUK 1875.12.31.127 Madeira [19] {L/W}

NHMUK 1948.7.8.7 Madeira [1] {S/nhm}

NHMUK 1968572 Madeira [1] {W-W}

NMW.1955.158.27793 Madeira [4] {P}

NMS Z.1961.61 Madeira [2] {W-W}

RMNH.MOL.295427 Madeira [2] {P}

UMZC in CC Madeira {L/W}

USNM 197898 Madeira [2] {P}

**attrita** R. T. Lowe, 1831 var.  $\delta$  of *polymorpha* *Helix* (*Helicella*)

Type locality: "*in collibus montibusve Portûs S<sup>ti</sup>.*" [= on hills and mountains of Porto Santo]

ANSP 97259 Porto Santo [2] {P}

BOOTH 406812–406823 Porto Santo [12] {W-W}

MANCH.EE.1714 Porto Santo [2] {P}

NMHUK 1948.7.8.10 Madeira [1] {S/nhm}

NMHUK 1875.12.31.176 Porto Santo [3†] {L/W}

NMHUK 1875.12.31.175 Porto Santo [32] {L/W}

NHMUK 1850.12.31.220-227 Porto Santo [8] {TVW}

NMHUK 1968540 Porto Santo [1] {W-W}

NMW.1955.158.27823 Porto Santo [3] {P}

NMW.1955.158.27824 Pico l'Anna, Ferreira [4] {P}

RMNH.MOL.337569 Porto Santo [2] {?}

UMZC in CC Madeira {L/W}

USNM 198017, Porto Santo, [2], {P}

**avellana** R. T. Lowe, 1855 var. of *punctulata* *Helix* (*Helicomela*)

Type locality: "*quoque in Deserta Australi*" [(also) on Bugio]

ANSP 97208 Southern Deserta [2] {P}

BOOTH 407472–407478 Bugio [7] {W-W}

NHMUK 1875.12.31.18 Bugio [12] {L/W}

NMW.1955.158.24953 Southern Deserta [6] {P}

RBINS IG10591-MT4019 Southern Deserta [2] {P}

RMNH.MOL.337570 Desertas Is [2] {?}

USNM 197960 S. Deserta [2] {P}

**behni** R. T. Lowe, 1852 *Vitrina*

Type locality: "*in Madera*" [= Madeira]

Figure on pl. 5 fig. 1b in Lowe 1831 designated as **Lectotype** by Groh & Hemmen, 1986.

MANCH.EE.1731 (dat. def.) [2] {P}

NMW.1955.158.24274 Caniçal [2] {P}

NMW.1955.158.27968 Madeira [1] {P}

**berkeleii** R. T. Lowe, 1861 *Helix* (*Iberus*)

Type locality: "*sub lapidus in convallecula arida aprica inter "Juan Grande" et "Maspalomas" Canariae Magne australoris*" [under stones in the dry valleys between Juan Grande and Maspalomas, south of Grand Canary]

BOOTH 406132–406136 Grand Canary [5] {W-W}

NHMUK 1875.12.31.302 Grand Canary [10] {L/W}

NMINH 1896.42.21 Grand Canary [2] {EW/EL}

NMW.1955.158.27953 Grand Canary [4] {TVW}

UMZC in CC Grand Canary {L/W}

**bicingulata** R. T. Lowe, 1855 var.  $\delta$  of *abjecta* *Helix* (*Caseolus*)

Type locality: Not differentiated from *abjecta*

**bicolor** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in summo cacmine montis "Pico de Facho" dicto Portis S<sup>ti</sup>*" [on the summit of Pico de Facho, Porto Santo]

ANSP 97077 Porto Santo [2] {P}

EXEMS 1720/1909/88 Madeira [5] {JL/EW}

NHMUK 1850.12.31.187-194 Porto Santo [8] {TVW}

NMW.1955.158.27822 Porto Santo [18] {P}

RMNH.MOL.295458 Porto Santo [4] {P}

USNM 198036 Porto Santo [2] {P}

**bifrons** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in Maderae sylvis*" [= in woods of Madeira]

ANSP 97229 Caniçal [2] {P}

BOOTH 406856–406866 Madeira [11] {W-W}

EXEMS 1720/1909/38 Madeira [3] {JL/EW}

HUJ MOL56179/2 Madeira [2] {P}

NHMUK 1948.7.8.54 Madeira [1] {S/nhm}

NHMUK 1875.12.31.32 Madeira [21] {L/W}

NHMUK 1875.12.31. 217 Madeira [20†] {L/W}

NHMUK 1850.12.31.94-99 Madeira [6] {TVW}

NMW.1955.158.27885 Madeira [3] {P}  
 NMW.1955.158.27886 Caniçal [4] {P}  
 NMW.1955.158.27886 Southern Deserta [1] {P}  
 NMS Z.1961.61 Madeira [2] {W-W}  
 RMNH.MOL.390393 Madeira [2] {P}  
 UMZC in CC Madeira {L/W}  
 USNM 197905 Caniçal Madeira [2] {P}

**biplicata** R. T. Lowe, 1831 var.  $\alpha$  of *triticea* *Helix* (*Cochlicopa*)

Type locality: Not differentiated from *triticea*.

NHMUK 1948.7.8.51 Porto Santo [1] {S/nhm}

**bulveriana** R. T. Lowe, 1831 *Helix* (*Helicogena*)

A replacement name for *Helix bulverii* Wood, 1828 and as such the Lowe material has no type status

Type locality: "in montibus Insulae Portus S<sup>ti</sup>" [= in mountains of Porto Santo]

ANSP 97078 Porto Santo [1] {P}  
 BOOTH 406873–406879 Porto Santo [7] {W-W}  
 BOOTH 406880–406882 Porto Santo [3] albino {W-W}  
 EXEMS 1720/1909/88 Madeira [3] {JL/EW}  
 EXEMS 446/1911 Porto Santo [B:4] {S/Ex}  
 HUI\_MOL 56176/1 Porto Santo [1] {P}  
 NHMUK 1850.12.31.195-200 Porto Santo [6] {TVW}  
 NHMUK 1875.12.31.22 Porto Santo [5] {L/W}  
 NHMUK 1875.12.31.131 Porto Santo [19] {L/W}  
 NHMUK 1968587 Porto Santo [1] {W-W}  
 NMW.1955.158.27825 Porto Santo [1] {P}  
 NMW.1955.158.27826 Porto Santo [2] albino {P}  
 UMZC in CC Madeira {L/W}  
 USNM 198033 Porto Santo [1] {P}

**calathiscus** R. T. Lowe, 1831 *Helix* (*Cochlodon*)

Type locality: "in summo cacumine montis "Pico de Facho", Portus S<sup>ti</sup>." [= at the top of the mountain Pico de Facho, Porto Santo]

ANSP 97304 Porto Santo [2] {P}  
 HUI MOL 56252/2 Porto Santo [2] {P}  
 BOOTH 407747–407764 Porto Santo [18] {W-W}  
 NHMUK 1948.7.8.40-41 Porto Santo [2] {S/nhm}  
 NHMUK 1875.12.31.70 Porto Santo [29] {L/W}  
 NHMUK 1875.12.31.71 Porto Santo [35†] {L/W}  
 NMW.1955.158.01067 Porto Santo [54] {P}  
 NMS Z.1961.61.581 Porto Santo [3] {P}  
 RMNH.MOL.334876 Madeira [3] {?}  
 SMF52186/2 Porto Santo [2] {E/P}  
 UMZC Porto Santo [70] {L/W}  
 USNM 197998 Porto Santo [2] {P}

**calathoides** R. T. Lowe, 1863 *Helix* (*Euromphala*)

Type locality: "semifossilis in insula Deserta australi "Bugio" dicta" [semifossil on Bugio]

HUI MOL 56219/1 Deserta Grande [1] {P}  
 NHMUK 1895.2.2.63-64 Deserta Grande [2] {EW}  
 NHMUK 1895.2.2.109-13 Deserta Grande, Bugio [5] {EW}  
 RMNH.MOL.337562 Madeira [1] {?}

**calathus** R. T. Lowe, 1852 *Helix* (*Janulus*)

Type locality: "in Madera" [= Madeira]

ANSP 97228 Madeira [2] {P}

BOOTH 406883–406895 Madeira [13] {W-W}  
 EXEMS 1720/1909/39 Madeira [1] {JL/EW}  
 NHMUK 1968579 Madeira [1] {W-W}  
 NHMUK 1875.13.31.13 Madeira [23] {L/W}  
 NHMUK 1875.13.31.196 Madeira [10†] {L/W}  
 NMINH 1896.42.18 Madeira [4] {EW/EL}  
 NMW.1955.158 Caniçal [5] {P}  
 RMNH.MOL.337576 Madeira [2] {?}  
 USNM 197891 Madeira [2] {P}

**calcigena** R. T. Lowe, 1831 var.  $\epsilon$  of *polymorpha* *Helix* (*Helicella*)

Type locality: "in solo calcareo Insulae cujusdam, "Baxo" dictae, juxta Portum S<sup>tum</sup>" [on calcareous soils on the islet of Baixo, off Porto Santo]

MANCH.EE.1720 [1] {P}  
 NHMUK 1948.7.8.17-18 Madeira [2] {S/nhm}

**calculus** R. T. Lowe, 1855 *Helix* (*Caseolus*)

Type locality: "in Portu S<sup>to</sup> rariss." [very rare on Porto Santo]

ANSP 97079 Porto Santo [2] {P}  
 EXEMS 1720/1909/66 Madeira [4] {JL/EW}  
 BOOTH 406896–406902 no loc. [7] {W-W}  
 MANCH.EE.1715 (dat. def.) [2] {P}  
 NHMUK 1875.12.31.21 Porto Santo [6] {L/W}  
 NMINH 1896.42.65 Porto Santo [6] {EW/EL}  
 NMW.1955.158.27762 Porto Santo [1] {P}  
 NMW.1955.158.27761 Il de Cima, Porto Santo [6] {P}  
 NMS Z.1961.61 Porto Santo [1] {W-W}  
 RMNH.MOL.337548 Porto Santo [3] {?}  
 USNM 198049 Porto Santo [2] {P}

**calva** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "in Madera sylvis" [= in woods of Madeira]

ANSP 97080 Madeira [2] {P}  
 BOOTH 406903–406911 Madeira [9] {W-W}  
 EXEMS 1720/1909/50 Madeira [3] {JL/EW}  
 MANCH.EE.1717 (dat. def.) [2] {P}  
 NHMUK 1875.12.31.145 Madeira [18]  
 NHMUK 1875.12.31.180 Madeira [18†]  
 NHMUK 1850.12.31.83-88 Madeira [6] {TVW}  
 NMW.1955.158.27820 Caniçal [4] {P} as *veterna* Cockerell  
 NMW.1955.158.27845 Madeira [7] {P}  
 NMS Z.1961.61 Madeira [2] {W-W}  
 RMNH.MOL.295454 Madeira [2] {P}  
 SMF 139613/2 Madeira [2] {E/P}  
 UMZC in CC Madeira {L/W}  
 USNM 197885 Madeira [2] {P}

**canicalensis** R. T. Lowe, 1852 *Helix* (*Plebecula*)

Type locality: "semifoss. in Madera" [semifossil, Madeira]

NMW.1955.158. 27937 Canical [1] {P} as *vulgata* var. *canicalensis*  
 RBINS IG10591–MT4021 Caniçal, Madeira [1] {P}  
 USNM 197893 Madeira [1] {P}

**capsella** R. T. Lowe 1855 *Helix* (*Rimula*)

Type locality: "in Maderae" [= Madeira]

ANSP 97081 Madeira [2] {P}  
 BOOTH 406912–406919 Madeira [8] {W-W}

## ZOOLOGIE

NHMUK 1875.12.31.158 Madeira [7] {L/W}  
 NMINH 1896.42.74 Madeira [5] {EW/EL}  
 NMW.1955.158.27798 Pico do Silva, Madeira [4] {P}  
 RMNH.MOL.295426 Madeira [2] {P}  
 USNM 197882 Madeira [2] {P}

**cassida R. T. Lowe, 1831** *Helix (Cochlodon)*

Type locality: "*in Maderae convallibus, in rupibus aridid umbrosis*" [= in arid shaded cliffs in the valleys of Madeira]

ANSP 97281 Madeira [2] {P}  
 BOOTH 407765–407774 Madeira [10] {W-W}  
 HUI MOL 56243/2, Madeira, Caniçal [2] {P}  
 LIVCM.1965.141 266 Madeira [2] {P}  
 NHMUK 1948.7.8.44 Madeira [1] {S/Ex}  
 NHMUK 1875.12.31.93 Madeira [32†] {L/W}  
 NHMUK 1875.12.31.94 Madeira [14] {L/W}  
 NHMUK 1895.2.2.309-15 Madeira [7] {EW}  
 NMW.1955.158.27898 Caniçal [6] {P}  
 NMW.1955.158.01068 Madeira [39] {L/Tomlin}  
 RMNH.MOL.77039 Madeira [2] {P}  
 SMF 52111/2 Madeira [2] {E/P}  
 UMZC Madeira [52] {L/W}  
 USNM 197842 Madeira [2] {P}

**cassidula R. T. Lowe, 1852** *Pupa (Alvearella)*

Type locality: "*in Madera*" [Madeira]

ANSP 97282 Madeira [1] {P}  
 HUI MOL 56260/2, Madeira [2] {P}  
 NMINH 1896.42.194 Madeira [7] {EW/EL}  
 NMW.1955.158.27883 Madeira [1] {P}  
 NMS Z.1961.61.582 Madeira [3] {P}  
 RMNH.MOL.334877 Madeira [2] {?}  
 SMF 52181/1 Madeira [1] {E/P}  
 USNM 197848 Madeira [1] {P}

**cheilogona R. T. Lowe, 1831** *Helix (Cochlodon)*

Type locality: "*in Maderae*" [= Madeira]

ANSP 97283 Madeira [2] {P}  
 EXEMS 410/1911/1-39 (dat. def.) [39] {S/Ex}  
 HUI MOL 56250/2, Madeira, [2] {P}  
 NHMUK 1948.7.8.46 Madeira [2] {S/nhm}  
 NHMUK 1875.12.31.75 Madeira [16] {L/W}  
 NHMUK 1850.12.31.142-147 Madeira [6] {RTW}  
 NMW.1955.158.01045 Madeira [29] {P}  
 NMW.1955.158.27916 No locality [2] {W/Tomlin}  
 RMNH.MOL.334879 Madeira [3] {?}  
 SMF 52194/3 Madeira [3] {E/P}  
 UMZC in CC Madeira {L/W}  
 USNM 197856 Madeira [2] {P}

**cheiranthicola R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "*in arbusculis Cheranti tenuifolii Herit: in monte Portus Sti. quodam "Pico branco" dicto: et in Insula "Itheo de Baxo" dicto, sed rarissima*" [= in shrubs of *Cheranthus tenuifolius* Herit, somewhere on the mountain called "Pico Branco": and on the island called Ilhéu de Baixo, but very rare].

ANSP 97082 Porto Santo [2] {P}  
 BOOTH 406935–406944 Porto Santo [10] {W-W}  
 EXEMS 1720/1909/86 Madeira [3] {JL/EW}

NHMUK 1948.7.8.20 Porto Santo [1] {S/nhm}  
 NHMUK 1968585 Porto Santo [1] {W-W}  
 NHMUK 1875.12.31.20 Porto Santo [25] {L/W}  
 NHMUK 1875.12.31.188 Porto Santo [10†] {L/W}  
 NHMUK 1850.12.31.55-58 Porto Santo [4] {TVW}  
 NMW.1955.158.27829 Porto Santo [6] {P}  
 NMW.1955.158.27830 Porto Santo [3] {P}  
 NMS Z.1961.61 Porto Santo [2] {W-W}  
 RMNH.MOL.295513 Porto Santo [2] {P}  
 SMF 139675/2 Porto Santo [2] {E/P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198029 Porto Santo [2] {P}

**cinerea R. T. Lowe, 1855 var.  $\beta$  of** *lincta Helix (Discula)*

Type locality: "*recens ad Caniçal Madera*" [fresh at Caniçal, Madeira]

**citrina R. T. Lowe MS var. of** *malleata Helix*

RBINS IG10591-MT3512 Teneriffe [1] {P}  
 NMW.1955.158.27951 Teneriffe [1] {P}

**chlorata R. T. Lowe, 1855 var.  $\alpha$  of** *phlebophora Helix (Helicogena)*

Type locality: "*in Portu S<sup>o</sup> insulisque parvulis proxime circumjactibus, nec alibi*" [= in Porto Santo and the small islands immediately surrounding it, not elsewhere]

Cited as Lowe, 1831 Table 5, fig. 6.

NMW.1955.158.27873 Porto Santo [3] {P}

**commixta R. T. Lowe, 1855** *Helix (Caseolus)*

Type locality: "*recens in Portu S<sup>o</sup> rariss.*" [very rare on Porto Santo]

ANSP 97083/84 Porto Santo [4] {P}  
 BOOTH 406965–406971 Porto Santo [7] {W-W}  
 EXEMS 1720/1909/70 Porto Santo [3] {JL/EW}  
 EXEMS 4351911/1-74 (dat. def.) [74] {S/Ex}  
 NHMUK 1968542 Porto Santo [1] {W-W}  
 NHMUK 1875.12.31.150 Porto Santo [11] {L/W}  
 NHMUK 1875.12.31.209 Porto Santo [26†] as var *minor* {L/W}  
 NMINH 1896.42.66 Porto Santo [7] {EW/EL}  
 NMW.1955.158.27768 Madeira [2] {P}  
 RMNH.MOL.77045 Madeira, Porto Santo [3] {Lowe, RT}  
 UMZC in CC Porto Santo {L/W}

**compacta R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "*In Insula Portus S<sup>ti</sup>. gregaria, ubique copiosissima: in Maderae ad Promontorium S<sup>ti</sup>. Laurenti ("Ponta Saô Lourenço") solùm*" [= on Porto Santo gregarious, very abundant everywhere: in Madera at the promontory of St. Lorenz ("Ponta Saô Lourenço") only]

ANSP 97085 Madeira [2] {P}  
 BOOTH 406972–406982 Madeira [11] {W-W}  
 BOOTH 406983–407000 Porto Santo [18] {W-W}  
 EXEMS 1720/1909/65 Madeira [3] {JL/EW}  
 EXEMS 444/1911/1-23 (dat. def.) [23] {S/Ex}  
 NHMUK 1968573 Madeira [2] {W-W}  
 NHMUK 1875.12.31.143 Madeira [23] {L/W}  
 NHMUK 1875.12.31.182 Porto Santo [35†] {L/W}  
 NHMUK 1875.12.31.183 Madeira [18†] {L/W}  
 NHMUK 1875.12.31.184 Porto Santo [14†] {L/W}

NHMUK 1850.12.31.264-269 Porto Santo [6] {TVW}  
 NMW.1955.158.27763 Il de Fora, Madeira [9] {P}  
 NMS Z.1961.61 Madeira [1] {W-W}  
 NMS Z.1961.61 Porto Santo [4] {W-W}  
 RMNH.MOL.337550 Madeira [3] {?}  
 SMF 139428/3 Madeira Caniçal {E/P}  
 UMZC in CC Madeira/Porto Santo {L/W}  
 USNM 197895 Madeira [2] {P}

**compar R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "*in Maderae collibus maritimis; rariss.*" [in the coastal hills of Madeira; very rare]

ANSP 97089 Madeira [2] {P}  
 BOOTH 407001–407009 Madeira [9] {W-W}  
 EXEMS 1720/1909/93 Madeira [3] {JL/EW}  
 NHMUK 1968581 Madeira [1] {W-W}  
 NHMUK 1875.12.31.170 Madeira [22] {L/W}  
 NMW.1955.158.27781 Madeira [6] {P}  
 RMNH.MOL.337553 Madeira [2] {?}  
 UMZC in CC Madeira {L/W}  
 USNM 197870, Madeira, [2], {P}

