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A KEY TO THE IDENTIFICATION
OF THE SHELLS OF THE LAND SNAILS OF READING AREA

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In the British Isles there are about 88 species of land snails and 20 species of slugs. The latter are not included in this key. Of these 88 species, about 57 have been recorded in Berkshire, of which I have collected 48 within ten miles of Reading, either in Berkshire or Oxfordshire. Of the remaining 31 species, some are northern and western, and some are local or rare.

A key does violence to a natural classification, and is solely intended for the identification of a limited number of species, and the characters may often have little or no taxonomic significance, but identification is the first requisite for further study.

To use the key, only a millimeter rule and a hand lens are necessary, except for the smallest species where the low power of the microscope may be needed. The size is given in millimeters, and is the larger measurement, whether this is the height as in fusiform shells, or the breadth as in discoid shells, or whichever is the greater in conoidal shells. (see figure). Authors names refer to the species, not the genus, and if the name is enclosed in brackets, he described the species under a different generic name.

The whorls of the shell descend as a gradually enlarging spiral tube, and the umbilicus is the termination of the (hollow) axis on which the whorls are wound. The umbilicus may be a round hole, or may be reduced to a mere slit or completely closed.

Viewed from above, the whorls form a descending clockwise (dextral) spiral in the great majority of species, and in a small minority of species, a counter-clockwise (sinistral) spiral. Extremely rarely a sinistral example of a normally dextral shell is found, and vice-versa.

On hatching from the egg, most snails have about one and a half whorls, which increase to the mature number, which may be up to ten or eleven in some genera, e.g. Clausilia. In immature shells the lip is thin, and remains so in some genera, while in others it becomes thickened at maturity and the mouth may develop "teeth" or folds. In Pomatias (not to be confused with Helix Pomatia) a shelly plate is attached to the back of the foot, and is a permanent part of the animal, which closes the mouth of the shell when the animal withdraws. This is the operculum. In Acme the operculum is horny not shelly. Non-operculate snails often form a film of mucus across the mouth of the shell when they withdraw temporarily, which is called the epiphragm, and prior to long periods of withdrawal at hibernation and aestivation, a thicker epiphragm, impregnated with calcareous granules, is formed, and this is white and opaque, and has a small hole left for respiration. On waking from the dormant period the epiphragm is pushed off by the emerging foot, and falls away.

The descriptions apply to empty, clean shells of recently dead animals. Old dead shells become white, opaque and lustreless by weathering, but for work on Pliocene and Holocene (and older) deposits one must learn to recognise them in this condition. Such recognition, and recognition of immature stages of such genera as Oxychilus, only comes with experience, and by comparison with a series of growth stages. The aspect of translucent shells containing the animal, is modified because the colour of the kidney and digestive gland, and colour and pattern of the mantle show through. Most species that are normally brown have a more or less frequent colourless variety (albinoid).

The shell is an important, easily studied, and often beautiful part of a mollusc, but it is only a part, and study of the animal itself, its anatomy, habits, ecology and distribution is equally necessary and important. Much remains to be learned of even our commonest species.

There is unfortunately no recent hand-book on British snails in print, though one can sometimes be obtained second-hand. There is however an excellent recent census and taxonomy of all the British land and fresh-water molluscs by A.E. Ellis (Ellis 1951) in the *Journal of Conchology*, and there is also a recent synopsis of British slugs. (Quick 1949).

Snails can be found at any time of the year, even in mid-winter and in drought, but the best time for collecting is in mild weather after recent rain, when they come out of their retreats and are on the move. They are to be looked for on herbage, under stones and logs, amongst dead leaves, on tree trunks and old walls, in marshy places, and in rubbish heaps. For the minute species, it is often more profitable to bring home a bag of beech-wood ground litter, moss or dead leaves from a promising spot, and search it at leisure, rather than hand pick in the field.

Snails sent by post, should be packed in a tin box with some damp (not wet) moss or blotting paper. Minute species should be put in a corked specimen tube enclosed in the box, with sufficient packing to prevent rattling.

I shall be very glad to hear of errors and ambiguities in the key, and will very willingly help to identify doubtful and difficult species.

In conclusion, I wish to thank Dr. Hora for invaluable help and advice in the preparation of this key, and to say that I alone must be held responsible for errors and shortcomings.