**concinna R. T. Lowe, 1852** *Pupa (Alvearella)*

Type locality: "*in Madera*" [Madeira]

ANSP 97284 Madeira [2] {P}  
 HUIJ MOL 56258/2 Madeira [2] {P}  
 NHMUK 1875.12.31.86 Madeira [14] {L/W}  
 NMINH 1896.42.49 Hierro [8] {EW/EL}  
 NMW.1955.158.01052 Madeira [26] {P}  
 NMW.1955.158.27884 Porto Santo [6] {P}  
 NMS Z.1961.61.583 Madeira [3] {P}  
 RMNH.MOL.334880 Madeira [3] {?}  
 SMF 51792/3 Madeira [3] {E/P}  
 USNM 197849 Madeira [2] {P}

**concinna R. T. Lowe, 1861** *Helix (Euromphala)*

Type locality: "*“El Golfo” dicto Ins Ferri*" ["El Golfo" on the island of El Hierro]

**consors R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "*in Insula Portus S<sup>i</sup>. cum praecedente [H. compacta]; rarior*" [= Porto Santo, with the preceding [*H. compacta*], but rarer]

ANSP 97090 Madeira [2] {P}  
 BOOTH 407010–407017 Porto Santo [8] {W-W}  
 EXEMS 1720/1909/68 Porto Santo [1†] {JL/EW}  
 MANCH.EE.1718 (dat. def.) [2] {P}  
 NHMUK 1968576 Porto Santo [1] {W-W}  
 NHMUK 1948.7.8.25 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.199 Porto Santo [14†] {L/W}  
 NHMUK 1875.12.31.200 Porto Santo [18†] {L/W}  
 NMW.1955.158.27770 Porto Santo [9] {P}  
 NMS Z.1961.61 Porto Santo [1] {W-W}  
 RMNH.MOL.337554 Porto Santo [2] {?}2  
 UMZC in CC Porto Santo {L/W}  
 USNM 198046 Porto Santo [2] {P}

**conuloidea R. T. Lowe, 1855** var.  $\beta$  of *abjecta Helix (Caseolus)*

Type locality: Not differentiated from *abjecta*

**conulus R. T. Lowe, 1855** var.  $\alpha$  of *abjecta Helix (Caseolus)*

Type locality: Not differentiated from *abjecta*

**coronula R. T. Lowe, 1852** *Helix (Coronaria)*

Type locality: "*in Deserta Australi*" [= Bugio]

ANSP 97093 South Deserta [2] {P}  
 BOOTH, 407028–407042 Bugio [15†] {W-W}  
 EXEMS 1720/1909/101 Madeira [1] {JL/EW}  
 NHMUK 1968584 S. Deserta [2] {W-W}  
 NMW.1955.158.01569 Southern Deserta [7] {P}  
 NMS Z.1961.61 S. Deserta [2] {W-W}  
 RMNH.MOL.337555 Deserta Is [3] {?}  
 SMF 139390/2 S. Deserta [2] {E/P}  
 UMZC in CC Southern Deserta {L/W}  
 USNM 197950 S. Deserta [2] {P}

**craticulata R. T. Lowe, 1852** *Helix (Leptaxis)*

Type locality: "*in Insula Ferro juxta Portum S<sup>tum</sup>*" [= Ilhéu de Ferro, off Porto Santo]

ANSP 97182 Porto Santo [2] {P}  
 USNM 198022 Porto Santo [2] {P}

**crispa R. T. Lowe, 1831** *Clausilia (Cochlodina)*

Type locality: "*in rupibus sylvarum Maderae*" [= wooded cliffs, Madeira]

EXEMS 399/1911/1-19 Madeira [19] {S/Ex}  
 EXEMS 400/1911/1-10 Madeira [10] {S/Ex} Cited as **Syntypes** of var. *B decolorata* Wollaston by Groh & Hemmen, 1984  
 NHMUK 1948.7.8.37 Madeira [1] {S/nhm} **Lectotype** [specimen supposed to be original to figure in Lowe, 1831, selected by Groh & Hemmen, 1984]  
 NHMUK 1875.12.31.62 Madeira [17] {L/W}  
 NHMUK 1850.12.31.28-33 Porto Santo [6] {TVW}  
 NMW.1955.158.01086 Canical [1] {P} as var. *decolorata* Woll.  
 RMNH.MOL.264377 Madeira [2] {P}  
 UMZC Madeira [28] {L/W}  
 USNM 197868 Madeira [1] {P}

**curta R. T. Lowe, 1831** var.  $\beta$  of *anconostoma Helix (Cochlodon)*

Type locality: not differentiated from *anconostoma*

**cylichna R. T. Lowe, 1852** *Achatina (Cylichnidia)*

Type locality: "*in Madera*" [Madeira]

ANSP 97193 Madeira [1] {P}  
 NMINH 1896.42.160 Madeira [9] {EW/EL}  
 NHMUK 1875.12.31.50 Madeira [32] {L/W}  
 NMW.1955.158.01081 Madeira [38] {P}  
 RMNH.MOL.269013 Caniçal [2] {P}  
 RMNH.MOL.269014 Porto Santo [2] {P}  
 USNM 197913 Madeira [2] {P}

**dealbata R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "*in montibus Portus S<sup>to</sup>*" [= mountains of Porto Santo]

ANSP 97095 Madeira [2] {P}  
 BOOTH 407049–407055 Porto Santo [7] {W-W}

EXEMS 1720/1909/96 Madeira [1] {JL/EW}  
 EXEMS 451/1911/1-11 (dat. def.) [11] {S/Ex}  
 NHMUK 1948.7.8.14 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.147 Porto Santo [18] {L/W}  
 NHMUK 1850.12.31.210–215 Porto Santo [6] {TVW}  
 NMW.1955.158.24278 Porto Santo [6] {P}  
 NMW.1955.158.27932 Porto Santo [7] {TVW/Tomlin}  
 RMNH.MOL.337556 Porto Santo [3] {?} UMZC in CC Porto Santo {L/W}  
 USNM 198000 Porto Santo [2] {P}

**deflorata** R. T. Lowe, 1855 *Helix* (*Hispidella*)

Type locality: "*alterum adustum integrim, animalis expers, sed parum decoloratum, prope locum Arrebentao dictum ad alt circiter 3000 ped urb. Funchal*" [a single adult at Arrebentao, 3000 feet above Funchal]

Given that only a single shell was known at the time of description it is doubtful if the material below can have type status

NHMUK 1895.2.2.160 Pico d'Arrebentao [1] {EW}  
 NMNH 1896.42.43 Madeira [1] {EW/EL}

**delphinula** R. T. Lowe, 1831 *Helix*

Type locality: "*Ad locum Caniçal dictum ... sed statu semifossil*" [Madeira, said from the place Caniçal ... but in semifossil state]

ANSP 97094 Caniçal [1] {P}  
 BOOTH 407054–407058 Madeira [3†] {W-W}  
 EXEMS 1720/1909/102 Madeira [2] {JL/EW}  
 HUIJ MOL 56173/1, Madeira, [2] {C/M}  
 NHMUK 1875.12.31.19 Madeira [7†] {L/W}  
 NMW.1955.158.24285 Caniçal [2] {P}  
 RMNH.MOL.337557 Madeira [2] {?} UMZC in CC Madeira {L/W}  
 USNM 197876 Caniçal, [1], {P}

**delphinuloides** R. T. Lowe, 1860 *Helix* (*Coronaria*)

Type locality: "*living at an elevation of about 4000 feet ... along the new Levada called the Levada de Fajã dos Vinhaticos, about three miles below its source in the bed or stream of the Ribêiro do Fayal*"

NHMUK 1860.9.5.5–7 Madeira [3] {L}

The use of the following as a source of syntypes is untenable given the above deposition of material by Lowe in 1860.

BOOTH 407059–407063 Madeira [5] {W-W}  
 NHMUK 1875.12.31.31 Madeira [10] {L/W}  
 NMS Z.1961.61 Madeira [1] {W-W}  
 RMNH.MOL.337558 Madeira [1] {?} UMZC in CC Madeira {L/W}

**deltostoma** R. T. Lowe, 1831 *Clausilia* (*Cochlodina*)

Type locality: "*in Madera et Portu S<sup>on</sup>*" [= Madeira and Porto Santo]

ANSP 97059 Porto Santo [2] {P}  
 EXEMS 1720/1909/50 Madeira [4] {JL/EW}  
 EXEMS 431/1911/1-21 (dat. def.) [21] {S/Ex}  
 NHMUK 1948.7.8.36 Madeira [2] {S/nhm} Lectotype selected from the supposed originals to the figures in Lowe (1831) for var.  $\beta$  as *deltostoma* Groh & Hemmen, 1984

NHMUK1875.12.31.60 Deserta Grande [24] {L/W}  
 NHMUK 1875.12.31.61 Porto Santo [35] {L/W}  
 NHMUK 1875.12.31.63 Bugio [18] {L/W}  
 NHMUK 1875.12.31.68 Madeira [34] {L/W}  
 NHMUK 1875.12.31.69 Porto Santo [7†] {L/W}  
 NHMUK 1850.12.31.122-129 Madeira [8] {TVW}  
 NMW.1955.158.27859 Northern Deserta [1] {P}  
 NMW.1955.158.1085 Madeira [1] {TVW/Paiva}  
 RMNH.MOL.264389 Madeira [2] {P}  
 SMF 30875 [2] {E/P} **Paralectotypes** selected by Groh & Hemmen, 1984  
 UMZC mixed localities [50] {L/W}  
 USNM 197864 Madeira [2] {P}

**depauperata** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in montibus Insulae Portus S<sup>on</sup>*" [in the mountains of the island Porto Santo]

ANSP 97096 Porto Santo [2] {P}  
 BOOTH 407064–407070 Porto Santo [7] {W-W}  
 EXEMS 1720/1909/53 Madeira [1] {JL/EW}  
 NHMUK 1948.7.8.32 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.10 Porto Santo [12] {L/W}  
 NHMUK 1875.12.31.179 Porto Santo [15†] {L/W}  
 NHMUK 1850.12.31.10-15 Porto Santo [6] {TVW}  
 NMW.1955.158.27861 Porto Santo [9] {P}  
 RMNH.MOL.337559 Porto Santo [2] {P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198038 Porto Santo [2] {P}

**depauperata** R. T. Lowe, 1855 subvar. 2 of **deltostoma** var.  $\beta$  *crebristriata* *Clausilia*

Type locality: "*in collibus apricis submaritimis. 1500 fere ped. altis, editioribusque montanis Maderae*" [= sunny hills close to the sea at 1500 feet on Madeira]

ANSP 97058 Madeira [2] {P}  
 NHMUK 1875.12.31-59 Madeira [12] {L/W}  
 NMW.1955.158.27861 Madeira [3] {P}  
 RMNH.MOL.264390 Madeira [2] {P}  
 SMF 30871 Madeira [1] {E/P} **Lectotype** selected from Preston's co-type by Groh & Hemmen, 1984  
 USNM 197865, Madeira, [1], {P}

**depressiuscula** R. T. Lowe, 1831 var.  $\beta$  of **polymorpha** *Helix* (*Helicella*)

Type locality: "*in solo Tufa dicto in collibus maritimis prope urbem Funchalensem Maderae*" [= only on maritime tuff hills near the city of Funchal on Madeira]

EXEMS 1720/1909/80 Madeira [3] {JL/EW}  
 NHMUK 1948.7.8.9 Madeira [1] {S/nhm}  
 RMNH.MOL.295519 Madeira [2] {P}

**deusta** R. T. Lowe, 1861 *Helix* (*Hispidella*)

Type locality: "*in sylvis montosis editioribusque convallium Ins. Palmae*" [in the mountainous forests and in the more edifying valleys of La Palma]

NMW.1955.158.27954 Edge of Caldiera, Palma [1] {P}  
 RBINS IG10591-MT3525 Palma [1] {P}

**discina** R. T. Lowe, 1852 *Helix* (*Discula*)

Type locality: "*in Portu S<sup>on</sup> vulg.*" [= Porto Santo, common]

ANSP 97258 Porto Santo [2] {P}

BOOTH 407071–407078 Porto Santo [8] {W-W}  
 EXEMS 1720/1909/83 Madeira [5] {JL/EW}  
 EXEMS 428/1911/1-2 (dat. def.) [2] {S/Ex}  
 EXEMS 474/1911/1-38 (dat. def.) [38] {S/Ex}  
 MANCH.EE.1716 (dat. def.) [2] {P}  
 NHMUK 1968568 Madeira [3] {W-W}  
 NHMUK 1875.12.31.214 Porto Santo [4†] {L/W}  
 NHMUK 1875.12.31.233 Porto Santo [31] {L/W}  
 NMW.1955.158.27828 Porto Santo [4] {P}  
 RMNH.MOL.295509 Porto Santo [1] {P}  
 SMF 139714/1 Porto Santo [1] {E/P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198015, Porto Santo [2] {P}

***duplicata* R. T. Lowe, 1831 *Helix (Helicella)***

A replacement name for *Helix bicarinata* Sowerby, 1824 and as such the Lowe material has no type status

NHMUK 1948.7.8.34 Porto Santo [1]  
 NHMUK 1850.12.31.274-278 Porto Santo [5] {TVW}  
 NMW.1955.15827815 Porto Santo [7] {P}  
 RMNH.MOL.337577 Porto Santo [3] {?}  
 USNM 198010 Porto Santo [2] {P}

***echinulata* R. T. Lowe, 1831 *Helix (Helicella)***

**Type locality:** "in monte "Pico Branco" dicto Insulae Portûs S<sup>ti</sup>" [in the mountain called "Pico Branco" on the island of Porto Santo]

ANSP 97098 Porto Santo [2] {P}  
 BOOTH 407079–407094 Porto Santo [16] {W-W}  
 NHMUK 1948.7.8.11 Madeira [1] {S/nhm}  
 NHMUK 1968.586 Porto Santo [1] **Lectotype** {W-W} selected from supposed syntype by De Mattia *et al.*, 2018  
 NHMUK 1875.12.31.124 Porto Santo [30] {L/W}  
 NMW.1955.158.27816 Porto Santo [18] {P}  
 EXEMS 1720/1909/72 Madeira [1] {JL/EW}  
 EXEMS 430/1911 Porto Santo [A:122, B:26] {S/Ex}  
 RMNH.MOL.337560 Porto Santo [3] {?}  
 SMF 139645/3 Porto Santo [3] {E/P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198008, Porto Santo, [2], {P}

***edentula* R. T. Lowe, 1831 var.  $\beta$  of *triticea* *Helix (Cochlicopa)***

**Type locality:** not differentiated from *triticea*

NHMUK 1948.7.8.50 Porto Santo [1] {S/nhm}

***efasciata* R. T. Lowe, 1855 subvar. 2 of *lincta* var.  $\beta$  *cinerea* *Helix (Discula)***

**Type locality:** "recens ad Caniçal Maderae" [= fresh at Caniçal, Madeira]

***erubescens* R. T. Lowe, 1831 *Helix (Helicogena)***

**Type locality:** "in Maderae sylvaticis" [= in woods of Madeira]

ANSP 97189 North Deserta [2] {P}  
 BOOTH 407095–407103 Madeira [9] {W-W}  
 BOOTH 407104–407109 Deserta Grande [6] {W-W}  
 EXEMS 1720/1909/124 Madeira [2] {JL/EW}  
 NHMUK 1850.12.31.34-36 Deserta Grande [3] {TVW}  
 NHMUK 1875.12.31.132 Porto Santo [11] {L/W}

NHMUK 1875.12.31.210 Madeira [17†] {L/W}  
 NHMUK 1875.12.31.228 Great Deserta [18] {L/W}  
 NHMUK 1875.12.31.231 Madeira [9] {L/W}  
 NHMUK 1948.7.8.58 Madeira [1] {S/nhm}  
 NMW.1955.158.27854 Deserta Grande [4] {P}  
 NMW.1955.158.27855 Northern Deserta [3] {P}  
 NMW.1955.158.27856 Pico de Facho, Porto Santo [4] {P}  
 NMW.1955.158.27857 Caniçal [8†] {P}  
 NMW.1955.158.27858 Madeira [6] {P}  
 NMS Z.1961.61.586 Northern Deserta [1] {W-W}  
 SMF 155918/2 Deserta Grande [2] {E/P}  
 UMZC in CC mixed localities {L/W}  
 USNM 197965 N. Deserta [2] {P}

***eulima* R. T. Lowe, 1855 *Achatina (Acicula)***

**Type locality:** "in Portu S<sup>co</sup> subfoss. rariss." [= subfossil very rare on Porto Santo]

NMINH 1896.42.166 Madeira [2] {EW/EL}

***exigua* R. T. Lowe, 1831 *Clausilia (Cochlodina)***

**Type locality:** "in Madera" [Madeira]

ANSP 97060 Madeira [2] {P}  
 EXEMS 1720/1909/88 Madeira [2] {JL/EW}  
 EXEMS 414/1911 Madeira [B:31] {S/Ex}  
 MANCH.EE.1733 [2] {P}  
 NHMUK 1875.12.31.65 Madeira [3] {L/W}  
 NHMUK 1948.7.8.39 Madeira [1] {S/nhm} **Lectotype** is specimen supposed as original to fig. in Lowe 1831, selected by Groh & Hemmen, 1984  
 NHMUK 1850.12.31.130-135 Madeira [6] {TVW}  
 RMNH.MOL.264362 Madeira [2] {P}  
 UMZC Madeira [30] {L/W}  
 USNM 197867, Madeira, [2], {P}

***exiguus* R. T. Lowe, 1832 *Melampus***

**Type locality:** "rarior infra lapidus ad littus Septentrionale Promontorii Ponta Sao Laurenco dicti Insulae Maderae" [beneath stones on the north shore of Madeira at the promontory of Ponta São Lourenço]

ANSP 97310 Madeira [1] {P}  
 NHMUK 1875.12.13.109 Madeira [28] {L/W}  
 NMW.1955.158.12738 Madeira [31] {TVW/Watson}  
 NMW.1955.158.01505 Great Salvage [2] {P}  
 USNM 197920 Madeira [1] {P}

***fanalensis* R. T. Lowe, 1852 *Pupa (Gastrodon)***

**Type locality:** "in Madera" [Madeira]

ANSP 97285 Madeira [2] {P}  
 HUI MOL 56259/1 Madeira [1] {P}  
 NHMUK 1875.12.31.72 Madeira [20] {L/W}  
 NMINH 1896.42.188 Madeira [16] {EW/EL}  
 NMW.1955.158.27899 Porto Santo [6] {P}  
 NMW.1955.158.01047 Madeira [20] {P}  
 NMW.1955.158.27923 no loc. [2] {TVW/Tomlin}  
 NMW.1955.158.27928 Teneriffe [5] {P}  
 NMW.1955.158.27929 Palma, Canary Islands [7] {P}  
 RBINS IG10591-MT4026 Madère [2] {P}  
 SMF 51794/3 Madeira [3] {E/P}  
 USNM 197851, Madeira, [2], {P}

***fausta* R. T. Lowe, 1831 *Helix (Helicodon)***

**Type locality:** "in sylvis Convallis "Boa Ventura" (i.e. Boni Sussessus) dictae in Maderae orá Septentrionali" [= in forests of the valley of Boa Ventura (meaning Good Success) at the north coast of Madeira]

NHMUK 1948.7.8.32 Madeira [1] {S/nhm}

The species was described from a single shell, therefore, the following are not potential syntypes.

ANSP 97122 Madeira [2] {P}

BOOTH 407120–407124 Madeira [5] {W-W}

EXEMS 1720/1909/61 Madeira [2] {JL/EW}

EXEMS 409/1911 Madeira [B:1] {S/Ex}

NHMUK 1875.12.31.168 Madeira [4] {L/W}

NHMUK 1875.12.31.204 Madeira [5†] {L/W}

NMINH 1896.42.75 Madeira [5] {EW/EL}

NMW.1955.158.27796 Madeira [2] {P}

NMW.1955.158.24946 Madeira [1] {P} as var. *robusta* Woll.

NMS Z.1961.61.577 Madeira [2] {P}

RMNH.MOL.295429 Madeira [2] {P}

USNM 197897 Madeira [2] {P}

**ferraria R. T. Lowe, 1852 Pupa (Craticula)**

**Type locality:** "in Portu S<sup>to</sup>" [= Porto Santo]

ANSP 97307 Porto Santo [2] {P}

HUJ MOL 56251/4 Porto Santo [4] {P}

NHMUK 1875.12.31.89 Porto Santo [9] {L/W}

NMINH 1896.42.164 Porto Santo [11] {EW/EL}

NMW.1955.158.01064 Porto Santo [10] {P}

NMS Z.1961.61 Porto Santo [3] {P}

RMNH.MOL.334863 Madeira [3] {P}

SMF 52200/3 Porto Santo [3] {E/P}

USNM 197997 Porto Santo [2] {P}

**fictilis R. T. Lowe, 1852 Helix (Placentula)**

**Type locality:** "in Portu S<sup>to</sup>" [= Porto Santo]

ANSP 97100 Porto Santo [2] {P}

BOOTH 407125–407148 Porto Santo [24] {W-W}

EXEMS 1720/1909/97 Porto Santo [3] {JL/EW}

EXEMS 465/1911/1-8 Porto Santo [B:8] {S/Ex}

NHMUK 1875.12.31.164 Porto Santo [27] {L/W}

NMW.1955.158.27931 Porto Santo [8] {L/Tomlin}

RMNH.MOL.337561 Madeira [3] {P}

UMZC in CC Porto Santo {L/W}

USNM 198001 Porto Santo [2] {P}

**flavescens R. T. Lowe, 1860 Craspedopoma**

**Type locality:** "in Maderae sylvaticus dumosive humidis ad alt 3000 fere ped. convallium Rib. Frio et Rib. da Metade" [in humid forests of Madeira at an altitude of about 3000 feet in Ribiero Frio and Ribiero Metade]

ANSP 97050 Madeira [1] {P}

MANCH.EE.1708 (dat. def.) [2] {P}

NMW.1955.158.27901 Madeira [4] {P}

NMW.1955.158.01042 Madeira [2] {P}

RBINS IG10591-MT4027 Madère [1] {P}

RMNH.MOL.55650 Madeira [2] {?}

USNM 197880 Madeira [1], {P}

**fluctuosa R. T. Lowe, 1852 Helix (Leptaxis)**

**Type locality:** "semifoss. in Portu S<sup>to</sup>." [= semifossil on Porto Santo]

ANSP 97178 Madeira [1] {P}

BOOTH 407149–407154 Porto Santo [6†] {W-W}

NHMUK 1968550 Porto Santo [1] {W-W}

NHMUK 1875.12.31.240 Porto Santo [9†] {L/W}

NMINH 1896.42.7 Porto Santo [5] {EW/EL}

NMW.1955.158.27871 Porto Santo [4] {P}

NMW.1955.158.27872 Porto Santo [3] {P} *fluctuosa* merging into *chysomela*

RMNH.MOL.337596 Porto Santo [2] {?}

USNM 198028 Porto Santo [2] {P}

**furva R. T. Lowe, 1831 Helix (Helicogena)**

**Type locality:** "in Maderae sylvis" [= woods on Madeira]

ANSP 97179 Madeira [1] {P}

BOOTH 407155–407161 Madeira [7] {W-W}

EXEMS 1720/1909/126 Madeira [1] {JL/EW}

NHMUK 1850.12.31.59 61 Madeira [3] {TVW}

NHMUK 1875.12.31.178 Madeira [4†] {L/W}

NHMUK 1875.12.31.241 Madeira [8] {L/W}

NHMUK 1968544 Madeira [1] {W-W}

NMINH 1896.42.5 Madeira [3] {EW/EL}

NMW.1955.158.27877 Caniçal [3] {P}

NMW.1955.158.00856 Madeira [7] {P}

NMS Z.1961.61 Madeira [2] {W-W}

RMNH.MOL.337591 Madeira [1] {?}

UMZC in CC Madeira {L/W}

USNM 197908 Madeira [1] {P}

**fusca R. T. Lowe, 1852 Pupa (Craticula)**

**Type locality:** "in Madera" [= Madeira]

ANSP 97286 Madeira [2] {P}

BOOTH 407775–407801 (dat. def.) [26] {W-W}

EXEMS 422/1911 Ribeiro da Janella, Madeira [A:39, B:49] {S/Ex}

HUJ MOL 56254/2 Madeira [2] {P}

NHMUK 1875.12.31.79 Madeira [27] {L/W}

NMS Z.1961.61.585 Madeira [3] {P}

NMW.1955.158.01057 Madeira [13] {P}

NMW.1955.158.27917 Madeira [9] {TVW/Tomlin}

RMNH.MOL.334864 Madeira [3] {P}

SMF 52204/3 Madeira [3] {E/P}

UMZC Madeira [41] {L/W}

USNM 197859 Madeira [2] {P}

**galeata R. T. Lowe, 1862 var.  $\gamma$  of calva Helix**

**Type locality:** "along the new Levada de Fajão dos Vinháticos, in the Ribeiro do Fayal, towards the place where I discovered, two years ago, *H. delphinuloides*."

BOOTH 407162–407165 Madeira [4] {W-W}

EXEMS 1720/1909/51 Madeira [3] {JL/EW}

NHMUK 1875.12.31.123 Madeira [3] {L/W}

NMINH 1896.42.126 Madeira [6] {EW/EL}

NMW.1955.158.27821 Madeira [2] {P}

NMW.1955.158. 24950 Madeira [8] {TVW/Paiva}

USNM 197886 Madeira [2] {P}

**gibba R. T. Lowe, 1852 Pupa (Alvearella)**

**Type locality:** "in Madera" [Madeira]

NHMUK 1895.2.2.248-53 Madeira [6] {EW}

NMINH 1896.42.175 Madeira [7] {EW/EL}

NMW.1955.158.01069 Madeira [9] {P}

RMNH.MOL.334868 Madeira [1] {P}



***gigantea* R. T. Lowe, 1831 var.  $\beta$  of *portosanctana* Helix (*Helicella*)**

Type locality: "in *Portu S<sup>to</sup>*" [= Porto Santo]

NHMUK 1875.12.31.221 [5] {L/W}

***giramica* R. T. Lowe, 1852 Helix (*Plebecula*)**

Type locality: "in *Madera Insulaque Deserta Minore*" [= on Madeira and Bugio]

ANSP 97207 Madeira [2] {P}

BOOTH 407694–407699 Chão [6] {W-W}

NHMUK 1875.12.31.8 Chão [16] {L/W}

NHMUK 1875.12.31.128 Madeira [8] {L/W}

RMNH.MOL.295442 Madeira [2] {P}

USNM 197894 Madeira [2] {P}

***gracilis* R. T. Lowe, 1831 Helix (*Cochlicopa*)**

Type locality: "in monte "*Pico Branco*" *Insulae Portus Sti*" [= on Pico Branco, Porto Santo]

ANSP 301501 Madeira [1] {P}

EXEMS 445/1911 Porto Santo [A:93, B:24] {S/Ex leg. Paiva}

HUJ MOL 56171/2 Madeira [2] {P}

NHMUK 1948.7.8.57 Pico Branco Porto Santo [1] {S/nhm}

NMINH 1896.42.148 Porto Santo [15] {EW/EL}

NMW.1955.158.01078 Porto Santo [8] {P}

RMNH.MOL.269010 Porto Santo [3] {P}

UMZC Porto Santo [5] {L/W}

***gracilis* R. T. Lowe, 1832 *Melampus***

Type locality: "in *rupibus maritimis; ad littis meridionale Maderae, prope urben Funchal*" [= on sea cliffs on the south coast of Madeira near Funchal]

This species was described from one complete shell and one broken shell suggesting that the material below is not part of the syntype series.

NMW.1955.158.12753 Madeira [4] {TVW/Watson}

RBINS IG10591-MT4024 Madeira [1] {P}

***granulata* R. T. Lowe, 1831 var.  $\alpha$  of *dealbata* Helix (*Helicella*)**

Type locality: "in *montibus Portus S<sup>ti</sup>*" [= mountains of Porto Santo]

***gueriniana* R. T. Lowe, 1852 Helix (*Euromphala*)**

Type locality: "in *Madera*" [= Madeira]

ANSP 97216 Madeira [1] {P}

BOOTH 407550–407558 Madeira [9] {W-W}

EXEMS 1720/1909/42 Madeira [3] {JL/EW}

NMW.1955.158.24269 Madeira [3] {P}

RMNH.MOL.277436 Madeira [2] {P}

USNM 197892 Madeira [2] {P}

***gyrata* R. T. Lowe, 1831 var.  $\alpha$  of *anconostoma* Helix (*Cochlodon*)**

Type locality: not differentiated from *anconostoma*

***hyaena* R. T. Lowe, 1852 Helix (*Leptaxis*)**

Type locality: "in *Insula Deserti Australi*" [= Bugio]

ANSP 97190 Madeira [2] {P}

BOOTH 407115–407119 Bugio [5] {W-W}

EXEMS 1720/1909/125 Desertas [1] {JL/EW}

EXEMS 467/1911 Deserta Grande [B:1] {S/Ex}

NHMUK 1875.12.31.133 Porto Santo [5] {L/W}

NHMUK 1875.12.31.134 Porto Santo [5] {L/W}

NMW.1955.158.27853 Deserta Grande [3] {P}

NMS Z.1961.61 S. Deserta [1] {P}

RMNH.MOL.337597 Deserta Is [2] {?}

UMZC in CC Southern Deserta {L/W}

USNM 197952 S. Deserta [2] {P}

***irrasa* R. T. Lowe, 1831 var.  $\alpha$  of *polymorpha* Helix (*Helicella*)**

Type locality: "in solo rubri "*Tufa*" *Geologicis dicto, ad ptomontoriam Sti Laurentii Maderae*" [in red tufa soil at Ponta de São Lourenço]

NHMUK 1948.7.8.8 Madeira [1] {S/Ex}

***irrigua* R. T. Lowe, 1852 Pupa (*Leiostyla*)**

Type locality: "in *Madera*" [= Madeira]

ANSP 97287 Madeira [2] {P}

BOOTH 407802–407816 Madeira [15] {W-W}

EXEMS 423/1911 Madeira [A:3, B:20] {S/Ex}

HUJ MOL 56247/5 Madeira [5] {P}

NHMUK 1875.12.31.78 Madeira [21] {L/W}

NHMUK 1850.12.31.148-153 Madeira [6] {TVW}

NMW.1955.158.01050 Madeira [23] {TVW/Tomlin}

NMW.1955.158.27918 No locality [7] {TVW/Tomlin}

NMS Z.1961.61.586 Madeira [3] {P}

RMNH.MOL.334881 Madeira [3] {?}

SMF 52207/3 Madeira [3] {E/P}

UMZC Madeira [16] {L/W}

USNM 197850 Madeira [2] {P}

***juliformis* R. T. Lowe, 1852 Helix (*Coronaria*)**

Type locality: "in *Portu S<sup>to</sup>*." [= Porto Santo]

ANSP 97091 Porto Santo [2] {P}

BOOTH 407018–407027 Porto Santo [10] {W-W}

NMW.1955.158.01570 Porto Santo [8] {P}

RMNH.MOL.337563 Porto Santo [3] {P}

USNM 198031 Porto Santo [2] {P}

***laciniosa* R. T. Lowe, 1852 Helix (*Irus*)**

Type locality: "in *Insula Deserta Minore s. Septentrionali*" [= Ilhéu de Chão]

ANSP 97102 North Deserta [2] {P}

BOOTH 407173–407189 Chão [17] {W-W}

EXEMS 1720/1909/54 Madeira [6] {JL/EW}

NHMUK 1850.12.31.176-183 Flat Deserta [8] {TVW}

register date precedes publication date

NHMUK 1875.12.31.235 N. flat Deserta [38] {L/W}

NMW.1955.158.27794 Northern Deserta [18] {P}

RMNH.MOL.295416 N. Deserta [2] {P}

SMF 139561/1 N. Deserta [1] {E/P}

UMZC in CC Northern Deserta {L/W}

USNM 197963 N. Deserta [1] {P}

***laevigata* R. T. Lowe, 1852 Pupa (*Leiostyla*)**

Type locality: "in *Madera*" [= Madeira]

ANSP 97288 Madeira [1] {P}

NHMUK 1895.2.2.238-43 Madeira [6] {EW}

NMINH 1896.42.172 Madeira [5] {EW/EL}

RMNH.MOL.334883 Madeira [1] {P}

SMF 51797/1 Madeira [1] {E/P}

USNM 197861, Madeira, [1] {P}

**laevis** R. T. Lowe, 1831 var.  $\beta$  of *dealbata* *Helix* (*Helicella*)

Type locality: "*in insula Ilheo de Baxo dicta*" [= Ilhéu de Baixo]

**lamellosa** R. T. Lowe, 1852 Pupa (*Mastula*)

Type locality: "*in Madera*" [= Madeira]

NMINH 1896.42.169 Caniçal [3] {EW/EL}

NHMUK 1895.2.2.278 Madeira [1] {EW}

NHMUK 1895.2.2.299-300 Madeira [2] {EW}

**latens** R. T. Lowe, 1852 *Helix* (*Spirorbula*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97103 Madeira [1] {P}

BOOTH 407190–407195 Madeira [6] {W-W}

NHMUK 1875.12.31.163 Madeira [8] {L/W}

NMINH 1896.42.83 Madeira [4] {EW/EL}

NMW.1955.158.27785 Madeira [8] {P}

NMS Z.1961.61 Madeira [2] {W-W}

RMNH.MOL.337562 Madeira [1] {?}

UMZC in CC Madeira {L/W}

USNM 197904 Madeira [1] {P}

**laurinea** R. T. Lowe, 1852 Pupa (*Leiostyla*)

Type locality: "*in Madeira, arborea in truncis Laurorum*" [= Madeira, in laurel forest on the trunks of laurel trees]

ANSP 97289 Madeira [2] {P}

BOOTH 407817–407827 Madeira [11] {W-W}

EXEMS 452/1911 Madeira [B:5] {S/Ex}

HUJ MOL 56256/2 Madeira [2] {P}

NHMUK 1895.2.2.301-8 Madeira [8] {EW}

NHMUK 1875.12.31.87 Madeira [14] {L/W}

NMW.1955.158.01053 Caniçal, Madeira [17] {P}

NMW.1955.158.01054 No. loc. [6] {TVW/Tomlin}

NMS Z.1961.61.587 Madeira [3] {P}

RMNH.MOL.334878 Madeira [3] {?}

SMF 51799/3 Madeira [3] {E/P}

USNM 197858 Madeira [2] {P}

**lauta** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in Portu S<sup>to</sup>*" [= on Porto Santo]

**leacociana** R. T. Lowe, 1852 *Achatina* (*Cylichnida*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97195 Madeira [2] {P}

HUJ MOL 56236/2 Madeira [2] {TVW}

NMINH 1896.42.147 Madeira [10] {EW/EL}

NHMUK 1895.2.2.478-90 Madeira [13] {EW}

NMW.1955.158.27865 Madeira [4] {P}

NMW.1955.158.01079 Madeira [15] {P}

SMF 157231/3 Madeira [3] {E/P}

USNM 197912 Madeira [2] {P}

**lentiginosa** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in Maderae rupibus maritimis*" [on sea cliffs, Madeira]

ANSP 97106 Madeira [2] {P}

EXEMS 1720/1909/56 Madeira [2] {JL/EW}

EXEMS 415/1911 Madeira [A: 4, B:22] {S/Ex}

NHMUK 1948.7.8.5 Madeira [1] {S/nhm}

NHMUK 1875.12.31.159 Madeira [29] {L/W}

NHMUK 1850.12.31.45-52 Madeira [8] {TVW}

NMW.1955.158.27795 Madeira [7] {P}

RMNH.MOL.295419 Madeira [3] {P}

UMZC in CC Madeira {L/W}

USNM 197909 Madeira [2] {P}

**leonina** R. T. Lowe, 1852 *Helix* (*Leptaxis*)

Type locality: "*in Insula Deserta Australi*" [= Southern Deserta = Bugio]

NHMUK 1875.12.31.38 S. Deserta [6] {L/W}

NMW.1955.158.27878 Deserta Grande [1] {P} as var. *intermedia* Wollaston

NMW.1955.158.27920 Southern Deserta [4] {P}

RMNH.MOL.337602 Desertas Is [1] {?}

UMZC in CC Southern Deserta {L/W}

**leptosticta** R. T. Lowe, 1831 *Helix* (*Helicella*)

Type locality: "*in Maderae collibus maritimus*" [= on maritime hills of Madeira]

ANSP 97107 Madeira [2] {P}

BOOTH 407210–407220 Madeira [11] {W-W}

EXEMS 1720/1909/94 Madeira [2] {JL/EW}

EXEMS 406/1911 Madeira [A:43, B17] {S/Ex}

NHMUK 1948.7.8.13 Madeira [1] {S/nhm}

NHMUK 1968575 Madeira [1] {W-W}

NHMUK 1875.12.31.156 Madeira [25] {L/W}

NMW.1955.158.27777 Madeira [11] {P}

NMS Z.1961.61 Madeira [2] {W-W}

RMNH.MOL.337564 Madeira [3] {?}

UMZC in CC Madeira {L/W}

USNM 197888 Madeira [1] {P}

**limnaeana** R. T. Lowe, 1852 Pupa (*Paludinella*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97290 Madeira [1] {P}

HUJ MOL 56245/2 Madeira [1] {P}

NMINH 1896.42.187 Madeira [9] {EW/EL}

NMW.1955.158.01046 Madeira [9] {P}

NMS Z.1961.61.580 Madeira [2] {P}

RMNH.MOL.243092 Madeira [2] {P}

SMF 136736/1 Madeira [1] {E/P}

USNM 197863 Madeira [1] {P}

**lincta** R. T. Lowe, 1852 *Helix* (*Discula*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97257 Madeira [2] {P}

BOOTH 407221–407228 Madeira [8] {W-W}

HUJ MOL 56175/2 Madeira [2] {P}

NHMUK 1968541 Madeira [2] {W-W}

NHMUK 1875.12.31.9 Madeira [23] {L/W}

NMW.1955.158.27811 Canical [2] {P} as var. *y*

NMW.1955.158.27812 Madeira [2] {P}

NMS Z.1961.61 Madeira [2] {W-W}

UMZC in CC Madeira {L/W}

USNM 197874 Madeira [2] {P}

**linearis** R. T. Lowe, 1852 Pupa (*Truncatellina*)

Type locality: "*semifossilis in Madera*" [= semifossil in Madeira]

ANSP 97303 Caniçal [1] {P}

BOOTH 407828–407841 Madeira [14†] {W-W}

HUJ MOL 56249/4 Caniçal Madeira [4] {P}

NHMUK 1875.12.31.80 Madeira [11] {L/W} Best preserved specimen proposed as **Lectotype** by Hutterer & Groh, 1993  
 NMINH 1896.42.181 Caniçal [7] {EW/EL}  
 NMW.1955.158.01082 Caniçal Madeira [2] {P}  
 NMW.1955.158.25063 Caniçal [2] {P}  
 RMNH.MOL.334924 Madeira [2] {?}  
 USNM 197862 Caniçal [1] {P}

**lucidum R. T. Lowe, 1831** *Cyclostoma*

Type locality: "in *Maderae humidid sylvaticus*" [= humid woods on Madeira]