REFERENCES

- Ellis, A.E., 1926, British Snails, Oxford Clarendon Press. Out of print, but can sometimes be obtained second-hand. This is the most useful single volume work for the beginner, on the land snails and slugs.
- Ellis, A.E., 1951, Census of the distribution of British non-Marine mollusca. Journal of Conchology, 1951, Vol.23, Nos.6 and 7, Boycott Memorial Number. Price £1. from Mr. D.Nutt (A.G. Berry) 212, Shaftesbury Avenue, W.C.2.
- Geyer, D., 1927, Unsere Land- und Süßwasser Mollusken, Stuttgart. It contains very useful descriptions and figures of all the German shells, which include all the British and many others as well. Sometimes obtainable second-hand.
- Quick, H.E., 1949, Synopses of the British Fauna, No.8, Slugs (Mollusca) The Linnean Society of London, Burlington House, Piccadilly. Price 2s. 6d.
- Taylor, J.W., 1894-1921 Monograph of the Land and Fresh-Water Mollusca of the British Isles. This work was never completed. The volumes and parts published can sometimes be obtained second-hand, but are rather expensive.

KEY TO THE GENERA

- Operculum present 1
Operculum absent 2
- 1 (a) Operculum thick, shelly, shell conoid, 15mm. Pomatias elegans (Müller)
(b) Operculum horny, shell fusiform, 2mm. Acme fusca (Montagu)
- 2 Shell sinistral 3
Shell dextral 4
- 3 (a) 2mm., mouth with several teeth or folds Vertigo pusilla (Müller)
(b) 8mm. to 18mm., mouth with several teeth or folds Clausilia
(c) 8mm., mouth without teeth or folds, or with one small tooth Balea perversa (Linnaeus)
- 4 Height greater than breadth 5
Height less than breadth 8
- 5 Mouth toothed 6
Mouth not toothed 7
- 6 (a) 7mm., 3 teeth, not glossy, brown Abida secale (Draparnaud)
(b) 6mm., 3 teeth, glossy, brown Azeca goodalli (Ferussac)
(c) 3mm., 1 tooth, silky, raised brown rib outside the lip Pupilla muscorum (Linnaeus)
(d) 4mm., 1 tooth, silky, no raised rib outside the lip, which is white as in the three preceding species Lauria cylindrica (da Costa)
(e) 2mm., 4-9 teeth, glossy or silky, pump, brown Vertigo
(f) 2mm., 3 teeth, white, silky, slender Carychium
- 7 (a) 9mm. to 17mm., translucent amber to horn colour, lip thin, same colour as the shell Succinea
(b) 9mm. to 15mm., opaque dull brown, lip white, thickened Ena
(c) 6mm., translucent glossy brown, lip chestnut, thickened Cochlicopa
(d) 5mm., translucent, glossy, white, very slender, lip thin, subterranean Caecilioides acicula (Müller)
(e) 3mm., silky, brown, lip thin Columella edentula (Draparnaud)
- 8 Conoid 9
Discoid 14

- 4.
- 9 With spines, ridges or "bristles" 10
Without such 11
- 10 (a) 2mm., with regular transverse ridges produced into
spines at the periphery of the whorls, lip thin Acanthinula aculeata (Müller)
- (b) 8mm., beset with short curved bristles pointing
forwards, white rib within the lip, umbilicus Hygromia (part)
size of pin head
- (c) 7.5mm., beset with short straight bristles, not Ashfordia granulata
pointing forward, umbilicus size of pin point (Alder)
- 11 Shell banded 12
Shell not banded 13
- 12 (a) 12mm. to 16mm., white opaque, with a glossy brown
apex and a brown or purple band above the Helicella (part)
periphery and several beneath, white rib within
the lip
- (b) 21mm., purple brown with yellow flecks and thin
spiral lines (lens), a purple band above the Arianta arbustorum
periphery, lip white and expanded umbilicus a (Linnaeus)
slit
- (c) 18mm. to 21mm., pale yellow, pink or lavender, 5 to
0 dark bands, which may be separated, or two or
more fused together, lip expanded and either
white or dark, umbilicus closed Cepaea
- (d) 30mm., brown, indistinctly banded or with
flammular markings, surface wrinkled like a Helix aspersa
drying apple skin, lip white, umbilicus closed (Müller)
- 13 (a) 2mm., dark brown, not glossy, lip thin Pyramidula rupestris
(Draparnaud)
- (b) 3mm. to 3.5mm., brown glossy, lip thin; shaped Euconulus fulvus
like a peg top (Müller)
- (c) 19mm., whitish, silky lustre, often tinged with
reddish brown towards the mouth, defining a
peripheral pale streak, a white rib within the Monacha cantiana
lip, umbilicus small (Montagu)
- 14 Shell banded 15
Shell not banded 16
- 15 20mm., opaque white with glossy brown apex and
a brown or purple band above the periphery and
several below, white rib within the lip, Helicella (part)
umbilicus very large
- 16 Under 5mm. 17
Over 5mm. 18