ANSP 97051 Madeira [1] {P}  
 EXEMS 1720/1909/247 Madeira [6] {JL/EW}  
 EXEMS 401/1911 Madeira [A: approx 140, B:40] {S/Ex}  
 MANCH.EE.1713 (dat. def.) [2] {P}  
 NHMUK 1875.12.31.113 Madeira [50] {L/W}  
 NHMUK 1875.12.31.114 Madeira [27+] {L/W}  
 NHMUK 1948.7.8.52 Madeira [1] {S/nhm}  
 NMW.1955.158.27850 Caniçal, Madeira [3] {P}  
 NMW.1955.158.27851 S. Deserta [2] {P}  
 RMNH.MOL.264390 Madeira [3] {P}  
 UMZC in CC Madeira {L/W} USNM 197875 Madeira [1] {P}

**lurida R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "in montibus Insulae Portûs S<sup>ti</sup>" [= mountains of Porto Santo]

ANSP 97210 Porto Santo [2] {P}  
 BOOTH 407229–407235 Porto Santo [7] {W-W}  
 EXEMS 433/1911/1-19 (dat. def.) [19] {S/Ex}  
 NHMUK 1948.7.8.29 Porto Santo [1] {S/nhm}  
 NHMUK 1968577 Porto Santo [1] {W-W}  
 NHMUK 1875.12.31.25 Porto Santo [9] {L/W}  
 NHMUK 1875.12.31.194 Porto Santo [48+] {L/W}  
 NMW.1955.158.27847 Ilhos de Nordeste [2] {P}  
 NMW.1955.158.27846 Porto Santo [10] {P}  
 NMS Z.1961.61 Porto Santo [1] {W-W}  
 RMNH.MOL.295440 Porto Santo [3] {P}  
 USNM 198034 Porto Santo [2] {P}

**lyelliana R. T. Lowe, 1852** *Helix (Tectula)*

Type locality: "in *Deserta Majore*" [= Deserta Grande]

BOOTH, 407229–407235 Deserta Grande [7] {W-W}  
 EXEMS 1720/1909/90 Madeira [5] {JL/EW}  
 NHMUK 1968571 Deserta Grande [1] {W-W}  
 NHMUK 1875.12.31.1 Madeira [4] {L/W}  
 NHMUK 1875.12.31.39 Deserta Grande [21] {L/W}  
 NHMUK 1850.12.31.159-164 Deserta Grande [6] {TVW}  
**register date precedes publication date**  
 NMW.1955.158.24290 Feijaa Grande, Deserta Grande [1] {P}  
 NMW.1955.158.27890 Deserta Grande [7] {P} as status minor  
 NMS Z.1961.61 Deserta Gande [1] {W-W}  
 RMNH.MOL.295517 Desertas Is [1] {P}  
 USNM 197948 Deserta Grande [1] {P}

**lyonnetianum R. T. Lowe, 1852** *Cyclostoma (Hygrobium)*

Type locality: "in *Madera*" [= Madeira]

ANSP 97052 Madeira [2] {P}  
 EXEMS 407/1911 Madeira [A: approx 175, B:58] {S/Ex}  
 MANCH.EE.1712 [2] {P}  
 NHMUK 1875.12.31.111 Madeira [27] {L/W}

NMW.1955.158.01041 Madeira [7] {P}  
 RMNH.MOL.55647 Madeira [3] {?}  
 SMF 192640/2 Madeira [2] {E/P}  
 UMZC in CC Madeira {L/W}  
 USNM 197881 Madeira [2] {P}

**macilenta R. T. Lowe, 1852** *Pupa (Leiostyla)*

Type locality: "in *Deserta Majore*" [= Deserta Grande]

ANSP 97294 Deserta Grande [2] {P}  
 BOOTH 407858–407867 Deserta Grande [16] {W-W}  
 HUJ MOL 56253/2 Deserta Grande [2] {P}  
 NHMUK 1875.12.31.81 Madeira [18] {L/W}  
 NMW.1955.158.01059 Deserta Grande [6] {P}  
 NMW.1955.158.01060 Deserta Grande [9] {P}  
 RMNH.MOL.334870 Madeira [3] {?}  
 SMF 52149/3 Deserta Grande [3] {E/P}  
 UMZC Great Deserta [12] {L/W}  
 USNM 197949 Deserta Grande [2] {P}

**maculata R. T. Lowe, 1831** subvar. 2 of *cheiranthicola* *Helix (Helicella)*

Type locality: not differentiated from *cheiranthicola*

**maderensis R. T. Lowe, MS** var. of *mitriformis* *Achatina (Amphorella)*

RMNH.MOL.268950 Madeira [1] {P}

**maderensis R. T. Lowe, 1852** *Bulimus (Zua)*

Type locality: "in *Madera*" [= Madeira]

BOOTH 406529-406544 Madeira [16] {W-W}  
 LIVCM.1965.141.262 Madeira [2] {P}  
 NHMUK 1875.12.31.57 Madeira [23] {L/W}  
 NHMUK 1850.12.31.100-107 Madeira [8] {TVW}  
 NMW.1955.158.01044 Madeira [17] {P}  
 RMNH.MOL.335018 Madeira [3] {?}  
 UMZC Madeira [32] {L/W}  
 USNM 197914 Madeira [2] {P}

**major R. T. Lowe, MS.** var.  $\gamma$  of *sphaerula* *Helix (Caseolus)*

var.  $\gamma$  of *sphaerula* is var. *recens* Wollaston, 1878

NMW.1955.158.27774 Pico Branco, Porto Santo [6] {P}

**major R. T. Lowe, 1855** var.  $\alpha$  of *commixta* *Helix (Caseolus)*

Type locality: "*recens in Portu S<sup>to</sup> rariss.*" [= very rare on Porto Santo]

NMW.1955.158.27769 Porto Santo [4] {P}

**major R. T. Lowe, 1855** var.  $\beta$  of *compacta* *Helix (Caseolus)*

Type locality: "(*Mad. foss.*)" [= fossil on Madeira]

NMW.1955.158.27767 Canical [2] {P}  
 USNM 198043 Porto Santo [2] {P}

**manriquiana R. T. Lowe, 1861** *Helix (Mycena)*

Type locality: "in *aede Manriquiana et in fissuris rupium in convallibus ad Teror in Canaria Magna*" [= in the Manriquiian house and in the clefts of the rocks in the valleys at Teror, Gran Canaria]

ANSP 97155 Grand Canary [1] {P}  
 NMW.1955.158.27948 Teror, Grand Canary [1] {P}

NMW.1955.158.27949 Grand Canary [2] {P}

USNM 197931 Grand Canary [1] {P}

**maritima** R. T. Lowe, 1855 subvar. 2 of *deltostoma* var. *a raricosta* *Clausilia*

Type locality: "*in Maderae aridioribus maritimis, e. g. in Rancho prope Cam. de Lobos, ad Piadadem prope Canical, Paul do Mar etc*" [= in the drier coasts of Madeira, e. g. at Rancho near Camara de Lobos, to Piadade near Canical, Paul do Mar, etc.]

NHMUK 1948.7.8.36 Madeira [1] {S/nhm} **Lectotype** [supposed original specimen to fig. of pl. 6 fig. 38 in Lowe (1831) selected by Groh & Hemmen, 1984]

SMF 30875/2 Madeira [2] {E/P} **Paralectotypes** selected by Groh & Hemmen, 1984]

**media** R. T. Lowe, 1855 *Vitrina*

Type locality: "*in Madera (Rib. Frio) rarior, et in Porto S<sup>co</sup>.*" [= Madeira (Ribeiro Frio) rare, and on Porto Santo]; restricted by Groh & Hemmen (1986: 198) to Porto Santo

ANSP 97224 Porto Santo [2] {P}

BOOTH 407969–407979 Porto Santo [11] {W-W}

MANCH.EE.1729 [2] {P}

NHMUK 1875.12.31.120 Madeira [15] {L/W}

NMW.1955.158.27925 Porto Santo [5] {P}

RMNH.MOL.286086 Porto Santo [2] {P}

UMZC in CC Porto Santo {L/W}

USNM 197999 Porto Santo [2] {P}

**melampoides** R. T. Lowe, 1831 *Helix* (*Cochlicopa*)

Type Locality: "*in Insulâ quâdam, Portum Sanctum ab oriente spectante, 'Ilheo de Cima' dictâ*" [= Ilhéu de Cima, off Porto Santo]

ANSP 971971 Porto Santo [2] {P}

BOOTH 406545–406555 Il. de Cima [11] {W-W}

EXEMS 434/1911 Il. de Cima [A:77, B:9] {S/Ex}

NHMUK 1948.7.8.47–48 Il de Cima [2] {S/nhm}

NHMUK 1875.12.31.46 Porto Santo [30] {L/W}

NHMUK 1875.12.31.47 Porto Santo [10] {L/W}

NMW.1955.158.01073 Porto Santo [5] {P}

NMW.1955.158.27910 Il. De Cima [2] {TVW/Tomlin}

NMW.1955.158.27911 Il. de Cima [1] {P} albino

NMW.1955.158.27912 Il. Porto Santo [3] {P} albino

RMNH.MOL.268944 Porto Santo [1] {P}

UMZC Ilheo de Cima {[25] L/W}

USNM 197990 Porto Santo [2] {P}

**membranacea** R. T. Lowe, 1852 *Helix* (*Leptaxis*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97180 Madeira [2] {P}

BOOTH 407254–407265 Madeira [12] {W-W}

EXEMS 1720/1909/143 Madeira [2] {JL/EW}

NHMUK 1875.12.31.144 Madeira [16] {L/W}

NMW.1955.158.27868 Canical [3] {P}

NMW.1955.158.27869 Madeira [5] {P}

NMW.1955.158.27870 Madeira [4] {P}

RMNH.MOL.337589 Madeira [3] {?}

SMF 284727/2 Madeira Caniçal [2] {E/P}

UMZC in CC Madeira {L/W}

USNM 198027 Madeira [2] {P}

**micromphala** R. T. Lowe, 1852 *Helix* (*Placentula*)

Type locality: "*in Insulis Desertis Majore et Minore*" [= Deserta Grande and Bugio]

ANSP 97109 South Deserta [2] {P}

BOOTH 407278–407289 Bugio [12] {W-W}

EXEMS 1720/1909/95 Madeira [3] {JL/EW}

EXEMS 460/1911 Southern Deserta, Bugio [A:65, B:11] {S/Ex}

NHMUK 1968537 S. Deserta [1] {W-W}

NHMUK 1875.12.31.24 S. Deserta [21] {L/W}

NHMUK 1875.12.31.160 N. Deserta [7] {L/W}

NHMUK 1875.12.31.161 N. Deserta [9] {L/W}

NHMUK 1875.12.31.162 N. Deserta [5†] {L/W}

NMW.1955.158.27779 Southern Deserta [6] {P}

NMW.1955.158.27778 Deserta Grande [7] {P}

NMW.1955.158.27780 Northern Deserta [6] {P}

NMW.1955.158.27891 Deserta Grande [15] {L/Tomlin}

NMS Z.1961.61 Southern Deserta [1] {W-W}

RBINS IG10591-MT4028 Southern Deserta [2] {P, L/W}

RMNH.MOL.337565 Desertas Is [3] {?}

SMF 139471/3 Deserta Grande [3] {E/P}

UMZC in CC Desertas {L/W}

USNM 197959 S. Deserta [2] {P}

**microspora** R. T. Lowe, 1852 *Pupa* (*Paludinella*)

Type locality: "*in Madera*" [= Madeira]

ANSP 97293 Madeira [2] {P}

BOOTH 407867–407885 Madeira [19] {W-W}

NHMUK 1875.12.31.88 Madeira [22] {L/W}

NMINH 1896.42.186 Madeira [62] {EW/EL}

NMW.1955.158.01084 Lombo das Vacos [27] {P}

NMW.1955.158.27897 Lombo das Vacos [11] {P}

NMW.1955.158.27896 Las Mercedes, Teneriffe [10] {P}

SMF 136735/3 Madeira [3] {E/P}

UMZC in CC Madeira {L/W}

USNM 197847 Madeira [2] {P}

**millegrana** R. T. Lowe, 1852 *Pupa* (*Craticula*)

Type locality: "*in Madera; etiam Deserta Majore*" [= Madeira and Deserta Grande]

ANSP 97295 Madeira [2] {P}

HUJ MOL 56257/2 Madeira [2] {P}

NHMUK 1875.12.31.90 Madeira [33†] {L/W}

NHMUK 1875.12.31.91 Madeira [18] {L/W}

NHMUK 1850.12.31.170 175 Deserta Grande [6] {TVW}

NMS Z.1961.61.589 Deserta Grande [2] {P}

NMW.1955.158.01061 Canical, Madeira [53] {P}

NMW.1955.158.01506 Deserta Grande [7] {P}

NMW.1955.158.27862 Southern Deserta [1] {P}

NMW.1955.158.27863 Madeira [6] {P}

NMW.1955.158.27864 Canical [6] {P}

RMNH.MOL.334865 Madeira [5] {?}

SMF 52136/2 Madeira [2] {E/P}

UMZC in CC Great Deserta {L/W}

USNM 197852 Madeira [2] {P}

**minor** Lowe MS var. of *arcta* *Helix* (*Helicodon*)

**mirandae** R. T. Lowe, 1861 *Helix* (*Turricula*)

Type locality "*sub lapidibus in apricis Insulae Gomerae ad Portum St Sebastiani, in collibus prope mare*" [= under

**stones in the sun on Gomera at Porto San Sebastian in the hills by the sea**

ANSP 97142 Gomera [2] {P}  
 EXEMS 1720/1909/116 Gomera [3] {L/EW}  
 NHMUK 1875.12.31.256 Salvages [5] {L/W}  
 NHMUK 1875.12.31.289 Gomera [9] {L/W}  
 NMINH 1896.42.63 Gomera [6] {EW/EL}  
 NMW.1955.158.27833 Hierro [1] {P}  
 NMW.1955.158.27832 Gomera [3] {P}  
 RMNH.MOL.337712 Canary Is. [2] {?}  
 RMNH.MOL.337713 Canary Is. [2] {?}  
 USNM 197970 Gomera [2] {P}

**mitriformis R. T. Lowe, 1852 Achatina (Amphorella)**

**Type locality: "in Madera" [= Madeira]**

ANSP 97203 Desertas [2] {P}  
 BOOTH 406556-406568 Madeira [13] {W-W}  
 EXEMS 459/1911 Bugio [A:17, B:13] {S/Ex Paiva}  
 LIVCM.1965.141.259 [2] {P}  
 NHMUK 1968548 Madeira [1] {W-W}  
 NHMUK 1875.12.31.44 Madeira [20] {L/W}  
 NHMUK 1875.12.31.48 Chão [18] {L/W}  
 NMW.1955.158.01074 Southern Deserta [12] {P}  
 NMW.1955.158.27905 Northern Deserta [4] {P}  
 NMW.1955.158.27906 Deserta Grande [4] {P} as var.  $\beta$   
 NMW.1955.158.27907 Pico Branco, Porto Santo [1] {P}  
 UMZC Madeira/N. Deserta [39] {L/W}  
 USNM 197962 S. Deserta [2] {P}

**monizianum R. T. Lowe, 1860 Craspedopoma**

**Type locality: "in Promontorio "Garajao" vel Brazen Head dicto Maderae in scaturigine v. rupe madida" [= on very wet rocks at a spring at Brazen Head, promontory Garajao, Madeira]**

ANSP 97054 Madeira [2] {P}  
 NHMUK 1875.12.31.112 Madeira [11] {L/W}  
 MANCH.EE.1711- [2] {P}  
 NMW.1955.158.01043 Madeira [2] {P}  
 NMW.1955.158.27852 Rio do Inferno [1] {P}  
 RMNH.MOL.55648 Cabo Girao [2] {?}  
 SMF 192641/2 Madeira [2] {E/P}  
 UMZC in CC Madeira {L/W}  
 USNM 197878 Caniçal, Madeira [2] {P}

**monticola R. T. Lowe, 1831 Helix (Cochlodon)**

**Type locality: "in summon cacumine Montis "Pico de Facho" Insulae Portu S<sup>ti</sup>." [= at the top of the mountain Pico de Facho, Porto Santo]**

ANSP 97308 Porto Santo [2] {P}  
 BOOTH 407886-407908 Porto Santo [23] {W-W}  
 EXEMS 448/1911 Porto Santo [B:23] {S/Ex}  
 HUIJ MOL 56261/1 Porto Santo [1] {P}  
 NHMUK 1948.7.8.42-43 Pico de Facho, Porto Santo [2] {S/nhm}  
 NHMUK 1875.12.31.85 Porto Santo [27] {L/W}  
 NMW.1955.158.01066 Porto Santo [17] {P} as var. *pumilio* Wollaston  
 NMW.1955.158.01065 Porto Santo [1] {P}  
 NMS Z.1961.61.590 Porto Santo [3] {P}  
 RMNH.MOL.334866 Madeira [2] {?}

UMZC Porto Santo [30] {L/W}  
 USNM 197993 Porto Santo [1] {P}

**mustelina R. T. Lowe, 1855 Helix;**

Reeve 1854 published this taxon based on a shell or shells from Wollaston. The species is therefore correctly referred to as *Helix mustelina* Reeve, 1854.

The type material can only be that seen by Reeve but given that it came from Wollaston it must have originally come from Lowe. The following material could be a source of a neotype but is not of syntype status

**Type locality: "Porto Santo, Madeira"**

ANSP 97128 Porto Santo [2] {P}  
 MANCH.EE.1701 (dat. def.) [2] {P}  
 NHMUK 1875.12.31.142 Porto Santo [13] {L/W}  
 NMINH 1896.42.140 Porto Santo [5] {EW/EL}  
 NMW.1955.158.00847 Porto Santo [4] {P}

**nebulata R. T. Lowe, 1855 var.  $\alpha$  of senilis Helix (Discula)**

**Type locality: Not differentiated from senilis**

EXEMS 1720/1909/85 Deserta Grande [1] {L/EW}  
 EXEMS 470/1911 Il de Chão [A:20, B:8] {S/Ex}

**neritoides R. T. Lowe, 1860 Craspedopoma**

**Type locality: "in Maderae sylvaticus humidis ad alt. 2000 fere ped. loco "Lomba de Vaca" dicto ad S. Vincente orae Septentr. Maderae" [= in Madeira's humid forests at alt. about 2000 feet in the place called "Lomba de Vaca" near São Vincente on the north coast of Madeira]**

ANSP 97053 Madeira [1] {P}  
 MANCH.EE.1709 (dat. def.) [2] {P}  
 NMW.1955.158.01040 Madeira [3] {P}  
 RBINS IG10591-MT1117 Madeira [1] {P}  
 RMNH.MOL.55651 Madeira [1] {?}  
 USNM 197877 Caniçal, Madeira [1] {P}

**nigricans R. T. Lowe, 1855 var.  $\beta$  of polymorpha Helix (Discula)**

**Type locality: "praesertim in Insula quadam juxta Prom. St Laurentii, Ilheo de Fora dicta" [= Ponta de São Lourenço, especially on Ilheu de Fora]**

NMW.1955.158 Madeira [15] {Wollaston/Watson}

**normalis R. T. Lowe, 1855 subvar. 1 of deltostoma var.  $\beta$  crebristriata Clausilia**

**Type locality not differentiated from crebristriata**

SMF 68215 Deserta Grande [3]{E/P} only **Topotypes** from restricted locus typicus Deserta Grande figured in Groh & Hemmen, 1984

**nubigena R. T. Lowe, 1861 Helix (Hispidella)**

**Type locality: "sub lapidibus ad radices "Retamae" in excelsioribus "Cumbre v. Canadas" dictis montis "Pico de Teyde" Tenerifae" [= under the stones at the roots of the "Retama" in the higher "Cumbre v. Canadas" from the said mountain "Pico de Teyde" Tenerife]**

ANSP 97263 Madeira [2] {P}  
 NHMUK 1875.12.31.310 Tenerife [12] {L/W}  
 NMINH 1896.42.80 Tenerife [6] {EW/EL}  
 NMW.1955.158.27940 Teneriffe [6] {P}

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NMW.1955.158.27942 Teneriffe [6] {P}  
 NMW.1955.158.27941 Teneriffe [2] {W/EL}  
 RMNH.MOL.292554 Tenerife [3] {P}  
 USNM 197796 Tenerife [2] {P}

**obesiuscula** R. T. Lowe, 1863 *Clausilia*

Type locality: "in Madera prope Canico secus aquaeductum "Levada Debaixo" dictum, supra Rib. do Porto Novo, sub foliis Sempervivi glandulosa, Maio 1863, invenit S<sup>r</sup> J. M. Moniz" [= Madeira, near Caniço, "Levada Debaixo", above the Ribeiro do Porto Novo, under the leaves of *Semperviva glandulosa*, found by S<sup>r</sup>. J. M. Moniz, May, 1863]

NHMUK 1875.12.31.64 Madeira [4] {L/W}  
 RMNH.MOL.264367 Madeira [1] {P}

**obserata** R. T. Lowe, 1852 *Helix (Rimula)*

Type locality: "in Madera" [= Madeira]

ANSP 97111 Madeira [2] {P}  
 BOOTH 407290–407296 Madeira [7] {W-W}  
 EXEMS 1720/1909/63 Madeira [1] {JL/EW}  
 MANCH.EE.1722 [2] {P}  
 NHMUK 1968570 Madeira [1] {W-W}  
 NHMUK 1875.12.31.154 Madeira [8] {L/W}  
 NHMUK 1875.12.31.212 Madeira [14†] {L/W}  
 NMW.1955.158.27799 Porto Santo [1] {P}  
 NMW.1955.158.27800 Madeira [3] {P}  
 NMW.1955.158.27801 Caniçal [4] {P} as var. *bipartita* Wollaston  
 RMNH.MOL.295431 Madeira [2] {P}  
 UMZC in CC Madeira {L/W}  
 USNM 197883 Caniçal [2] {P}  
 USNM 197899 Madeira [2] {P}

**obtectata** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "in montibus collibusque aridis Portûs S<sup>ti</sup>, copiosior in Insula Ilheo de Baixo" [= rare on dry mountains and hills of Porto Santo, more common on the islet Ilhéu de Baixo].

ANSP 97113 Porto Santo [2] {P}  
 BOOTH 407278–407289 Porto Santo [7] {W-W}  
 EXEMS 1720/1909/52 Porto Santo [1] {JL/EW}  
 NHMUK 1948.7.8.27–28 Porto Santo [2] {S/nhm}  
 NHMUK 1948.7.8.33 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.177 Porto Santo [7] {L/W}  
 NHMUK 1875.12.31.202 Porto Santo [15†] {L/W}  
 NHMUK 1850.12.31.270–273 Porto Santo [4] {TVW}  
 NMW.1955.158.27786 Porto Santo [15] {P}  
 RMNH.MOL.337566 Porto Santo [2] {?}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198003 Porto Santo [2] {P}

**oryza** R. T. Lowe, 1852 *Achatina (Fusillus)*

Type locality: "in Portu S<sup>to</sup>" [= Porto Santo]

ANSP 97198 Porto Santo [2] {P}  
 BOOTH 406569–406590 Porto Santo [22] {W-W}  
 EXEMS 436/1911 Porto Santo [A:307, B:21] {S/Ex}  
 HJ MOL 56227/2 Porto Santo [2] {JRleBT}  
 NHMUK 1875.12.31.43 Porto Santo [9†] {L/W}  
 NHMUK 1875.12.31.42 Porto Santo [50] {L/W}  
 NHMUK 1968538 Porto Santo [2] {W-W}

NMW.1955.158.01076 Porto Santo [18] {P}  
 RMNH.MOL.276959 Porto Santo [3] {P}  
 SMF 157229/3 Porto Santo [3] {E/P}  
 UMZC Porto Santo [20] {L/W}  
 USNM 197991 Porto Santo [2] {P}

**ovuliformis** R. T. Lowe, 1831 *Helix (Cochlicopa)*

Type locality: "in cacumine montis 'Pico de Facho' in Insula Portûs S<sup>ti</sup>" [= Pico do Facho, Porto Santo]

ANSP 23313 Porto Santo [2] {P}  
 BOOTH 406591–406621 Porto Santo [31] {W-W}  
 EXEMS 450/1911 Porto Santo [A: approx. 180, B:27] {S/Ex}  
 NHMUK 1948.7.8 55–56 Madeira [2] {S/nhm}  
 NHMUK 1875.12.31.53 Porto Santo [48] {L/W}  
 NMW.1955.158.01080 Porto Santo [25] {P} as var. *normalis* MS  
 NMW.1955.158.27955 Porto Santo [2] {TVW/Tomlin} as var. *pseudopsis* Wollaston  
 RMNH.MOL.269014 Porto Santo [3] {P}  
 SMF157232/3 Porto Santo [3] {E/P}  
 UMZC Porto Santo [26] {L/W}  
 USNM 197989 Porto Santo [2] {P}

**oxytropis** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "in collibus maritimis Portûs S<sup>ti</sup>" [= on maritime hills of Porto Santo]

ANSP 97114 Porto Santo [2] {P}  
 BOOTH 407304–407315 Porto Santo [12] {W-W}  
 MANCH.EE.1719 (dat. def.) [2] {P}  
 EXEMS 1720/1909/77 Madeira [1] {JL/EW}  
 NHMUK 1948.7.8.12 Porto Santo [1] **Paralectotype** {S/nhm}  
 NHMUK 1968.546 Porto Santo [1] {W-W} **Lectotype** selected by De Mattia *et al.*, 2018  
 NHMUK 1875.12.31.239 Porto Santo [23] {L/W}  
 NHMUK 1875.12.31.206 Porto Santo [8†] {L/W}  
 NHMUK 1850.12.31.242–247 Porto Santo [6] {TVW}  
 NMW.1955.158.00849 Porto Santo [13] {W/Tomlin}  
 NMW.1955.158.27818 Porto Santo [5] {P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198006 Porto Santo [2] {P}

**paivana** R. T. Lowe, 1861 *Helix (Mycena)*

Type locality: "in Tenerifae convalle Sancto (Barranco Santo) ad villam S<sup>m</sup> Crucem abunde, nec alibi" [= in the valley of Barranco de Santos near the village of Santa Cruz, Tenerife, in abundance, and not elsewhere]

ANSP 97164 Tenerife [1] {P}  
 EXEMS 1720/1909/161 Gomera [1] {JL/EW}  
 NMW.1955.158.24957 Teneriffe [2] {P}  
 USNM 197806 Teneriffe [1] {P}

**pallescens** R. T. Lowe, 1855 var. **α** of *polymorpha* *Helix (Discula)*

Type locality: "in Promont. Sti Laurentii Maderae" [= Ponta de São Lourenço]

NMW.1955.158.27810 Madeira [45] {TVW/Watson}

**pallidior** R. T. Lowe, MS var. of *deltostoma* *Clausilia*

NMW.1955.158.27860 Caniçal [1] {P}  
 RMNH.MOL.264380 Caniçal [1] {P}  
 USNM 197866 Madeira [1] {P}

**papilio** R. T. Lowe, 1852 *Helix (Discula)*

Type locality: "in *Insula Baxo juxta Portum S<sup>m</sup>*" [= Ilhéu de Baixo, off Porto Santo]

BOOTH 407316–407320 Il de Baixo [5] {W-W}  
 EXEMS 1720/1909/82 Madeira [2] {JL/EW}  
 NHMUK 1875.12.31.238 Porto Santo [4] {L/W}  
 NMINH 1896.42.134 Porto Santo [3] {EW/EL}  
 NMW.1955.15827827 Il Baixo, Porto Santo [1] {P}  
 RMNH.MOL.295507 Porto Santo [1] {Lowe, RT}

**paupercula** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "in *Maderae et Portus S<sup>i</sup>. maritimis*" [= Madeira and Porto Santo, coastal]

ANSP 97115 Porto Santo [2] {P}  
 BOOTH 407353–407377 Madeira & Porto Santo [25] {W-W}  
 EXEMS 1720/1909/98 Madeira [8] {JL/EW}  
 EXEMS 442/1911 Porto Santo [A:69, B:27] {S/Ex}  
 HUJ MOL 56169/5 Madeira [1] {C/M}  
 NHMUK 1948.7.8.22 Madeira [1] {S/nhm}  
 NHMUK 1875.12.31.139 Madeira [42] {L/W}  
 NHMUK 1875.12.31.140 Deserta Grande [8] {L/W}  
 NHMUK 1875.12.31.141 Porto Santo [31] {L/W}  
 NHMUK 1850.12.31.256-263 Porto Santo [8] {TVW}  
 NMW.1955.158.27782 Caniçal [12] {P}  
 NMW.1955.158.27783 Deserta Grande [8] {P}  
 NMW.1955.158.27888 Il de Cima, Porto Santo [6] {P}  
 NMW.1955.158.27784 Porto Santo [8] {P}  
 RMNH.MOL.337568 Deserta Is [3] {P}  
 UMZC in CC Madeira/Porto Santo {L/W}  
 USNM 198002 Porto Santo [2] {P}

**phlebophora** R. T. Lowe, 1831 *Helix (Helicogena)*

Type locality: "in *Insula Portus S<sup>i</sup>; ubique vulgatissima*" [= Porto Santo; commonly]

ANSP 97281 Madeira [2] {P}  
 BOOTH 407387–407391 Porto Santo [6] {W-W}  
 EXEMS 1720/1909/138 Porto Santo [2] {JL/EW}  
 NHMUK 1850.12.31.216-219 Porto Santo [4] {TVW}  
 NHMUK 1875.12.31.2 Madeira [11] {L/W}  
 NHMUK 1875.12.31.6 Porto Santo [10] {L/W}  
 NHMUK 1875.12.31.208 Porto Santo [15†] {L/W}  
 NHMUK 1948.7.8.60 Porto Santo [1]  
 NMW.1955.158.27874 Porto Santo [6] {P}  
 SMF 284760/2 Porto Santo [2] {E/P}  
 USNM 198021 Porto Santo [2] {P}

**phlebophora** R. T. Lowe, 1831 var  $\gamma$  subvar 1 (not named) *Helix (Helicogena)*

EXEMS 476/1911 Porto Santo, 1826 [B:6] {S/Ex}

**phlebophora** R. T. Lowe, 1831 var  $\gamma$  subvar 5 (not named) *Helix (Helicogena)*

EXEMS 477/1911 Porto Santo, 1832 [A: lid only, B:8] {S/Ex}

**planata** R. T. Lowe, 1855 var.  $\beta$  of *phlebophora* *Helix (Helicogena)*

Type locality not differentiated from *phlebophora*

ANSP 97183 Porto Santo [2] {P}  
 NMW.1955.158.27876 Porto Santo [7] {P}

RMNH.MOL.337585 Porto Santo [2] {P}

USNM 198023 Porto Santo [2] {P}

**plutonia** Lowe, 1861 *Helix (Macularia)*

Type locality: "in *torrente vulcania in convalle supra Portum "Poza Negro" dictum Fuerteventurae*" [in a lava stream in the valley above "Poza Negro", Fuerteventura]

NHMUK 1895.2.2.61-62 Poza Negro [2] {EW} **Lectotype** selected by Ponte-Lira *et al.*, 1967  
 NMINH 1896.42.3 Fuerteventura [2] {EW/EL}

**polita** R. T. Lowe, 1860 var.  $\alpha$  of *lucidum* *Craspedopoma*

Type locality: not differentiated from *lucidum*

**polymorpha** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "in *solo rubro "Tufa" Gelogicis dicto, ad promontorium Sti Laurentii Maderae*" [on the red tufa soils at the Ponta São Lourenço, Madeira]

ANSP 97255 Madeira [2] {P}  
 EXEMS 1720/1909/79 Madeira [7] {JL/EW}  
 EXEMS 420/1911 Caniçal, Madeira [A:2, B:6] {S/Ex}  
 HUJ MOL 56174/5 Madeira [5] {C/M}  
 LIVCM.1965.141.258 [2] {P}  
 NHMUK 1968574 Madeira [2] {W-W}  
 NHMUK 1895.2.2.39-40 Madeira [2] {EW}  
 NHMUK 1875.12.31.243 Madeira [18] {L/W}  
 NMW.1955.158.27943 Porto Santo [13] {TVW/Tomlin} as var. *gomesiana* Paiva  
 RMNH.MOL.295462 Madeira [2] {P}  
 UMZC in CC Madeira {L/W}  
 USNM 197872 Madeira [2] {P}

**poromphala** R. T. Lowe, 1852 *Helix (Discula)*

Type locality: "in *Deserta Australi*" [= Bugio]

**portosanctana** R. T. Lowe, 1855 subvar. 1 of *deltostoma* var.  $\alpha$  *raricosta* *Clausilia*

Type locality: "in *Portu S<sup>o</sup>*" [= Porto Santo]

NHMUK 1948.7.8.38 Porto Santo [1] **Lectotype** for *raricosta* and *portosanctana*, [supposed specimen figured on pl. 6 fig. 37 in Lowe, 1831] see Groh & Hemmen, 1984  
 RMNH.MOL.264364 Porto Santo [1] {P}  
 USNM 198037, Porto Santo, [2], {P}

**portosanctana** R. T. Lowe, 1855 var. of *compacta* *Helix (Caseolus)*

Type locality: "in *Portu S<sup>o</sup>*" [= Porto Santo]

NMW.1955.158.27764 Porto Santo [5] {P}  
 NMW.1955.158.27771 Porto Santo [3] {L/T} as var.  $\gamma$   
 RBINS IG10591-MT4025 Porto Santo [2] {P}  
 RMNH.MOL.337551 Porto Santo [3] {?}  
 USNM 198044 Porto Santo, [2] {P}

**producta** R. T. Lowe, 1852 *Achatina (Acicula)*

Type locality: "in *Deserta Australi*" [= Bugio]

ANSP 97204 Gran Deserta [1] {P}  
 HUJ MOL 56239/2 Madeira [2] {P}  
 NHMUK 1875.12.31.40 S. Deserta [22] {L/W}  
 NMW.1955.158.24264 Southern Deserta [4] {P}  
 SMF 157230/2 Madeira S. Deserta [2] {E/P}  
 UMZC Southern Deserta [27] {L/W}  
 USNM 197961 S. Deserta [1] {P}

**psammophora** R. T. Lowe, 1852 *Helix (Leptaxis)*

Type locality: "*semifoss. in P<sup>tu</sup> S<sup>to</sup>.*" [= semifossil, Porto Santo]

ANSP 97185 Porto Santo [2] {P}  
 BOOTH 407435–407439 Porto Santo [5†] {W-W}  
 EXEMS 1720/1909/132 Madeira [3] {JL/EW}  
 MANCH.EE.1740 [2] {P}  
 NHMUK 1875.12.31.126 Madeira [5†] {L/W}  
 NMW.1955.158.24292 Porto Santo [6] {TVW/Tomlin}  
 RMNH.MOL.337584 Porto Santo [2] {?}  
 USNM 198025 Porto Santo [2] {P}

**psathyra** R. T. Lowe, 1861 *Helix (Mycena)*

Type locality: "*in Canaria Magna australiore, praesertim ad Mogan et Aldea de San Nicolas sub saxis in locis aridis apricis*" [= in southern Grand Canary between Mogan and Aldea de San Nicolas under rocks in dry places]

ANSP 97156 Grand Canary [1] {P}  
 BOOTH 406361–406364 Grand Canary [4] {W-W}  
 EXEMS 1720/1909/152 Grand Canary [1] {JL/EW}  
 NHMUK 1875.12.31.270 Grand Canary [6] {L/W}  
 NMW.1955.158.27895 Aldea san Nicolas, Gran Canaria [1] {P}  
 RBINS IG10591-MT3572 Gran Canaria [1] {P}  
 UMZC in CC Grand Canary {L/W}  
 USNM 197930 Grand Canary [1] {P}

**pulverulenta** R. T. Lowe, 1861 *Helix (Discula)*

Type locality "*sub lapidibus in saxosis aridis apricis regionis 'El Charco' dictae prope Maspalomas in Canaria Magna australi*" [= under stones in dry barren sunny region of El Charco near Maspalomas, southern Grand Canary]

ANSP 97134 Grand Canary [2] {P}  
 EXEMS 1720/1909/115 Grand Canary [3] {JL/EW}  
 NMW.1955.158.27831 Gran Canaria [2] {P}  
 NMW.1955.158.02115 Gran Canaria [9] {W}  
 RMNH.MOL.296021 Grand Canary [3] {P}  
 UMZC in CC Grand Canary {L/W}  
 USNM 197940 Grand Canary [2] {P}

**pulvinata** R. T. Lowe, 1831 var.  $\zeta$  of *polymorpha* *Helix (Helicella)*

Type locality: "*in montibus collibusive Portus S<sup>ti</sup>.*" [= hilly mountains of Porto Santo]

ANSP 97260 Porto Santo [2] {P}  
 BOOTH 407456–407465 Porto Santo [10] {W-W}  
 NHMUK 1948.7.8.21 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.56 Porto Santo [19] {L/W}  
 NHMUK 1875.12.31.181 Porto Santo [8†] {L/W}  
 NMW.1955.158.27813 Porto Santo [5] {P}  
 NMS Z.1961.61 Porto Santo [2] {W-W}  
 RMNH.MOL.295472 Porto Santo [1] {P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198013 Porto Santo [2] {P}

**pusilla** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "*in Maderae sylvis*" [= in woods of Madeira]

BOOTH 407479–407498 Madeira [20] {W-W}  
 NHMUK 1875.12.31.157 Madeira [13] {L/W}  
 NHMUK 1895.2.2.193-207 Madeira [15] {EW}  
 NMW.1955.158.27842 Deserta Grande [2] {P}

NMW.1955.158.27843 Madeira [2] {P}  
 NMW.1955.158.27840 Teneriffe [3] {P}  
 NMW.1955.158.27841 Hierro [1] {P}  
 RMNH.MOL.337552 Porto Santo [3] {P}

**pusilla** R. T. Lowe, 1855 var.  $\delta$  of *compacta* *Helix (Caseolus)*

Type locality: "*(Portu S<sup>to</sup> foss.)*" [= fossil on Porto Santo]

ANSP 97086 Porto Santo [2] {P}  
 NHMUK 1875.12.31.185 Porto Santo [16†] {L/W}  
 NMW.1955.158.27765 Porto Santo [8] {P}  
 USNM 198045 Porto Santo, [2] {P}

**pusilla** R. T. Lowe, 1855 var.  $\beta$  *commixta* *Helix (Caseolus)*

Type locality: "*(recens in Portu S<sup>to</sup> rariss.)*" [= very rare on Porto Santo]

USNM 198048 Porto Santo [4] {P}  
 NMW.1955.158.27919 Porto Santo [7] {P}

**pusilla** R. T. Lowe, 1855 var.  $\gamma$  of *senilis* *Helix (Discula)*

Type locality: "*(Ins. Des. Austr.)*" [= Bugio]

**Neotype selected and re-named** *Actinella fecundaerrata* Teixeira *et al.*, 2019

**putrescens** R. T. Lowe, 1861 *Helix (Lucilla)*

Type locality "*sub truncis putrescentibus humidus in sylvis convallis Galgae Insula Palmae*" [= under the rotting trunks, damp in the damp forests of the valley of Galga, Las Palma]

ANSP 97322 Palma [1] {P}  
 NHMUK 1875.12.31.299 Palma [4] {L/W}  
 NMW.1955.158.27930 Palma [5] {P}  
 RBINS IG10951-MT4020 Palma [1] {P}  
 RMNH.MOL.277484 Palma [1] {?}  
 USNM 197776 Palma [1] {P}

**raricosta** R. T. Lowe, 1855 var.  $\alpha$  of *deltostoma* *Clausilia*

Type locality: "*in Portus S<sup>ti</sup>*" [= Porto Santo]