- 5.
- 17 (a) 1.3mm., brown, lip not thickened, umbilicus large Punctum pygmaeum
(Draparnaud)
- (b) 2.5mm., white, lip thickened and reflexed, like a French horn, umbilicus half the width of the last whorl Vallonia
- (c) 3mm., colourless or greenish, transparent, glossy, umbilicus less than quarter the width of last whorl Vitreia crystallina
(Müller)
- (d) 4mm., brown, silky lustre, last whorl slightly expanded, umbilicus rather less than half the width of last whorl Retinella* (part)
- 18 (a) 6mm., translucent, greenish, glossy, last whorl much expanded, umbilicus closed Vitrina pellucida
(Müller)
- (b) 7mm., discoid but less flat than the preceding five species, glossy or silky Zonitoides
- (c) 7.5mm., brown, dull, with reddish flecks, strongly and regularly transversely ridged, lip thin, umbilicus large Discus rotundatus
(Müller)
- (d) 6mm. to 15mm., glossy or very glossy, amber, translucent, Oxychilus*
- (e) 8mm., silky lustre, otherwise very like Oxychilus Retinella* (part)
- (f) 13mm., not glossy, brown to horn colour, periphery bluntly keeled, white rib within the lip Hygromia (part)
- (g) 17mm., not glossy, brown with flammular markings, some well separated strong ridges, surface shagreened or granular, a sharp pronounced peripheral keel, lip white and reflexed Helicigona lapicida
(Linnaeus)

* These genera require some experience before they can be distinguished with certainty.

LIST OF THE SPECIES

Arranged in the order of the Census in the Journal of Conchology,
1951, Vol. 23, Nos. 6 and 7, 1951

<u>Species</u>	<u>Shape</u>	<u>Size</u> <u>in mm.</u>	<u>Other characters</u>
<u>Pomatias elegans</u> (Müller)	Conoid	15	Dull yellow, mouth round, interior of shell bright yellow, operculate. Calcicole
<u>Acme fusca</u> (Montagu)	Fusiform	2	Glossy brown, operculate. In damp leaves.
<u>Carychium minimum</u> (Müller)	Narrowly conoid	2	White, nearly smooth, 5 whorls, more tumid than next, mouth 3-toothed. In damp places.
<u>Carychium tridentatum</u> (Risso)	Narrowly conoid	2.5	White, finely striated, 5½ whorls, less tumid than last, mouth 3-toothed, in drier places.

<u>Succinea putris</u> (Linnaeus)	Conoid	15	Amber or horn colour, translucent. In damp places.
<u>Succinea pfeifferi</u> (Rossmassler)	Conoid	10	Amber or horn colour, translucent. In reeds and rushes and marshy places.
<u>Azeca goodalli</u> (Ferussac)	Conoid- fusiform	6	Brown, glossy, mouth 3-toothed. In damp moss and leaves in woods.
<u>Cochlicopa lubrica</u> (Müller)	Conoid- fusiform	6	Brown, glossy, mouth not toothed. In damp moss and leaves.
<u>Cochlicopa minima</u> (Siemaschko)	Conoid- fusiform	5	Like <u>lubrica</u> , but more slender. In drier places.
<u>Pyramidula rupestris</u> (Draparnaud)	Conoid	2	Dark brown. On dry rocks and walls.
<u>Columella edentula</u> (Draparnaud)	Fusiform	3	Brown, like <u>Pupilla</u> but more slender and mouth not toothed. In damp places.
<u>Vertigo antivertigo</u> (Draparnaud)	Barrel- shaped	2	Dextral, brown, glossy, mouth 8 or 9-toothed. In marshy places.
<u>Vertigo substriata</u> (Jeffreys)	"	2	Dextral, silky lustre, finely striated, mouth 6-toothed. Under stones, leaves, in moss and grass in damp places.
<u>Vertigo pygmaea</u> (Draparnaud)	"	2	Dextral, brown, silky, mouth 5-toothed. Under stones, logs, and leaves in damp and dry places.
<u>Vertigo moulinsiana</u> (Dupuy)	"	2.3	Dextral, pale brown, silky, mouth 5-toothed. Our largest <u>Vertigo</u> . On reeds and rushes.
<u>Vertigo pusilla</u>	"	2	Sinistral, pale brown, silky, mouth 6-toothed. In moss, ivy and leaves on dry walls and banks. Local.
<u>Lauria cylindrica</u> (da Costa)	Fusiform	4	Brown, silky, mouth 1-toothed. On ivy- covered wall, in crevices in bark, and in moss and stones.
<u>Pupilla muscorum</u> (Linnaeus)	Fusiform	3	Brown, silky, mouth 1-toothed, with a raised external brown rib. Under stones and leaves, and in grass in dry places.
<u>Abida secale</u> (Draparnaud)	Conoid- fusiform	7	Dull brown, mouth 8 or 9-toothed. In grass and low herbage on dry hill-sides.
<u>Acanthinula aculeata</u> (Müller)	Conoid	2	Shell beset with ridges produced at the periphery into backwardly directed spines, lip thin. In dead leaves in woods.
<u>Vallonia costata</u> (Müller)	Discoid	2.5	White, opaque, transversely ridged, mouth expanded, thickened. Like a French horn. In grass, under stones in dry and moist places.
<u>Vallonia pulchella</u> (Müller)	Discoid	2.5	Like <u>costata</u> but smooth. In damp places.
<u>Vallonia excentrica</u> (Sterki)	Discoid	2.25	Like <u>pulchella</u> , but last whorl more expanded. In dry places.