NHMUK 1948.7.8.38 Porto Santo [1] {S/nhm} **Lectotype** see Groh & Hemmen, 1984  
 NHMUK 1875.12.31.61 Porto Santo [35] {L/W}  
 SMF 30873/1 Porto Santo [1] {E/P} cited as syntype but must be **Paralectotype** see Groh & Hemmen, 1984  
 UMZC Porto Santo [24] {L/W}

**recta** R. T. Lowe, 1852 *Pupa (Leiostylia)*

Type locality: "*in Madera*" [= Madeira]

ANSP 97296 Madeira [2] {P}  
 BOOTH 407909–407921 Madeira [13] {W-W}  
 HUIJ MOL 56246/2 Madeira [1] {P}  
 LIVCM.1965.141.268 [4] {P}  
 NHMUK 1875.12.31.91 Madeira [19] {L/W}  
 NMS Z.1961.61.592 Madeira [3] {P}  
 NMW.1955.158.01058 Madeira [15] {P}  
 NMW.1955.158.24258 Madeira [2] {W}  
 RMNH.MOL.334869 Madeira [3] {?}  
 SMF 52155/3 Madeira [3] {E/P}  
 UMZC Madeira [16] {L/W}  
 USNM 197860 Madeira [2] {P}

**rosea** R. T. Lowe, 1855 var.  $\alpha$  of *lincta* *Helix (Discula)*

Type locality: not differentiated from *lincta*



**rotula R. T. Lowe, 1831** *Helix (Helicella)*

Type locality: "in montibus Portus S<sup>tin</sup>" [= mountains of Porto Santo]

ANSP 97116, Porto Santo **Lectotype** selected by De Mattia *et al.*, 2018

BOOTH 407499–407511 Porto Santo [13] {W-W}

EXEMS 1720/1909/64 Madeira [1] {JL/EW}

NHMUK 1948.7.8.16 Porto Santo [1] {S/nhm}

NHMUK 1875.12.31.5 Madeira [35] {L/W}

NHMUK 1875.12.31.198 Porto Santo [7†] {L/W}

NHMUK 1850.12.31.234-241 Porto Santo [8] {TVW}

NMW.1955.158.27944 Porto Santo [4] {P}

RMNH.MOL.295501 Porto Santo [2] {P}

USNM 198042 Porto Santo [2] {P}

UMZC in CC Porto Santo {L/W}

**rupestris R. T. Lowe, 1855 var.  $\alpha$  of sphinctostoma** *Pupa (Leiostyla)*

Type locality: "sub foliis Sempervivi tabulaeformis, Haw. In rupibus maritimis atque convallium Maderae" [= under the leaves of *Sempervivum tabulaeformis* Haw. in the coastal cliffs and valleys of Madeira]

ANSP 97300 Madeira [2] {P}

NMW.1955.158.01055 Madeira [34] {P} as var  $\alpha$

RBINS IG10591-MT4016 Madeira [2] {P}

RMNH.MOL.334872 Madeira [3] {?}

SMF 52125/3 Madeira [3] {E/P}

USNM 197846 Madeira [2] {P}

**rustica R. T. Lowe, 1860 var.  $\beta$  of lucidum** *Craspedopoma*

Type locality not differentiated from *lucidum*

**salebrosa R. T. Lowe, 1862** *Helix*

A replacement name for *Helix senilis* Lowe 1852 and as such the Lowe material under that taxon name has no type status

NHMUK 1968580 Deserta Grande [5]

NHMUK 1895.2.2.68-7- Madeira [3] {EW}

NHMUK 1875.12.31.27 S. Deserta [24] {L/W}

NHMUK 1875.12.31.30 Madeira [15] {L/W}

NHMUK 1875.12.31.125 Madeira [25] {L/W}

NHMUK 1875.12.31.189 N. Deserta [4†] {L/W}

NHMUK 1875.12.31.190 Madeira [12†] {L/W}

NHMUK 1875.12.31.236 Deserta Grande [29] {L/W}

NMW.1955.158.27806 S. Deserta [4] {P}

NMW.1955.158.27807 Larana [1] {P}

RMNH.MOL.295471 Deserta Islands [2] {P}

USNM 197955 S. Deserta [2] {P}

**saponacea R. T. Lowe, 1861** *Helix (Macularia)*

Type locality: "sub lapidus in sterilibus apricis Canariae Magnaeaustraloris; sc in excelsioribus (Pinetis) Sct Bartholomeaei, in submaritimis ad El Charco prope Maspalomas, Arguineguin etc." [= under stones in dry barren places and in higher pine woods, St Bartholomei, El Charco, Maspalomas, Arguineguin etc.]

ANSP 97157 Grand Canary [1] {P}

EXEMS 1720/1909/162 Grand Canary [1] {JL/EW}

LIVCM.1965.141.260 Grand Canary [2†] {P}

NHMUK 1875.12.31.249 Grand Canary [7] {L/W}

NHMUK 1875.12.31.259 Grand Canary [4†] {L/W}

NMW.1955.158.27880 El Charco, Grand Canary [1] {P}

NMW.1955.158.27881 San Bertholomee, Grand Canary [1] {P}

NMW.1955.158.27882 Maspalomas, Grand Canary [4] {P}

USNM 197936 Grand Canary [1] {P}

UMZC in CC Grand Canary {L/W}

**saxicola R. T. Lowe, 1852** *Pupa (Staurodon)*

Type locality: "in Madera" [= Madeira]

ANSP 97298 Madeira [2] {P}

LIVCM.1965.141.265 [4] {P}

NHMUK 1875.12.31.84 Madeira [8]

NMINH 1896.42.170 Madeira [59] {EW/EL}

NHMUK 1895.2.2.316-22 Madeira [7] {EW}

NMS Z.1961.61.595 Caniçal, Madeira [3] {P}

NMW.1955.158.27834 Canical [7] {P}

NMW.1955.158.01083 Praia Bay, Madeira [26] {P}

SMF 54021/3 Madeira [3] {E/P}

USNM 197853 Madeira [2] {P}

**scintilla R. T. Lowe, 1852** *Helix (Lucilla)*

Type locality: "in Madera" [= Madeira]

NHMUK 1895.2.2.187-92 Madeira [6] {EW}

NMINH 1896.42.47 Madeira [3] {EW/EL}

NMW.1955.158.25434 Levada, Madeira [1] {P}

**scrobiculata R. T. Lowe, 1855 var.  $\delta$  of phlebophora** *Helix (Helicogena)*

Type locality: "vulg. in Ins. Ferro juxta Portum S<sup>m</sup>, nec alibi" [= common on Ilhéu de Ferro, off Porto Santo, not elsewhere]

BOOTH 407393–407399 Ferro [7] {W-W}

EXEMS 1720/1909/139 Madeira [2] {JL/EW}

NMW.1955.158.27875 Porto Santo [6] {P}

RMNH.MOL.337599 Porto Santo [2] {P}

**seminulum R. T. Lowe, 1852** *Pupa (Staurodon)*

Type locality: "in Madera" [= Madeira]

NHMUK 1895.2.2.276-277 Madeira [2] {EW}

NMINH 1896.42.168 Madeira [3] {EW/EL}

**senilis R. T. Lowe, 1852** *Helix (Discula)*

Type locality: "in Insulis Desertis Majore et Minore" [= Deserta Grande and Bugio]

BOOTH 407512–407519 Deserta Grande [7] {W-W}

BOOTH 407520–407534 Chão [15] {W-W}

BOOTH 407512–407519 Bugio [7] {W-W}

EXEMS 461/1911 Bugio [A:23, B:7] {S/Ex}

EXEMS 479/1911 Chão [A:20, B:8] {S/Ex}

NHMUK 1895.2.2.5-8 Deserta Grande [4] {EW}

NHMUK 1895.2.2.91-96 Deserta Grande [6] {EW}

NHMUK 1895.2.2.97-102 Deserta borealis [6] {EW}

NMINH 1896.42.139 Deserta Grande [6] {EW/EL}

NMW.1955.158.27805 Deserta Grande [1] {P}

NMW.1955.158.27808 Deserta Grande [2] {P}

UMZC in CC mixed localities {L/W}

USNM 197956 S. Deserta [2] {P}

**sericina R. T. Lowe, 1855 var.  $\beta$  of pusilla** *Helix (Euromphala)*

Type locality: not differentiated from *pusilla*

## ZOOLOGIE

NMW.1955.158.27835 Madeira [8] {P}  
 NMW.1955.158.27836 Hierro [1] {P}  
 NMW.1955.158.27837 Teneriffe [5] {P}  
 USNM 197801 Teneriffe [2] {P}

**setulosa** R. T. Lowe, 1831 var.  $\alpha$  of *punctulata* *Helix* (*Helicella*)

Type locality: not differentiated from *punctulata*

**solida** R. T. Lowe, 1831 var.  $\beta$  of *punctulata* *Helix* (*Helicella*)

Type locality: "in *Portu S<sup>to</sup>*" [= on Porto Santo]

NMW.1955.158.27788 Porto Santo [5] {P}

**sphaerula** R. T. Lowe, 1852 *Helix* (*Caseolus*)

Type locality: "semifoss. in *Madera*" [= semifossil, Madeira]

ANSP 97117 Porto Santo [2] {P}  
 BOOTH 407559–407568 Porto Santo [10] {W-W}  
 EXEMS 1720/1909/69 Madeira [1†] {JL/EW}  
 EXEMS 440/1911 Porto Santo [A:54, B:11] {S/Ex}  
 NHMUK 1875.12.31.17 Porto Santo [22] {L/W}  
 NHMUK 1875.12.31.197 Porto Santo [10†] {L/W}  
 NHMUK 1968583 Porto Santo [1] {W-W}  
 NMS Z.1961.61.578 Porto Santo [1] {P}  
 NMW.1955.158.27772 Canical [6] {P}  
 NMW.1955.158.27775 Porto Santo [4†] {P}  
 NMW.1955.158.27776 Porto Santo [2] {P}  
 NMW.1955.158.00845 Porto Santo [2] {P} as var.  $\beta$   
 NMW.1955.158.24954 Porto Santo [19] {TVW/Watson}  
 RMNH.MOL.77046 Madeira, Porto Santo [3] {P}  
 UMZC in CC Porto Santo {L/W}  
 USNM 198050 Porto Santo, [2] {P}

**sphinctostoma** R. T. Lowe, 1831 *Helix* (*Cochlodon*)

Type locality: "in *Madera*" [= Madeira]

BOOTH 407922–407933 Madeira [12] {W-W}  
 EXEMS 404/1911 Madeira [A:13, B:43] {S/Ex} var.  $\alpha$  *rupestris*  
 EXEMS 418/1911 Madeira [A:23, B:40] {S/Ex} var.  $\beta$  *arborea*  
 NHMUK 1875.12.31.74 Madeira [9] {L/W}  
 NMS Z.1961.61.593 Madeira [3] {P}  
 UMZC Madeira [9] {L/W}

**spilospira** R. T. Lowe, 1855 var.  $\alpha$  of *cheiranthicola* *Helix* (*Hystricella*)

Type locality: not differentiated from *cheiranthicola*

**spirorbis** R. T. Lowe, 1852 *Helix* (*Placentula*)

Type locality: "in *Madera*" [= Madeira]

ANSP 97118 Madeira [2] {P}  
 BOOTH 407569–407588 Madeira [20] {W-W}  
 EXEMS 472/1911 Madeira [B:26] {S/Ex}  
 HUIJ MOL 56177/3 Madeira [3] {P}  
 NHMUK 1968549 Madeira [2] {W-W}  
 NHMUK 1875.12.31.155 Madeira [35] {L/W}  
 NMS Z.1961.61 Madeira [4] {W-W}  
 NMW.1955.158.24286 Madeira [6] {P}  
 RMNH.MOL.337571 Madeira [3] {?}  
 UMZC in CC Madeira {L/W}  
 USNM 197871 Madeira [2] {P}

**spumosa** R. T. Lowe, 1861 *Helix* (*Mycena*)

Type locality: "in *fissuris rupium in convalle Barranco de*

*Herradura necnon inter saxa ad basin ascensus las Vueltas dicti (Brena alta) inter Villam Sm Crucem et La Banda Ins. Palmae*" [= in the fissures of the rocks in the valley of the Barranco de Herradura as well as among the rocks at the base of the ascent of the so-called las Vueltas (Brena alta) between the Villa Santa Cruz and La Banda. Las Palma]

NMINH 1896.42.10 Palma [2] {EW/EL}

**squalida** R. T. Lowe, 1852 *Helix* (*Irus*)

Type locality: "in *Madera semifoss. vulg.; recens rariss.*" [= Madeira, semifossil common, recent very rare]

ANSP 97119 Caniçal [2] {P}  
 BOOTH 407589–407594 Madeira [6] {W-W}  
 EXEMS 424/1911 Ribeiro de Janella [A: 1 fragment, B: 10] {S/Ex}  
 EXEMS 425/1911 Madeira [A:5] {S/Ex}  
 NHMUK 1875.12.31.203 Madeira [14†] {L/W}  
 NHMUK 1875.12.31.229 Great Deserta [5] {L/W}  
 NMW.1955.158.27787 Madeira [2] {P}  
 NMW.1955.158.27892 Canical [8] {P}  
 RMNH.MOL.337572 Madeira [2] {?}  
 UMZC in CC Madeira {L/W}  
 USNM 197902 Caniçal [2] {P}

**stellaris** R. T. Lowe, 1852 *Helix* (*Actinella*)

Type locality: "in *Madera*" [= Madeira]

ANSP 97120 Madeira [2] {P}  
 BOOTH 407595–407612 Madeira [18] {W-W}  
 EXEMS 1720/1909/57 Madeira [3] {JL/EW}  
 NHMUK 1875.12.31.165 Madeira [20] {L/W}  
 NMW.1955.158.27797 Madeira [6] {P}  
 RMNH.MOL.295423 Madeira [3] {?}  
 SMF 139532/2 Madeira [2] {E/P}  
 USNM 197910 Madeira [2] {P}

**striata** R. T. Lowe, MS subvar. of *sphinctostoma* var. *rupestris* *Pupa* (*Leiostyla*)

NMW1955.158. Madeira [6] {P}

**striata** R. T. Lowe, MS var. of *recta* *Pupa*

RBINS IG10591-MT4023 Madeira [2] {P}

USNM 197843, Madeira, [2], {P}

**subdepressa** R. T. Lowe, 1855 var.  $\gamma$  of *abjecta* *Helix* (*Caseolus*)

Type locality: not differentiated from *abjecta*

LIVCM.1965.141.269 [1] {P}  
 NMW.1955.158.27756 Porto Santo [7] {P}  
 RBINS IG10591-MT3553 Porto Santo [2] {P}  
 RMNH.MOL.337545 Porto Santo [2] {?}  
 USNM 198047 Porto Santo [2] {P}

**subtilis** R. T. Lowe, 1831 *Helix* (*Helicogena*)

Type locality: "in *Maderae maritimus*" [= coastal Madeira]

ANSP 33231 Madeira [2] {P}  
 EXEMS 1720/1909/118 Madeira [2] {JL/EW}  
 NHMUK 1948.7.8.53 Madeira [1] {S/Ex}  
 NMW.1955.158.27945 Madeira [6] {P}  
 USNM 197889 Madeira [2] {P}

**subula** R. T. Lowe, 1855 var.  $\beta$  of *gracilis* *Achatina* (*Ferussacia*)

**Type locality:** "in *Ins. Supera (I. de Cima), necnon in cacumine extremo orientali Portus S<sup>ti</sup> adjacente, huic adverso*" [= on Ilheu de Cima and adjacent part of Porto Santo]

NMW.1955.158.27902 Porto Santo [18] {P}  
 NMW.1955.158.27903 Il. De Baixo, Porto Santo [2] {P}  
 NMW.1955.158.27904 Il. De Nordeste, Porto Santo [2] {P}  
 NMW.1955.158.27908 Cima, off Porto Santo [2] {P}  
 RBINS IG10591-MT4017 Porto Santo [2] {P}  
 RMNH.MOL.268968 Porto Santo [3] {P}  
 USNM 197987 Porto Santo [2] {P}

**tabellata** R. T. Lowe, 1852 *Helix (Discula)*

**Type locality:** "in *Madera*" [= *Madeira*]

ANSP 97121 Madeira [2] {P}  
 BOOTH 407613–407628 Madeira [16] {W-W}  
 EXEMS 1720/1909/87 Madeira [2] {JL/EW}  
 NMS 1961.61 Madeira [2] {W-W}  
 NMW.1955.158.27773 Madeira [2] {P}  
 RMNH.MOL.77048 Madeira [3] {Lowe, RT}  
 UMZC in CC Madeira {L/W}  
 USNM 197873 Madeira [2] {P}

**taeniospira** R. T. Lowe, 1855 var.  $\beta$  of *cheiranthicola* *Helix (Hystriocella)*

**Type locality:** "in *Portu S<sup>to</sup>*" [= *Porto Santo*]

**terebella** R. T. Lowe, 1852 *Achatina (Fusillus)*

**Type locality:** "in *Portu S<sup>to</sup>*" [= *Porto Santo*]

ANSP 97199 Porto Santo [2] {P}  
 NHMUK 1895.2.2.468-73 Porto Santo [6] {EW}  
 NHMUK 1895.2.2.491-511 Madeira [21] {EW}  
 NMINH 1896.42.149 Porto Santo [6] {EW/EL}  
 NMW.1955.158.01077 Porto Santo [4] {P}  
 NMW.1955.158.27913 Porto Santo [4] {P}  
 NMW.1955.158.27921 Porto Santo [11] {P}  
 RBINS IG10591-MT4022 Porto Santo [2] {P}  
 RMNH.MOL.278969 Porto Santo [3] {P}  
 USNM 197986 Porto Santo [2] {P}

**testudinalis** R. T. Lowe, 1852 *Helix (Discula)*

**Type locality:** "in *Portu S<sup>to</sup>*." [= *Porto Santo*]

BOOTH 407629–407632 Porto Santo [4] {W-W}  
 EXEMS 1720/1909/89 Madeira [1] {JL/EW}  
 NHMUK 1875.12.31.174 Porto Santo [9] {L/W}  
 NHMUK 1850.12.31.201-204 Porto Santo [4] {TVW}  
 NMS Z.1961.61 Porto Santo [1] {W-W}  
 NMW.1955.158.27814 Porto Santo [3] {P}  
 RMNH.MOL.295478 Porto Santo [1] {P}  
 SMF 139760/1 Porto Santo [1] {E/P}  
 UMZC in CC Porto Santo {L/W}

**tetrica** R. T. Lowe, 1862 *Helix*

**Type locality:** "on the S. Deserta, or Bugio, amongst lichens on the sea cliffs"

ANSP 97123 South Deserta [1] {P}  
 BOOTH 407633–407635 Bugio [3] {W-W}  
 EXEMS 1720/1909/77 Madeira [6] {JL/EW}  
 EXEMS 462/1911 Southern Deserta [B:1] {S/Ex} leg. Paiva  
 NMS Z.1961.61.575 Southern Deserta [1] {P}  
 RMNH.MOL.295482 Deserta Is [1] {?}

NMW.1955.158.27804 S. Deserta [1] {P}

UMZC in CC S. Deserta {L/W}

USNM 197954 S. Deserta [1] {P}

**tornatellina** R. T. Lowe, 1831 *Helix (Cochlicopa)*

**Type locality:** "*Madera*" [= *Madeira*]

ANSP 97201 Madeira [2] {P}  
 BOOTH 406622–406639 Madeira [18] {W-W}  
 EXEMS 1720/1909/88 Madeira [1] {JL/EW}  
 EXEMS 413/1911 Madeira [A: approx. 50, B:1 not found at time of publication] {S/Ex}  
 EXEMS 463/1911 Bugio [A:114, B14] {S/Ex} leg. Paiva  
 LIVCM.1965.141.950 Southern Deserta [2] {P}  
 NHMUK 1948.7.8.49 Madeira [1] {S/nhm}  
 NHMUK1968539 Madeira [2] {W-W}  
 NHMUK 1875.12.31.45 Madeira [35] {L/W}  
 NHMUK 1875.12.31.54 Madeira [20†] {L/W}  
 NHMUK 1850.12.31.108-113 Madeira [6] {RTW}  
 NMW.1955.158.01071 S. Deserta [13] {P}  
 NMW.1955.158.01072 Caniçal [19] {P} as var.  $\beta$   
 NMW.1955.158.27866 Madeira [4] {P}  
 NMW.1955.158.27867 Porto Santo [3] {P}  
 SMF 157228/3 Madeira S. Deserta [3] {E/P}  
 UMZC Madeira [26] {L/W}  
 USNM 197984 Porto Santo [2] {P}

**torrefacta** R. T. Lowe, 1861 *Helix (Actinella)*

**Type locality:** "in *rupium facie aridissima aprica, sole occidentali calefacta supra "Salinas" Ariae ad oram septentrionalem Caurum versus Ins. Lanzarote, in foramminulis superficialibus basalti cis vesicularibus praesertim latitans*" [= on the face of the cliffs, very dry and sunny, warmed by the western sun above the "Salinas" of Aria on the northern coast of Lanzarote, lurking especially in the superficial crevices of vesicular basalt]

ANSP 97244 Lanzarote [2] {P}  
 NHMUK 1914.8.26.59 Lanzarote [1]  
 NHMUK 1875.12.31.262 Lanzarote [15] {L/W}  
 RMNH.MOL.337530 Lanzarote [3] {Lowe, RT}  
 UMZC in CC Lanzarote {L/W}  
 USNM 197810 Lanzarote [2] {P}

**trifasciata** R. T. Lowe, 1855 var.  $\alpha$  of *vulgata* *Helix (Plebecula)*

**Type locality:** not differentiated from that of *vulgata*

**triticea** R. T. Lowe, 1831 *Helix (Cochlicopa)*

**Type locality:** "in *Portu S<sup>to</sup>*." [= *Porto Santo*]

ANSP 97202 Porto Santo [2] {P}  
 BOOTH 406640–406667 [28] {W-W}  
 EXEMS 449/1911 Pico Branco, Porto Santo [A:108, B:18] {S/Ex}  
 LIVCM.1965.141.263 [3] {P}  
 NHMUK 1948.7.8.51 Porto Santo [1] {S/nhm}  
 NHMUK 1875.12.31.55 [22†] {L/W}  
 NHMUK 1875.12.31.58 [36] {L/W}  
 NMW.1955.158.01075 Porto Santo [32] {P}  
 RMNH.MOL.268963 Porto Santo [3] {P}  
 UMZC Porto Santo [55] {L/W}  
 USNM 197988 Porto Santo [2] {P}

**trochoideum** R. T. Lowe, 1860 *Craspedopoma*

Type locality: "in convalle "Rib. do Inferno" dicta orae Septentr. Maderae" [= in the valley of Ribiero do Inferno, northern Madeira]

ANSP 97055 Madeira [2] {P}  
 MANCH.EE.1710 [2] {P}  
 NHMUK 1875.12.31.110 Madeira [16] {L/W}  
 NHMUK 1875.12.31.115 Madeira [27†] {L/W}  
 NMW.1955.158.27849 Madeira [2] {P}  
 NMW.1955.158.27848 Madeira [6] {P} albino var.  
 RMNH.MOL.55652 Madeira [2] {?}  
 SMF 192644/2 Madeira [2] {E/P}  
 UMZC in CC Madeira {L/W}  
 USNM 197879 Madeira [2] {P}

**tuberculata** R. T. Lowe, 1852 *Achatina (Fusillus)*

Type locality: "in Portu S<sup>to</sup>." [= Porto Santo]

BOOTH 406668-406687 [18] {W-W}  
 EXEMS 432/1911 Porto Santo [A: approx. 50, B:18] {S/Ex} leg Paiva  
 LIVCM.1965.141.267 [2] {P}  
 NHMUK 1875.12.31.49 Porto Santo [22] {L/W}  
 NMW.1955.158.27956 Porto Santo [11] {TVW/Tomlin}  
 RMNH.MOL.268965 Porto Santo [1] {P}  
 UMZC Porto Santo [21] {L/W}

**turricula** R. T. Lowe, 1831 *Helix (Helicella)*

Type locality: "in Insula quadam "Ilheo de Cima" dicta juxta Insula Portum S<sup>tum</sup>." [= on an island called "Ilhéu de Cima" off Porto Santo]

ANSP 97124 Porto Santo [2] {P}  
 BOOTH 407647-407658 Il de Cima [12] {W-W}  
 EXEMS 1720/1909/73 Madeira [6] {JL/EW}  
 NHMUK 1948.7.8.35 Ilheo de Cima, Porto Sato [1] {S/nhm}  
**Paralectotype** selected by De Mattia *et al.*, 2018  
 NHMUK 1968578 Porto Santo [1] {W-W} **Lectotype** selected by De Mattia *et al.*, 2018  
 NHMUK 1875.12.31.34 Porto Santo [13] {L/W}  
 NHMUK 1875.12.31.242 Porto Santo [28] {L/W}  
 NHMUK 1850.12.31.16-21 Porto Santo [6] {TVW}  
 NMW.1955.158.27580 Ilheo de Cima, Porto Santo [5] {P} as var. *pererosa* Wollaston  
 NMW.1955.158.27819 Ilheo l de Cima, Porto Santo [11] {P}  
 RMNH.MOL.337574 Porto Santo [2] {?}  
 UMZC in CC Ilheo de Cima {L/W}  
 USNM 198004 Porto Santo [2] {P}

**undata** R. T. Lowe, 1831 *Helix (Helicogena)*

Type locality: "in Maderae sylvis, graminosis montanis, &c., vulgaris" [= in woods, on grassy mountains, etc. on Madeira]

ANSP 97186 Madeira [2] {P}  
 BOOTH 407659-407663 Madeira [6] {W-W}  
 NHMUK 1850.12.31.62-67 Madeira [4] {EW}  
 NHMUK 1875.12.31.37 Madeira [18] {L/W}  
 NHMUK 1875.12.31.218 Madeira [3†] {L/W}  
 NHMUK 1948.7.8.61 Madeira [1] {S/Ex}  
 NMW.1955.158.27946 Canical [2] {TVW/Tomlin}  
 UMZC in CC Madeira {L/W}  
 USNM 197900 Madeira [1] {P}

**ustulata** R. T. Lowe, 1852 *Helix (Theba)*

Type locality: "in Insulis "Salvages"" [= Salvage Is.]

ANSP 97149 Salvages [1] {P}  
 NHMUK 1875.12.31.256 Salvages [5]  
 NHMUK 1875.12.31.274 Salvages [4]  
 NMINH 1896.42.100 Great Pitou [3] {EW/EL}  
 NMW.1955.158.27900 Little Salvage [3] {P} pallid state  
 SMF 300717/1 Pitou Grande [1] {E/P}  
 UMZC in CC Salvages {L/W}  
 USNM 197841 Little Salvage [1] {P}

**valverdensis** R. T. Lowe, 1861 *Helix (Mycena)*

Type locality: "in Ins. Ferro ad Villam Valverde in horto Dni Isidoro, ad alt. 2500 fere ped" [= in a garden in Villa de Valverde, island of El Hierro]

Only a single specimen was available at time of description.

NMW.1955.158.27950 Valverde, Hierro [1] {TVW/Tomlin}  
 RBINS IG10591-MT3571 Valverde, Hierro [1] {P}

**vermetiformis** R. T. Lowe, 1855 *Helix (Hystricella)*

Type locality: "fossilis in Portu S<sup>to</sup>." [= fossil on Porto Santo]

ANSP 97127 Porto Santo [2] {P}  
 BOOTH 407664-407668 Porto Santo [5†] {W-W}  
 EXEMS 1720/1909/75 Porto Santo [2] {JL/EW}  
 NHMUK 1875.12.31.29 Porto Santo [6] {L/W}  
 NHMUK 1968588 Porto Santo [1] {W-W} **Lectotype** selected by De Mattia *et al.*, 2018  
 NMINH 1896.42.64 Porto Santo [6] {EW/EL}  
 NMW.1955.158.27817 Porto Santo [5] {P}  
 NMS Z.1961.61.597 Porto Santo [1] {P}  
 USNM 198009 Porto Santo [2] {P}

**vermiculum** R. T. Lowe, 1861 *Helix (Crystallus)*

Type locality: "sublapidibus ad villulam "La Dehesa" dictam prope Portum Orotavae Ins. Tenerife" [= under stones near the village of La Dehesa, Porto Orotava, Tenerife]

ANSP 97240 Tenerife [2] {P}  
 NHMUK 1875.12.31.313 Tenerife [1] {L/W}  
 NMINH 1896.42.37 Tenerife [2] {EW/EL}  
 NMW.1955.158.27924 Tenerife [8] {P}  
 USNM 197802 Tenerife [2] {P}

**vincta** R. T. Lowe, 1852 *Pupa (Leiostyla)*

Type locality: "in Madera" [= Madeira]

ANSP 97302 Madeira [1] {P}  
 BOOTH 407934-407956 Madeira [23] {W-W}  
 EXEMS 408/1911 Passa d'Aresa [A: approx. 50, B:28] {S/Ex}  
 HUIJ MOL 56259/2 Madeira, Sao Vicente [2] {P}  
 LIVCM.1965.141.60 Madeira [7] {P}  
 NHMUK 1875.12.31.77 Madeira [26] {L/W}  
 NMS Z.1961.61.594 Madeira [3] {P}  
 NMW.1955.158.01049 Madeira [14] {P}  
 NMW.1955.158.24259 Madeira [14] {W/Tomlin}  
 RMNH.MOL.334874 Madeira [3] {P}  
 SMF 52143/3 Madeira [3] {E/P}  
 UMZC Madeira [6] {L/W}  
 USNM 197844 Madeira [2] {P}

**vitrea** R. T. Lowe, 1855 var.  $\gamma$  of *gracilis* *Achatina* (*Ferussacia*)

Type locality: "in Monte Pico Branco, et in jugo inter Pico de Facho et P. de Castello Portus S<sup>tin</sup>" [=on Mount Pico Branco, and in the coll between Pico de Facho and P. de Castello, Porto Santo]

BOOTH 406517–406528 Porto Santo [12] {W-W}  
 HUIJ MOL 56240/2 Porto Santo [2] {P}  
 NHMUK 1875.12.31.51 Porto Santo [20] {L/W}  
 NMW.1955.158.27909 Porto Santo [6] {P}  
 UMZC Porto Santo [7] {L/W}  
 USNM 197985 Porto Santo [2] {P}

**vulcania** R. T. Lowe, 1852 *Helix* (*Leptaxis*)

Type locality: "in Insulis Desertis Majore et Minore" [= Deserta Grande and Bugio]

ANSP 97188 Northern Deserta [1] {P}  
 BOOTH 407669–407672 Deserta Grande [5] {W-W}  
 BOOTH 407673–407676 Chão [4] {W-W}  
 EXEMS 1720/1909/136 Madeira [3] {JL/EW}  
 NHMUK 1875.12.31.16 Chão [5] {L/W}  
 NHMUK 1875.12.31.36 Deserta Grande [3] {L/W}  
 NHMUK 1875.12.31.230 Deserta Grande [3] {L/W}  
 NHMUK 1875.12.31.234 N. flat Deserta Grande [4] {L/W}  
 NHMUK 1850.12.31.154-158 Deserta Grande [5] {TVW}

register date precedes publication date

NMW.1955.158.27879 Deserta Grande [1] {P}  
 RMNH.MOL.337605 Desertas Is [1] {?}  
 UMZC in CC Desertas {L/W}  
 USNM 197951 Deserta Grande [1] {P}  
 USNM 197964 N. Deserta Is.[1] {P}

**vulgaris** R. T. Lowe, 1831 var.  $\alpha$  of *portosanctana* *Helix* (*Helicella*)

Type locality: not differentiated from *portosanctana*

NHMUK 1948.7.8.62 Porto Santo [1] {S/nhm}

**vulgaris** R. T. Lowe, 1855 var.  $\alpha$  of *compacta* *Helix* (*Caseolus*)

Type locality: "(Madera re. et foss.)" [= recent and fossil on Madeira]

NMW.1955.158.27766 Caniçal [6] {P}

**vulgata** R. T. Lowe, 1852 *Helix* (*Plebecula*)

Type locality: "in Madera vulgatiss. In Insulis Desertis minus frequens. In Portu S<sup>to</sup> omnino deest" [= the most common in Madeira. Less frequent in the Deserta Islands. On Porto Santo completely missing]

BOOTH 407677–407687 Madeira [9] {W-W}  
 BOOTH 407688–407693 Bugio [6] {W-W}  
 EXEMS 1720/1909/47 Madeira [4] {JL/EW}  
 HUIJ MOL 56178/2 Madeira [2] {P}  
 NHMUK 1875.12.31.3 Madeira [28] {L/W}  
 NHMUK 1875.12.31.191 S. Deserta [15†] {L/W}  
 NHMUK 1875.12.31.195 Madeira [26†] {L/W}  
 NHMUK 1875.12.31.226 S. Deserta [8] {L/W}  
 NMS Z.1961.61 Madeira [2] {W-W}  
 NMW.1955.158.27938 Canical [6] {P}

NMW.1955.158.27939 Deserta Grande [4] {P} normal form  
 NMW.1955.158.27936 S. Deserta [3] {P}

NMW.1955.158.26836 & 26741 S. Deserta [5] {P} as var. *minor* [Designated Lectotype & Paralectotypes of *A. saxipotens* Wollaston in Teixeira et al., 2019]

NMW.1955.158.27935 Ilheo de Fora [4] {P} as var. *pulchra* Paiva

NMW.1955.158.24282 Northern Deserta [4] {P} as var. *deserticola* Wollaston

RMNH.MOL.295444 Madeira [1] {P} as var. *pulchra* Paiva  
 SMF 139599/2 Ilheo de Fora [2] {E/P}

USNM 197953 S. Deserta [2] {P}  
 UMZC in CC {L/W}

**webbiana** R. T. Lowe, 1831 *Helix* (*Helicogena*)

Type locality: "in montibus Insulae Portus S<sup>tu</sup>." [= mountains of Porto Santo]

BOOTH 407700–407704 Porto Santo [5] {W-W}  
 EXEMS 1720/1909/142 Madeira [2] {JL/EW}  
 NHMUK 1850.12.31.205-209 Porto Santo [5] {TVW}  
 NHMUK 1875.12.31.129 Madeira [10] {L/W}  
 NHMUK 1968543 Porto Santo [1] {W-W}  
 NMW.1955.158.27893 Porto Santo [1] {P}  
 RMNH.MOL.337595 Porto Santo [1] {P}  
 UMZC in CC Porto Santo {L/W}

**wollastoni** R. T. Lowe, 1852 *Helix* (*Iberus*)

Type locality: "in Portu S<sup>to</sup>" [= Porto Santo]

ANSP 97187 Porto Santo [1] {P}  
 BOOTH 407705–407712 P. de Conselho, Porto Santo [7] {W-W}  
 EXEMS 1720/1909/133 Madeira [2] {JL/EW}  
 EXEMS 1720/1909/134 Porto Santo [1] {JL/EW}  
 LIVCM.1965.141.262 Porto Santo [2] {P}  
 NHMUK 1875.12.31.201 Madeira [6†] {L/W}  
 NHMUK 1875.12.31.223 Porto Santo [10] {L/W}  
 NHMUK 1850.12.31.22-27 Porto Santo [6] {TVW}

register date precedes publication date

NMW.1955.158.24293 Porto Santo [2] {P}  
 NMW.1955.158.27947 Canical [6] {P}  
 NMW.1955.158.00857 Porto Santo [1] {P} as var. *subdubia* Wollaston  
 RMNH.MOL.337586 Porto Santo [2] {Lowe, RT}  
 USNM 198035 Porto Santo [1] {P}  
 UMZC in CC Porto Santo {L/W}

**wollastoni** R. T. Lowe, 1867 *Pupa* (*Alvearella*)

Type locality: uncertain, Ribiero do Inferno, Ribiero de João Delgado Boa Ventura on the north side of Pico Cassado

Only a single specimen was known at the time of description. Material below cannot be considered as potential syntypes.

NHMUK 1895.2.2.244-7 Madeira [4] {EW}  
 NHMUK 1895.2.2.291-7 Madeira [7] {EW}

**zonata** R. T. Lowe, 1831 subvar. 1 of *cheiranthicola* *Helix* (*Helicella*)

Type locality: not differentiated from *cheiranthicola*

## Appendix 2. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831

In 1911 among the material donated to the Royal Albert Memorial Museum, Exeter by Miss Shepherd (Edith Wollaston's sister) was a set of shells said to be those figured by or for Lowe's 1831 paper. These shells were transferred to the Natural History Museum London in 1948 and accessed under NHMUK 1948.7.8.

These shells were placed in new storage boxes and renamed at that time according to the then nomenclature and that remains on the boxes. Below we list and illustrate this material under Lowe's original name along with the original figure number and current name from MolluscaBase. The registration number 1984.7.8.32 is duplicated in the original register and is not an error here. The table is organised by registration number. The identifications of the imaged shells are by Klaus Groh. The seven plates of imaged shells are accompanied by reproductions of the two plates in Lowe (1831).