<u>Ena obscura</u> (Müller)	Conoid	9	Dull brown, often coated with mud, lip thickened white. Hedge banks, moss, and on tree trunks.
<u>Ena montana</u> (Draparnaud)	Conoid	15	Like <u>obscura</u> , but much larger. In old woods in leaves on ground, and on tree trunks. Local
<u>Clausilia laminata</u> (Montagu)	Fusifiform	18	Sinistral, rather smooth and glossy, mouth toothed. Woods, tree-trunks, hedges. Calcicole.
<u>Clausilia bidentata</u> (Strom)	Fusifiform	8	Sinistral, not glossy, striated, mouth toothed. Woods, tree-trunk, hedges, dry walls.
<u>Clausilia rolphi</u> (Turton)	Fusifiform	12	Sinistral, not glossy, strongly striated mouth toothed. Hedges, copses, woods. Local.
<u>Balea perversa</u> (Linnaeus)	Fusifiform	8	Sinistral, silky lustre, lip thin. Like an immature <u>Clausilia</u> . Crevices in bark and walls.
<u>Caecilioides acicula</u> (Müller)	Fusifiform	5	White, very slender. No eyes. Subterranean, under turf and boulders.
<u>Helicigona lapicida</u> (Linnaeus)	Discoid	17	Shell thick, pale brown or horn colour, with flammular markings, surface shagreened (lens) periphery sharply keeled, lip thickened, white. Crevices in trees, rocks and walls.
<u>Arianta arbustorum</u> (Linnaeus)	Conoid	22	Dark brown, usually with a purple band just above the periphery, surface grooved by fine incised spiral lines (lens) crossed by stronger striae, lip white and reflected. Woods, hedges and copses.
<u>Cepaea hortensis</u> (Müller)	Conoid	18	Pale yellow, pink, or lavender, with five or fewer dark bands which are often more or less fused together, lip white and reflected. Hedges, copses, gardens and waste places.
<u>Cepaea nemoralis</u> (Linnaeus)	Conoid	21	Like <u>hortensis</u> , but lip dark brown. In similar sites, and on sand-dunes.
<u>Helix aspersa</u> (Müller)	Conoid	32	Brown, often indistinctly banded, with flammular markings, surface wrinkled like the skin of a drying apple. Crevices in walls, hedges, quarries, rubbish heaps, sand-dunes. The common garden snail.
<u>Hygromia striolata</u> (C.Pfeiffer)	Discoid	13	Brown or horn colour, no bristles except when very young, periphery bluntly keeled, often with a paler band, white rib within the lip. Hedges, waste places, gardens.
<u>Hydromia hispida</u> (Linnaeus)	Conoid	8	Brown or horn colour, beset with forwardly directed curved bristles, periphery not keeled but sometimes with a pale band, white rib within lip. Hedges, woods, gardens.
<u>Ashfordia granulata</u> (Alder)	Conoid	8	Pale horn colour, thin, beset with straight bristles not pointing forward, umbilicus pin-point. Hedges, copses, ditch banks.