NHMUK 1948.7.8	Lowe 1831 name	Figure number	Current name
Pl.1 fig. 1 1948.7.8.1-3	<i>Helix (Cochlodonta) anconostoma</i>	TAB. VI. f.30	<i>Lauria cylindracea</i> (Da Costa, 1778)
Pl.1 fig. 2 1948.7.8.4	<i>Helix (Helicogena) actinophora</i>	TAB. V. f.14	<i>Actinella actinophora</i>
Pl.1 fig. 3 1948.7.8.5	<i>Helix (Helicella) lentiginosa</i>	TAB. V. f.25	<i>Actinella lentiginosa</i>
Pl.1 fig. 4 1948.7.8.6	<i>Helix (Helicodonta) arcta</i>	TAB. V. f.7	<i>Actinella arcta</i>
Pl.1 fig. 5 1948.7.8.8	<i>Helix (Helicella) polymorpha</i> var. <i>α irrasia</i>	TAB. VI. f.11	<i>Discula polymorpha polymorpha</i>
Pl.1 fig. 6 1948.7.8.9	<i>Helix (Helicella) polymorpha depressiuscula</i>	TAB. VI. f.12	<i>Discula polymorpha depressiuscula</i>
Pl.1 fig. 7 1948.7.8.10	<i>Helix (Helicella) polymorpha</i> var. <i>δ attrita</i>	TAB. VI. f.14	<i>Discula attrita</i>
Pl.1 fig. 8 1948.7.8.11	<i>Helix (Helicella) echinulata</i>	TAB. VI. f.19	<i>Hystricella echinulata</i>
Pl.1 fig. 1 1948.7.8.12	<i>Helix (Helicella) oxytropis</i>	TAB. VI. f.18	<i>Wollastonaria oxytropis</i>
Pl.2 fig. 2 1948.7.8.13	<i>Helix (Helicella) leptosticta</i>	TAB. V. f.24	<i>Caseolus leptostictus</i>
Pl.2 fig. 3 1948.7.8.14	<i>Helix (Helicella) dealbata</i> var. <i>α granulata</i>	TAB. V. f.21	<i>Caseolus hartungi hartungi</i> (Albers, 1852)
Pl.2 fig. 4 1948.7.8.15	<i>Helix (Helicella) compar</i>	TAB. V. f.23	<i>Discuella compar</i>
Pl.2 fig. 5 1948.7.8.16	<i>Helix (Helicella) rotula</i>	TAB. VI. f.10	<i>Callina rotula</i>
Pl.2 fig. 6 1948.7.8.17/18	<i>Helix (Helicella) polymorpha</i> var. <i>ε calcigena</i>	TAB. VI. f.15	<i>Discula calcigena</i>
Pl.2 fig. 7 1948.7.8.19	<i>Helix (Helicella) polymorpha</i> var. <i>γ arenicola</i>	TAB. VI. f.13	<i>Discula polymorpha arenicola</i>
Pl.2 fig. 8 1948.7.8.20	<i>Helix (Helicella) cheiranthicola</i>	TAB. VI. f.17	<i>Discula cheiranthicola</i>
Pl.3 fig. 1 1948.7.8.21	<i>Helix (Helicella) polymorpha</i> var. <i>ζ pulvinata</i>	TAB. VI. f.16	<i>Discula pulvinata</i>
Pl.3 fig. 2 1948.7.8.22	<i>Helix (Helicella) paupercula</i>	TAB. V. f.19	<i>Steenbergia paupercula</i>
Pl.3 fig. 3 1948.7.8.23	<i>Helix (Helicella) bicolor</i>	TAB. VI. f.22	<i>Lemniscia michaudi</i> (Deshayes, 1832)
Pl.3 fig. 4 1948.7.8.24	<i>Helix (Helicella) calva</i>	TAB. VI. f.26	<i>Caseolus calvus</i>
Pl.3 fig. 5 1948.7.8.25	<i>Helix (Helicella) consors</i>	TAB. VI. f.3	<i>Caseolus consors</i>
Pl.3 fig. 6 1948.7.8.26	<i>Helix (Helicella) compacta</i>	TAB. VI. f.2	<i>Caseolus innominatus compactus</i>

NHMUK 1948.7.8	Lowe 1831 name	Figure number	Current name
Pl.3 fig. 7 1948.7.8.27/28	<i>Helix (Caseolus) abjecta</i>	TAB. VI. f.1	<i>Caseolus abjectus</i>
Pl.3 fig. 8 1948.7.8.29	<i>Helix (Helicella) lurida</i>	TAB. VI. f.5	<i>Domunculifex littorinella</i> (Mabille, 1883)
Pl.4 fig. 1 1948.7.8.30	<i>Helix (Helicella) punctulata</i> var. <i>β solida</i>	TAB. VI. f.8	<i>Helicomela punctulata</i> (G.B. Sowerby, 1824)
Pl.4 fig. 2 11948.7.8.31	<i>Helix (Helicella) punctulata</i> var. <i>α setulosa</i>	TAB. VI. f.7	<i>Helicomela setulosa</i>
Pl.4 fig. 3 1948.7.8.32	<i>Helix (Helicodonta) fausta</i>	TAB. V. f.8	<i>Actinella fausta</i>
Pl.4 fig. 4 1948.7.8.32	<i>Helix (Helicella) depauperata</i>	TAB. VI. f.4	<i>Spirorbula depauperata</i>
Pl.4 fig. 5 1948.7.8.33	<i>Helix (Helicella) obtecta</i>	TAB. V. f.20	<i>Spirorbula obtecta</i>
Pl.4 fig. 6 1948.7.8.34	<i>Helix (Helicella) duplicata</i>	TAB. VI. f.20	<i>Hystricella bicarinata</i> (G.B. Sowerby, 1824)
Pl.4 fig. 7 1948.7.8.35	<i>Helix turricula</i>	TAB. VI. f.21	<i>Wollastonaria turricula</i>
Pl.5 fig. 1 1948.7.8.36	<i>Clausilia (Cochlodina) deltostoma</i> var. <i>β</i> [= <i>deltostoma</i> var. <i>α raricosta</i> subvar. <i>2 maritima</i> ]	TAB. VI. f.38	<i>Boettgeria deltostoma deltostoma</i>
Pl.5 fig. 2 1948.7.8.37	<i>Clausilia (Cochlodina) crispa</i>	TAB. VI. f.36	<i>Boettgeria crispa</i>
Pl.5 fig. 3 1948.7.8.38	<i>Clausilia (Cochlodina) deltostoma</i> var. <i>α</i> [= <i>deltostoma</i> var. <i>α raricosta</i> subvar. <i>1 portosanctana</i> ]	TAB. VI. f.37	<i>Boettgeria lowei</i> (Albers, 1852)
Pl.5 fig. 4 1948.7.8.39	<i>Clausilia (Cochlodina) exigua</i>	TAB. VI. f.39	<i>Boettgeria exigua</i>
Pl.5 fig. 5 1948.7.8.40/41	<i>Helix (Cochlodonta) calathiscus</i>	TAB. VI. f.34	<i>Leiostyla calathiscus</i>
Pl.5 fig. 6 1948.7.8.42/43	<i>Helix (Cochlodonta) monticola</i>	TAB. VI. f.33	<i>Leiostyla monticola</i>
Pl.6 fig. 1 1948.7.8.44	<i>Helix (Cochlodonta) cassida</i>	TAB. VI. f.35	<i>Leiostyla cassida</i>
Pl.6 fig. 2 1948.7.8.45	<i>Helix (Cochlodonta) sphinctostoma</i>	TAB. VI. f.32	<i>Leiostyla sphinctostoma</i>
Pl.6 fig. 3 1948.7.8.46	<i>Helix (Cochlodonta) cheilogona</i>	TAB. VI. f.31	<i>Leiostyla cheilogona</i>
Pl.6 fig. 4 1948.7.8.47/48	<i>Helix (Cochlicopa) melampoides</i>	TAB. VI. f.24	<i>Amphorella melampoides</i>
Pl.6 fig. 5 1948.7.8.49	<i>Achatina (Amphorella) tornatellina</i>	TAB. VI. f.23	<i>Amphorella tornatellina</i>
Pl.6 fig. 6 1948.7.8.50	<i>Helix (Cochlicopa) triticea</i> var. <i>β edentula</i>	TAB. VI. f.26	<i>Amphorella triticea</i>
Pl.6 fig. 7 1948.7.8.51	<i>Helix (Cochlicopa) triticea</i>	TAB. VI. f.25	<i>Amphorella triticea</i>
Pl.7 fig. 1 1948.7.8.52	<i>Cyclostoma lucidum</i>	TAB. VI. f.40	<i>Craspedopoma mucronatum</i> (Menke, 1830)
Pl.7 fig. 2 1948.7.8.53	<i>Helix (Helicogena) subtilis</i>	TAB. V. f.13	<i>Caracollina lenticula</i> (Michaud, 1831)
Pl.7 fig. 3 1948.7.8.55/56	<i>Helix (Cochlicopa) ovuliformis</i>	TAB. VI. f.27	<i>Cylichnidia ovuliformis</i>
Pl.7 fig. 4 1948.7.8.58	<i>Helix (Helicogena) erubescens</i>	TAB. V. f.3	<i>Leptaxis simia</i> (A. Férussac, 1832)
Pl.7 fig. 5 1948.7.8.59	<i>Helix (Helicogena) furva</i>	TAB. V. f.2	<i>Leptaxis furva</i>
Pl.7 fig. 6 1948.7.8.60	<i>Helix (Helicogena) phlebophora</i>	TAB. V. f.6	<i>Leptaxis nivosa</i> (G.B. Sowerby, 1824)
Pl.7 fig. 7 1948.7.8.61	<i>Helix (Helicogena) undata</i>	TAB. V. f.5	<i>Leptaxis groviana groviana</i> (Férussac, 1832)



Plate 1. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.





Plate 2. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.



Plate 3. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.



Plate 4. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.

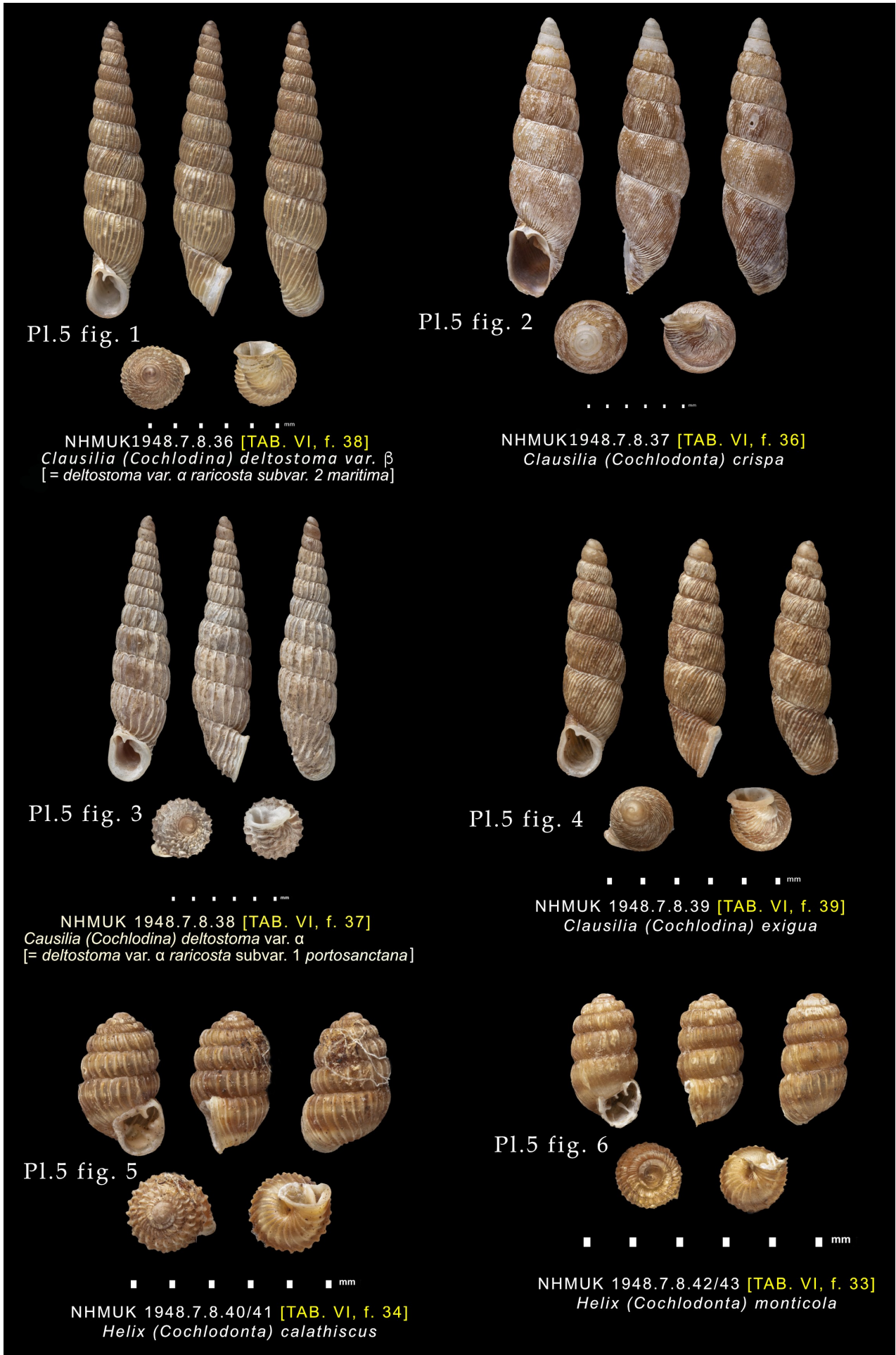


Plate 5. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.

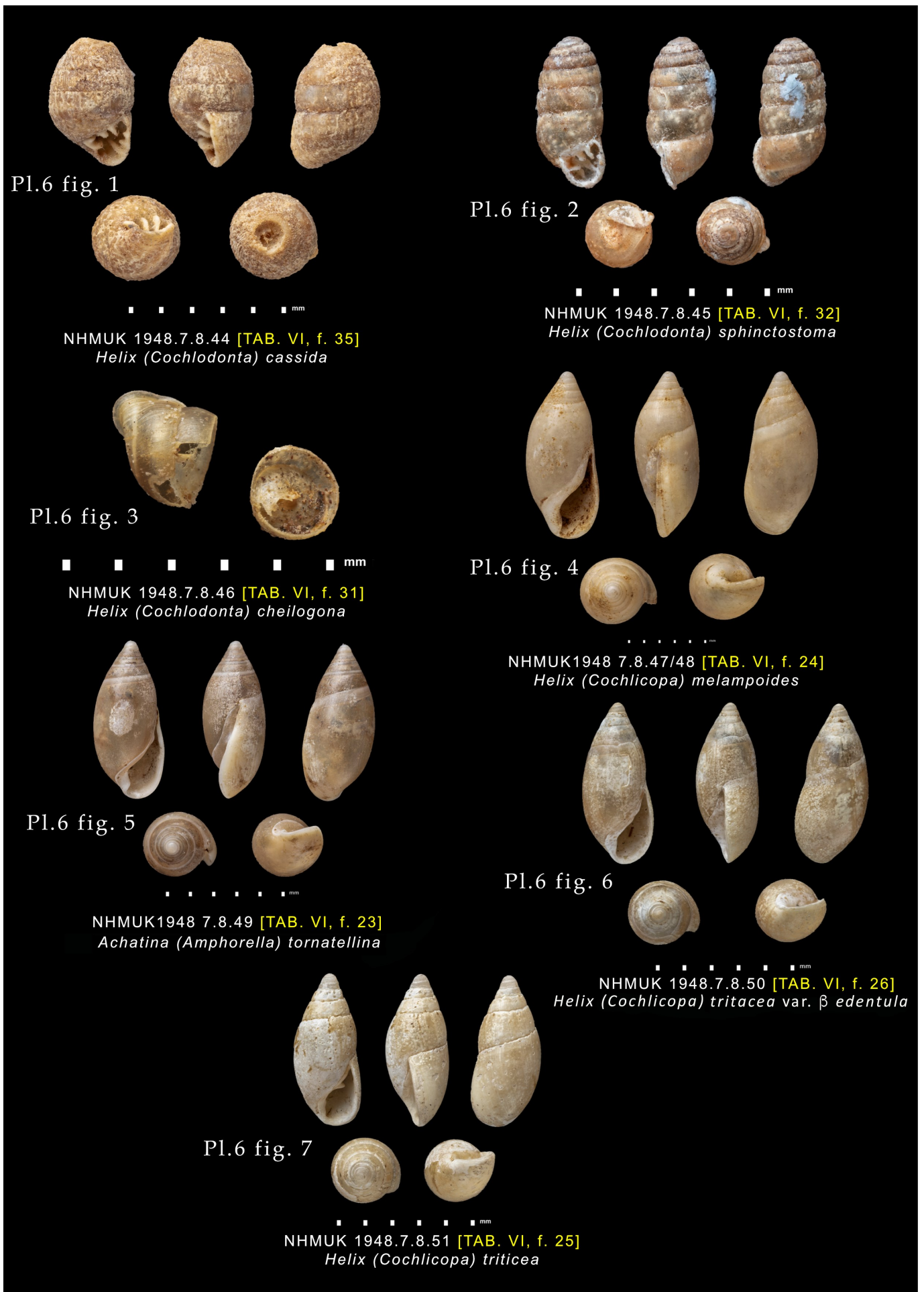


Plate 6. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.



Plate 7. Photographs of specimens from the 1948 accession of figured specimens from Lowe, 1831. Scale bar in 1 mm intervals.



Plate 8. Reproduction of TAB. V from Lowe, 1831.

## TAB. V.

- f. 1. *Vitrina Lamarekii*, *nob.*  $\left\{ \begin{array}{l} a, \text{ common state.} \\ b, \text{ state of the same in which the volutions are} \\ \text{visible internally to the apex.} \end{array} \right.$
- f. 2. *Helix furva*, *nob.* var. *a.*
- f. 3. — *erubescens*, *nob.* var. *a.*
- f. 4. — *sub-plicata*, *Sow.* [Testa ("viva" dicta) junior]
- f. 5. — *undata*, *nob.*
- f. 6. — *phlebophora*, *nob.*
- f. 7. — *arcta*, *nob.*—magnified.
- f. 8. — *fausta*, *nob.*—ditto.
- f. 9. — *arridens*, *nob.*—ditto.
- f. 10. — *Webbiana*, *nob.*—Two views of same individual.
- f. 11. — *Bulveriana*, *Wood.*—ditto, ditto.
- f. 12. — *tectiformis*, *Sow.*
- f. 13. — *subtilis*, *nob.*—magnified.
- f. 14. — *actinophora*, *nob.*
- f. 15. — *Porto-Sanctana*, *Sow.* var. *a. nob.*
- f. 16. —————, —. —  $\beta.$  *nob.*
- f. 17. — *pusilla*, *nob.*—magnified.
- f. 18. — *bifrons*, *nob.*
- f. 19. — *paupercula*, *nob.*—magnified.
- f. 20. — *obtecta*, *nob.*  $\left\{ \begin{array}{l} a, \text{ state in which it is found, coated with soil.} \\ b, \text{ the same cleaned.} \end{array} \right.$
- f. 21. — *dealbata*, *nob.* var. *a. granulata.*
- f. 22. *Helix maderensis*, *Wood.*
- f. 23. — *compar*, *nob.*—magnified.
- f. 24. — *leptosticta*, *nob.*—ditto.
- f. 25. — *lentiginosa*, *nob.*—ditto.
- f. 26. — *calva*, *nob.*





Plate 10. Reproduction of TAB. VI from Lowe, 1831.

## TAB. VI.

- f. 1. *Helix* *abjecta*, *nob.*  
 f. 2. ——— *compacta*, *nob.*  
 f. 3. ——— *consors*, *nob.*  
 f. 4. ——— *depauperata*, *nob.*  
 f. 5. ——— *lurida*, *nob.*  
 f. 6. ——— *nitidiuscula*, *Sow.*  
 f. 7. ——— *punctulata*, *Sow.*, var. *a.* *nob.*  
 f. 8. ——— ———, ———, — *β.* *nob.*  
 f. 9. ——— *lauta*, *nob.*  
 f. 10. ——— *rotula*, *nob.*  
 f. 11. ——— *polymorpha*, *nob.* var. *a.* *irrasa.*  
 f. 12. ——— ———, —. —. *β.* *depressiuscula.*  
 f. 13. ——— ———, —. —. *γ.* *arenicola.*  
 f. 14. ——— ———, —. —. *δ.* *attrita.*  
 f. 15. ——— ———, —. —. *ε.* *calcigena.*  
 f. 16. ——— ———, —. —. *ζ.* *pulvinata.*  
 f. 17. ——— *cheiranthicola*, *nob.* Subvar. 1. *zonata.*  
 f. 18. ——— *oxytropis*, *nob.*  
 f. 19. ——— *echinulata*, *nob.*—magnified.  
 f. 20. ——— *duplicata*, *nob.*—ditto.  
 f. 21. ——— *turricula*, *nob.*  
 f. 22. ——— *bicolor*, *nob.*—magnified.  
 f. 23. ——— *C. tornatellina*, *nob.*—ditto.  
 f. 24. ——— *C. melampoides*, *nob.*  
 f. 25. ——— *C. triticea*, *nob.* var. *a.* *biplicata.*—magnified.  
 f. 26. *Helix* *C. triticea*, *nob.* var. *β.* *edentula.*—magnified.  
 f. 27. ——— *C. ovuliformis*, *nob.*—ditto.  
 f. 28. ——— *C. gracilis*, *nob.*—ditto.  
 f. 29. ——— *C. lubrica*, *Mull.* var. *nob.*—ditto.  
 f. 30. ——— *C. anconostoma*, *nob.* var. *a.*—ditto.  
 f. 31. ——— *C. cheilogona*, *nob.*—ditto.  
 f. 32. ——— *C. sphinctostoma*, *nob.*—ditto.  
 f. 33. ——— *C. monticola*, *nob.*—ditto.  
 f. 34. ——— *C. calathiscus*, *nob.*—ditto.  
 f. 35. ——— *C. cassida*, *nob.*—ditto.  
 f. 36. *Clausilia* *crispa*, *nob.*—ditto.  
 f. 37. ——— *deltostoma*, *nob.* var. *a.*—ditto.  
 f. 38. ——— ———, *nob.* —. *β.*—ditto.  
 f. 39. ——— *exigua*, *nob.*—ditto.  
 f. 40. *Cyclostoma* *lucidum*, *nob.*—ditto.