<u>Monacha cantiana</u> (Montagu)	Conoid	19	Whitish, rather thin, often tinged with reddish brown towards the lip defining a paler peripheral band, a white rib within the lip. Hedges, copses, waste places.
<u>Helicella caperata</u> (Montagu)	Discoid- conoid	12	Brown, thick, closely and strongly striated, often with bands and flammular markings, apex glossy brown, white rib within lip. On exposed grassy places and margins of arable land.
<u>Helicella gigaxii</u> (L. Pfeiffer)	Discoid- conoid	12	Like <u>caperata</u> , but spire less raised, striae less coarse, and umbilicus a little smaller. In similar places.
<u>Helicella vergata</u> (da Costa)	Conoid	16	Opaque white, banded with purple or brown, apex glossy brown, white rib within the lip. In similar sites to the two preceding species.
<u>Helicella itala</u> (Linnaeus)	Discoid	20	Similar to the preceding members of the genus, but larger and much flatter, with umbilicus large, exposing the spire. In similar sites.
<u>Punctum pygmaeum</u> (Draparnaud)	Discoid	1.3	Brown, finely striated, lip not thickened. Woods, fields, under stones and logs, and in dead leaves.
<u>Discus rotundatus</u> (Müller)	Discoid	7.5	Brown, strongly and regularly ridged flammular markings, lip thin, umbilicus large. Ubiquitous.
<u>Euconulus fulvus</u> (Müller)	Conoid	3.5	Brown, glossy, shaped like a peg top, umbilicus small. In damp moss, dead leaves, under stones and logs in woods, fields and marshes.
<u>Vitrea crystallina</u> (Müller)	Discoid	3	Colourless or greenish, transparent, glossy, umbilicus pin-point. In grass, dead leaves, under logs in damp or marshy places.
<u>Oxychilus draparnaldi</u> (Beck)	Discoid	15	Smoky brown or amber, translucent, silky to glossy, last whorl somewhat expanded. Waste places, hedges and woods, but commoner in gardens.
<u>Oxychilus cellarius</u> (Müller)	Discoid	10	Horn colour, very flat above, last whorl increasing regularly. Waste places, hedges, woods, gardens.
<u>Oxychilus alliarius</u> (Müller)	Discoid	6.5	Horn colour or amber, very glossy. The animal smells strongly of garlic, especially if irritated or crushed. In similar places to <u>cellarius</u> but less common in gardens.
<u>Oxychilus helveticus</u> (Blum)	Discoid	8	Amber to horn colour, very glossy, less flattened than <u>cellarius</u> and <u>alliarius</u> . Smells of garlic, but less strongly than <u>alliarius</u> . In similar sites.

<u>Retinella nitidula</u> (Draparnaud)	Discoid	8	Amber or horn colour, silky lustre, last whorl slightly expanded like <u>Oxychilus draparnaldi</u> , umbilicus relatively larger than in the four preceding species. In similar sites.
<u>Retinella pura</u> (Alder)	Discoid	4	Horn colour or white, otherwise like a miniature <u>nitidula</u> . In similar sites.
<u>Retinella radiatula</u> (Alder)	Discoid	4	Brown to horn colour, distinctly and regularly striated, umbilicus smaller than in <u>pura</u> . In damp woods and marshy places.
<u>Zonitoides excavatus</u> (Alder)	Discoid	7	Horn coloured, irregularly striated, umbilicus more than half the diameter of the last whorl, exposing the spire. In dead leaves and under logs. Calcifuge.
<u>Zonitoides nitidus</u> (Müller)	Discoid	8	Dark brown, rather glossy, finely and irregularly striated, umbilicus less than half the diameter of the last whorl. In damp places near ditches and streams.
<u>Vitrina pellucida</u> (Müller)	Conoid-discoid	6	Transparent, greenish, thin, last whorl much expanded, umbilicus closed. In damp and dry places, under leaves and logs, in moss and low herbage.

GLOSSARY

Aestivation	becoming dormant in the summer.
Albinoid	lacking pigment, and therefore white or colourless.
Calcicole	restricted to calcareous ground.
Calcifuge	restricted to non-calcareous ground.
Conoid	conical.
Discoid	flattened like a disc.
Epiphragm	A film of mucus across the mouth of a shell.
Flammular	reddish more or less flame like markings.
Fusiform	spindle or cigar shaped.
Holocene	the latest geological period, in which the deposits contain only living or recently extinct species.
Lip	the edge of the mouth of a shell.
Mantle	the thin roof of the lung cavity which occupies the last whorl of the shell.
Operculum	a horny or shelly plate attached to the back of the snail's foot, and is a permanent part of the animal.
Pleistocene	The geological period preceding the Holocene.
Striated	marked by shallow grooves, giving a wrinkled appearance to the shell.
Taxonomic	classificatory.
Umbilicus	the termination of the (hollow) axis on which the whorls are wound, which is seen at the base of the shell. It may be a round hole or contracted to a slit, or completely covered.